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An analysis of electricity theft: The case study of KwaXimba in eThekwini, KwaZulu-Natal

By

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A dissertation submitted in fulfilment of the requirements for the degree of

Master of Social Science

In Criminology and Forensic Studies

Faculty of Humanities, Development and Human Sciences

Supervisor: Dr S.M Mkhize

December 2017

DECLARATION

This hereby confirms that this dissertation is my own work, it has not been submitted to any other institution. The works of others have been cited accordingly and a comprehensive list of such references has been provided.

Signature of candidate  On the 15 day of December 2017

ABSTRACT

The illegal consumption of electricity is deemed a criminal offence that is punishable. Even so, there exist high levels of theft of electricity till date. Illegal electricity can be dangerous in nature due to the nature of its installation. These connections are done by non-expert persons and some of the safety precautions are not followed through. As a result, communities suffer the consequences. This study intended to identify the motivations behind the illegal consumption of electricity in the KwaXimba community. An investigation is also done on what are the effects of the theft of electricity on the community. This was a deliberate attempt to uncover whether communities are aware of such dangers. Eskom is aware of such and has a number of preventative measures against the theft of electricity, in place. This study aimed to investigate, the strategies in place in an attempt to curb electricity theft.

This study investigated the illegal connections of electricity in KwaXimba. The main objective of the study was to determine the major cause of electricity theft in KwaXimba, the approaches implemented to reduce the rise in electricity theft moreover, it aimed to evaluate the effects electricity theft has on electricity supply and the community. In order to achieve this, the qualitative approaches were used. Interviews were conducted on participants that were purposively selected. The data was then analysed thematically.

Findings of this study revealed that the issue of electricity theft in the community was a structural issue. The issue of theft is normalised within the community. The study revealed that individuals steal electricity based on personal decisions and preferences. Another factor was that it is acceptable to steal electricity in the community. The minority of the members stole electricity because they had bought houses that had readily stolen electricity.

The researcher deduced some recommendations from the study, for one, an electrification program should be made to save both Eskom Revenue from illegal consumption and to save the lives of the community members especially the vulnerable group, children who fall victims to exposed cables. Also, organisations such as community safety and Eskom should formulate programs that are aimed towards de-normalising the act of electricity theft in the community of KwaXimba and across other communities

ACKNOWLEDGEMENTS

Give thanks to the LORD, for he is good! His faithful love endures forever.

1 Chronicles 16:34

I would firstly like to thank the Lord my God for granting me the strength and all support structures that have led to the completion of this Master Thesis. I am forever grateful lord.

I would like to pass my humble gratitude to Dr Mkhize, My supervisor, the man who has been there through every detail in this study. Your patience and dedication to your students is immeasurable. Thank you for the wisdom, patience and time sacrificed for this study. Thank you Doctor.

Mandisa Dlamini and Nondumiso Mbatha, thank you for your support

Thamy, thank you for the provision of editing services and well as the support.

I would like to thank the University of KwaZulu Natal for accepting me in this University and providing fee remission for the duration of the year.

Thank you to NRF for the funding granted to me for the completion of this study.

I would like to thank the Criminology Department for constructive criticism provided to me at the colloquium.

Finally, I would like to thank the members of KwaXimba community for participating in this study.

DEDICATION

This study is dedicated to my son Lwamukelo Phila Mbanjwa. It is also dedicated to the community of KwaXimba as well as Eskom. Members affected the effects of electricity theft wether financially (Eskom) or socially (Community)

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

Crime is a global phenomenon. It exists across all social classes. Both developed and underdeveloped countries have fallen victim to the cycle of crime. South Africa is no exception. There exist elevated levels of crime. The rural community although neglected, forms part of areas where criminal activities take place. The issue of lack of electricity in their areas is central to this study. According to Bekker, Eberhard, Gaunt and Marquard (2008), electrification of rural areas began in 1990 in South Africa. However, the program would reach challenges such as lack of capital and skills which led to the decreased speed in the electrification of households in South Africa. Kolver (2013) believes that "33.5% of households in formal rural areas and 17.3% of households in tribal areas did not have access to mains electricity." To connect themselves to the grid, these communities tend to resort to illegal means of connecting power.

Eskom is the main source of power in South Africa. They have made attempts to electrify the community, part of their targets is to have most of South Africa electrified by the year 2030. Despite great efforts on their part, they have reached a backlog hence some communities still do not have power. The socio-economic status of a community can also contribute to the act of electricity theft among communities. According to Depura, Wang, Devabhaktuni and Gudi (2014), socio-economic conditions of the customer contribute greatly to electricity theft. That is, those who cannot afford resort to stealing electricity from the grid by means of illegal connections. Eskom associates economic conditions to illegal connections while they associate metre tempering with greed and opportunity (Depura et al. 2014).

The effects of power theft are dire. Not only to the victims but to the perpetrators as well. The effects are dire in a sense that when one party steals electricity Eskom is affected in monetary returns. Therefore, Eskom (2016:3) states that "electricity theft and the resultant energy losses

suffered by Eskom and municipalities contribute to increased electricity tariffs." These tariff hikes do not only affect those who are stealing electricity, but the whole community. The resultant consequence is that food prices and other essential commodities also rise. Also, households that have illegal connections have a greater tendency to abuse the energy than those that buy. This is a vicious cycle that is caused by electricity theft.

Electricity theft affects the financial status of the producer of electricity which is Eskom. Eskom (2016) reported in the Operation Khanyisa document that they lost an amount of about R15.4bn in the budget year of 2016. This loss is in terms of the Non-Technical loss of energy, that is, the energy that is lost due to illegal connections, meter tempering and the buying and selling of illegal electricity prepaid and avoiding the payment of electricity bills. The effect of such is that it does not allow for Eskom to be able to predict the demand of electricity in a country, as a result, one finds that the country experience an issue of power shortages due to the overloading of the power system. Sigauke, Verster and Chikobvu (2013) attests that "accurate prediction of daily peak load demand is very important for decision makers in the energy sector because this helps in the determination of consistent and reliable supply schedules during peak periods."

Socially, the theft of electricity also affects communities. To illustrate, eNCA (2015) reported that a woman was electrocuted to death by an illegally connected cable in the Stanger Shacks at the KwaDukuza municipality.

Energy and revenue losses have been receiving increasing focus within the business. Eskom is tracking these losses continuously and, where necessary, projects are initiated to address the problem. Currently, Eskom is running a national Energy Losses Management Programme (ELP) with the primary objective of managing the losses trend. This programme addresses the energy losses problem holistically from a technical, commercial, and social perspective. Eskom, also has under its Lost Energy Recovery Programs a project named "Operation Khanyisa" (Eskom, 2014).

1.2 Background of the study

The transition from the apartheid Era to a more democratic South Africa has benefited the South African community a great deal. It is however unfortunate that some of the communities are still experiencing misfortunes they experienced during the era of oppression. Rural communities are at the top of the hierarchy when it comes to service deprivation. As such, this study focuses on the analysis of electricity dynamics within the Rural KwaXimba community. This is not to say that electricity theft is not an issue that exist only in rural areas and it is not confined to South Africa.

Electricity theft is not only a South African issue. Internationally, billions are lost each year due illegal connections (Anderson and Fuloria, 2010). The act of electricity theft in rural areas can be associated with poor services delivery and socio-economic circumstances of a given community. Service delivery within rural communities is said to be low in frequency. As a result, one finds that there still exist communities that do not have access to basic needs such as electricity, water and sanitation. Rural communities are at the outskirt of communities, as such, economic activities within these areas is low in density. As a result, some areas of the community have illegally connected electricity as a source of energy for their households. To illustrate, "Lower illiteracy rate in under developed communities has greater impact on illegal consumers" (Sreenadh, Depuru, Wang, Devabhaktuni and Gudi, 2010: 3).

For this paper, one will place the focus on illegal electricity connections and meter fixing as a form of electricity theft. Illegal electricity connections are dangerous in nature and pose a danger for and to the community.

1.3 Problem Statement

Why people may be prompted to steal electricity is the main issue that the paper seeks to establish. It is estimated that South Africa loses about 250 million per year due to the issue of electricity theft (Doorduin, Mouton, Herman and Beukes, 2004). Vast researches show the preventative strategies towards the combat of electricity theft. Secondary to this, more existing knowledge is on the urban

context were main emphasis is on industrial theft of electricity i.e. none payment of bills, illegal connections. There exists a gap in literature in terms of the causes of rural electricity theft in South African literature. As such, the paper aims to address this shortfall within academic literature. Illegal electricity connections are dangerous in nature and pose a danger for and to the community. The urgency for communities to have illegal electricity as their main source of energy stems from somewhere and lacks justification in current literature. As a result, an investigation as to what prompts individuals or communities towards the illegal act of electricity theft is essential.

1.4 Motivation

The study is motivated by the observed lack of authentic electricity connections within the community of KwaXimba. It is because of the dangerous nature of the connection in the area that the researcher was prompted to undertake a study in the field of illegal electricity consumption. Non-technical losses of power have led to extreme load shedding in recent years (i.e. 2008). The community is deprived of the quality of life that is ensured by access to electricity. Also, upon taking interest in the topic, the researcher soon found more motivation as there is no/ limited literature around the issue of electricity theft in the South African rural community. The researcher aims to contribute knowledge about the issue on academic arenas.

1.5 Aim

The aim of this study is to analyse the illegal utilisation of electricity within the KwaXimba community.

1.6 Objectives of the study

The objectives of this are to:

- Determine the major cause of electricity theft in KwaXimba.
- Determine the approaches implemented to reduce the rise in electricity theft.
- evaluate the effects electricity theft has on electricity supply and the community

1.7 Key research questions

The questions that are driving this research are:

- What are the major causes of the in electricity theft?
- What are the approaches used to reduce electricity theft?
- What are the effects of electricity theft on electricity supply and the community?

1.8 Significance of the study

This study is important because it will contribute to the body of knowledge on the issues of electricity theft in the rural community. It will provide Eskom with some empirical data around the issue. The research is an academic representation of the community's perceptions of electricity theft and the prevention strategies they have seen within their communities. It will also shed light to the local counsellor on the seriousness of the issue of electricity within the community of KwaXimba.

1.9 Chapter sequence

CHAPTER 1: This chapter is the blue print of the study, it informs the reader about what is to be encountered within take. It takes one through the aims of the dissertation, the objectives, the problem statements as well as the main questions of the study.

CHAPTER 2: This is the section that discusses in detail issues around electricity theft, the main objectives are addressed with supporting literature.

CHATPER 3: This section is a description of the academic technicalities that were applied in obtaining data for the study. It describes the research design as well as the methods that were used to conduct this research. This chapter explain the sample size, data collection technics, study area as well as the method of analysis. Ethical issues as well as limitations to the study are discussed in this section.

CHAPTER 4: This is the theoretical framework that is used to substantiate the research. Here, the researcher utilised the General Strain Theory as well as the Rational Choice Theory. Theory forms foundation to any academic deductions hence this section links literature with a theoretical framework that guides it.

CHAPTER 5: This is the sections that presents and analyses the data that was obtained during interviews. Raw data is presented and analysed, linking it with existing literature and theoretical framework. This section reflects where society stands in relation to electricity theft. The main research questions are addressed in this section through empirical data.

CHAPTER 6: This is the recommendations section. It provides the reader with possible solution to the issue of electricity theft, these stem from both the participants and the researcher. This section is also a conclusion and sum up of the dissertation.

1.10 Conclusion

A brief outline of the study has been depicted in this section. The aims, objective and background are to illuminate to the reader what to expect within the paper. Theoretical justifications and Methodological choices and considerations are discussed in-depth within the dissertation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The purpose of this literature review is to establish the exact factors that outline the concept of 'electricity theft.' It sought to understand the causes of electricity theft and explore the depth of the challenge in South African rural areas. It also sought to outline how electricity theft has been dealt with across various continents and how various nations are dealing with it as a crisis. The study explores several cases across the world to help establish that electricity theft is not just a South African problem and as such demands attention and consideration. This would help in identifying the gaps that exist in socio-economic system and service delivery which are in return identified to be feeding the problem of electricity theft. The literature review also acknowledges that electricity theft is not only a crime committed by households but also by businesses, shops, and industries.

2.2 Conceptual clarification

It is important to understand the various terms that are key in any study. This helps to comprehend the key ideas that are guiding the study. This research study seeks to unpack the various issues surrounding electricity theft in South African rural areas. However, electricity theft in South Africa, is not just a rural challenge and neither is it a crime committed in households only. According to Clarke (2016), "Electricity theft in South Africa is an ongoing challenge and takes many forms. Not only are there many incidences of residents in un-electrified areas stealing power through illegal connections, but a considerable number of households and businesses with formal reticulation are also taking what they can without paying for it." Therefore, there is need to understand these many forms of electricity theft and define them to have a proper guideline of the study. Thus, various forms of electricity theft which will be defined include electricity fraud, illegal connections, billing irregularities, and unpaid bills. Other terms which will also be defined include rural crime. This will help to contextualize and interpret the study since its focus is on electricity

theft in rural areas. The paper however focuses on illegal connections. This section will only define these terms and further details on the effects of electricity theft will be explored in detail in another section in the review.

2.2.1 Defining Electricity Theft

According to Abdullateef (2012:1), electricity theft is the "practice of using electricity from the utility company without the company's authorisation or consent." In other words, the term 'electricity theft' refers to the non-technical loss of energy through the criminal practice of stealing electrical power. Electricity theft is commonly accounted for as the difference between the amounts of energy purchased (measured at transmission network) and the amount of energy sold to all customers. Technical losses of energy refer to energy losses in the electrical networks due to the flow of the current or energisation of the system. Electricity theft occurs in different forms which include; fraud (meter tampering and bypassing), stealing (illegal connections); billing irregularities and unpaid bills (Smith, 2004). As of 2007, Eskom's non-technical losses amounted to a total of 6105GWh (Yelland, 2008). Though this study if focusing on electricity fraud, definitions of other different ways of electricity theft will be defined. The various types of electricity theft are defined below:

2.2.1.1 Electricity Fraud

Electricity fraud is defined as "a dishonest and illegal use of electricity equipment or service with the intention to avoid billing charge" (Dangar and Joshi, 2015). This kind of fraud usually occurs when consumers deliberately deceive utility companies and it most commonly occurs through tampering with the meter so that a lower reading is displayed.

2.2.1.2 Billing irregularities

Billing irregularities occur in different ways which incorporate the inaccurate meter reading taken by bribed servicemen and intentional fixing of the bill by offices in exchange of illicit payments from the consumers (Dike et al., 2015). For example, power authorities may be ineffective at measuring the amount of electricity used such that the amount of electricity used is given a much higher or much lower figure.

2.2.1.3 Illegal connections

Illegal electricity connections are connections that are made without the authorisation or permission of an electricity service provider of a particular area. Smith (2004) defines illegal connections as rigging a line from the power source to where it is needed thus bypassing meter. For instance, in South Africa, illegal connections are those connections which are made by households or companies without the permission or approval of Eskom.

2.2.1.4 Meter tampering

Meter tampering is another form of electricity theft in South Africa which refers to the bypassing of the electricity meter provided by the service provider to avoid paying for electricity use.

2.2.1.5 Unpaid bills

Unpaid bills refer to the failure or omission by an individual to pay for a particular service which has or is being rendered unto him/her. In this case, non-payment of electricity bills is a matter of concern being referred to. Various people and organisations evade paying electricity bills in South Africa. Mkhwanazi (1999) referred to this trend of not payment of electricity bills in South Africa as a "culture of non-payment."

2.2.1.6 Rural Crime

Rural crime is a crime that takes place in a rural location. This includes agricultural, wildlife and rural community crimes. Many people have varying definitions of the term "rural" although, however, in the context of both developing and developed countries the term rural refers to any area located outside the economic hub (NAL, 2017). This means that the definition of rural in one country may not apply in another. For some people, if there is an electricity connection or tap water then the place is not rural. However, according to Marshall and Johnson (20017: 7), the many types of rural areas "range from commuter settlements on the fringe of large towns to remote farms many miles from the nearest urban settlement because it has been suggested that the demography of an area represents just one of four dimensions of the meaning of rurality. The other three being economic, social structural and cultural." While the volume of crime remains lower in rural areas than urban areas, their consequences are equally impactful. The factors constituting to electricity theft in rural areas are explained in the form of a case study as presented below.

2.2.1.6 Non-technical loss

Non-Technical losses of electricity is a form of electricity theft. The loss of power is due to electricity being received by consumers while it is not accounted for.

Navani (2012: 1) states that " *The most probable causes of Non -Technical Losses (NTL) are: (i) Tampering with meters to ensure the meter recorded a lower consumption reading (ii) Errors in technical losses computation (iii) Tapping (hooking) on LT lines (iv) Arranging false readings by bribing meter readers (v) Stealing by bypassing the meter or otherwise making illegal connections (vi) By just ignoring unpaid bills (vii)Faulty energy meters or un-metered supply (viii) Errors and delay in meter reading and billing (ix) and lastly, Non-payment by customers"*

Losses are computed using appropriate load-flow studies simulated under MAT LAB environment. Although some electrical power loss is inevitable, steps can be taken to ensure that it is minimized. Several measures have been applied to this end, including those based on technology and those that rely on human effort and ingenuity.

2.3 Electrification of Informal and Rural areas

According to Gaunt et al. (2012: 1), "Electrification can be grouped conveniently into three sectors: rural electrification, formal urban electrification and the electrification of informal urban settlements." The informal urban settlement is one that faces notable challenges among the three sectors. It is argued that this population constitute 10% of the population and this is estimated at 4.4 million individuals and roughly 1.2 million households. Moreover, Gaunt et al. (2012) suggest that this is the fast-growing population that the government has failed to keep up with in terms of provisions such as electrification, housing and so forth. Therefore, it is for this reason that electricity theft- mostly in the form of illegal connections is rife in these types of settlements.

To curb electricity theft, different municipalities have made attempt towards the electrification of those areas without. A typical example would be the Hibiscus Municipality who provided free electricity for two informal settlements. It is said that:

"Informal settlements are either constructed in the illegally occupied land, that the structures are temporary and that there is a plan to eradicate them. There are some reasons that made this current government to realise a need to electrify these settlements. Amongst those is the fact that

there are illegal connections of electricity known as 'Izinyoka' which endangers the lives of those living in these areas especially the innocent young children and the elderly." (Gumede, 2016: 1)

This free electricity will assist the community a great deal. They will not only enjoy the fruits of free electricity but the degree of danger that they are exposed to will be decreased if not demolished. The government did this while it is in the process of building proper houses for the community members.

Electrification is implemented through two models. The first one is the No-Grid electrification process and the other one is the Grid electrification process. Eskom and the Municipality facilitate the Grid model. Concessionaires and the Municipality facilitate the Non-Grid model. The non-grid method is therefore expensive for the rural household as these are said to be characterized by poverty, low economic activities, poor infrastructure and so forth (Reich et al., 2000). A fee of one hundred rand is required as an application fee and a fee of seventy-five rand would be required as a monthly maintenance fee. The selection criteria for the non-grid is that the community is not on the three-year plan of the Grid-Project and that it must be in an isolated area that does not have readily available connection centers. Most relevant to the Rural community is the mountainous nature i.e. KwaXimba Area.

Rural electrification attempts do not go unrecognized although a ridiculous number of rural households are without electricity up to this date. In 2015, Eskom embarked on a project that targeted rural household in three specific areas. Limpopo, Eastern Cape and KwaZulu natal, where one of the areas that the project would focus on is located. The objective is to reach a hundred percent electrified household by the year 2020 (Mbabele, 2015). Kolver stated that "Although significant progress has been made by the national electrification programme to provide electricity to all households, future progress will be hampered by the cost-ineffectiveness of providing mains electricity to remote rural households and the difficulty of providing electricity to predominantly informal dwellings in largely unplanned and unstructured informal areas",

Eskom has however come up with ways to curb the issues that are faced when attempting to electrify rural areas. One of which is the 2015 loan taken up from France. The loan would assist in skills development, rebuilding and repairing power systems and the installation of new power station.

2.4 Understanding Global Perspectives on Electricity Theft (Developed and Developing nations)

Electricity thefts manifests itself in various forms in different parts of the world. It is neither confined to developing or developed countries only but it occurs in many countries regardless of their development status (Jamil & , 2014; Glauner 2006; Kelly-Detwiler, 2013). In fact, power theft has recently emerged as a serious problem due to several recent trends observed in both developing and developed countries (Smith, 2004). According to Nunoo and Attachie (2011), while consumers are categorised as either industrial, commercial, and residential, commercial losses arising through electricity theft and other customer malfeasances is a universal problem in the electricity supply industry. Despite deteriorating the financial condition of utilities supply, and threatening sustainable development and economic growth, electricity theft also "curtails new investments for capacity development, and that eventually leads to electricity shortage" (Eskom, 2016, Jamil & Ahmad, 2014: 1). As a result, these energy losses to theft often affect the quality of energy supplied, electrical load on the generating station as well as the imposed tariff on genuine customers. Particularly in regions such as Sub-Saharan Africa where, according to the World Bank (2009), utilities in the region present huge inefficiencies. Over half of electricity in developing countries is acquired via theft (Antmann, 2009).

While it is easy to associate electricity theft with developing countries only, electricity theft is a global problem whereby billions of US Dollars are lost each year (Eskom, 2016). An investigation by Smith (2004) with sample of 102 countries showed that electricity theft is in fact increasing in most regions of the world. Although electricity theft usually account for 1 – 2% of the generated amount, the financial costs is high due to large amounts of electricity being generated. In the United States of America, theft costs the country 0.5 to 3.5% of annual gross revenues of around US$280 billion (Smith, 2004). This gives a loss in revenue ranging from US$1.4 billion to US$9.8 billion per year. A report cited by Abdullateef et al. (2012) stated annual losses of up to US$100 million in Canada.

In developing countries such as Brazil, India, Malaysia and Lebanon, the financial losses resulting from NTLs can range up to 40% of the total electricity distributed and electrical energy and peaking shortages have become endemic to these countries (Glauner, 2006, Dangar and Joshi,

2015). A number of studies have shown that the prevalence of electricity theft in developing countries ranges between 20 and 30 per cent (Abdullateef et al., 2012), but others such as Wang et al. (2010) have reported a much wider range of 10 to 40 per cent. As a fast-developing nation, South Africa has recorded losses ranging between R2.5 and R3.6 billion to electricity theft (Eskom). Yurtseven (2015) pointed out that the electricity theft ratios between developing and developed countries differ substantially, for example; in the USA and West Europe, theft rate is very low at only 1-2 per cent whilst on average the OECD electricity theft rate stands at 7 per cent. Yurtseven (2015), citing Bhattacharya (2005), stated that the theft rate in developing countries (i.e. Malaysia, Bangladesh, and Turkey) is far much more considerable even reaching theft levels as high as 30% of the produced total electric energy in India, for example. However, it proves difficult to explain electricity theft from the point of view of a country's income level because there are cases such as China, for example, that are much lower than high income countries (Yurtseven, 2015). It is therefore imperative to examine factors other than income.

2.5 Causes of Electricity theft in South Africa

It is important to understand how the process of electricity distribution has been conducted in the democratic South Africa. Chihore (2014) provides a detailed outline of how electricity supply developed in South Africa. He reported that in the period from between 1994 and 2014, about 5.7 million homes were connected to the national grid, leaving about 3.3 million unconnected as per 2011 census. 75% of the unconnected homes were in Eskom's jurisdiction while the rest were municipalities' responsibilities. Most of these household left without electricity were in rural areas that were considered remote and very costly to electrify than other areas. The completion of this Eskom project was stalled, and in some areas stopped, by lack of financial capital.

The socio-economic status of a community contributes to the act of electricity theft among communities. According to Depura et al., (2011), electricity theft is proportional to the socio-economic conditions of the consumers of electricity (Yurtseven, 2015), and this is directly caused by the degree of electricity tariffs. A study by Smith (2004:5) examined the tendency of electricity theft in different countries and concluded that "Electricity theft is closely related to governance indicators, with higher levels of theft in countries without effective accountability, political instability, low government effectiveness and high levels of corruption." Other studies conducted

in Pakistan and India showed that corruption was a major determinant of power theft in these countries (Jamil and Ahmad, 2013; Kathiyar, 2013). Another study on the use of illegal electricity in Jamaica found that the illegal consumption of electricity was very closely related to income and education levels (Steadman, 2009).

According to Gaunt et al. (2012), electrification is grouped into three sectors which are rural electrification, formal urban electrification and the electrification of informal urban settlements. While electricity cuts across all these household sectors, the factors that constitute electricity theft in each of these are different. Rural communities are areas where economic activities are extremely low in density. This may be due to the fact there exist poor infrastructure in the areas. Therefore, the factors constituting to electricity theft in rural areas are mostly driven by underdevelopment whilst in urban areas including informal urban settlements the main drivers include overpopulation. The socioeconomic factors to consider when examining electricity theft include, but are not limited to, electricity prices, urbanisation, poverty, literacy, per capita income, rate of urban unemployment, total population, infrastructural investment and the structure of the economy. According to Gaur and Gupta (2016) in their study on the determinants of electricity theft in India- all of these socioeconomic variables are important determinants of electricity theft. There is no extensive literature relating to factors that justify electricity theft in rural and urban societies and therefore the factors discussed below relate to the broader definition of crime and not specifically electricity theft.

2.5.1 The Increase of Electricity Prices in South Africa

The value of electricity in South Africa is not only driven by the need to provide enough service to the community but also to impact and sustain the economic demands of the country. Therefore, electricity is a vital commodity for development. According to Monjane (2015:2), “South Africa is the biggest electricity consumer in Southern Africa and requires the energy to attract investors into energy-intensive megaprojects such as smelting plants and refineries.” South Africa imports electricity from countries such as Mozambique to keep up with the various demands of energy. It is important to acknowledge that this explains the economic drive that influences the decisions towards energy decisions in the country.

South African electricity utility bill has been constantly increasing over the years. This has become one of the greatest challenge for the poor to handle. Between the period of 2006/7 to 2009/10

electricity had increased from a rate of 5.1 percent to 31.3 percent (Chihore, 2014). Eskom vehemently defended this increase on the basis of addressing the power crisis of blackouts that was cripplingly consistent during 2007/8. However, despite the cause and the argument, the impact of the rate hikes was great on the poor South Africans. Despite the conclusion that the increase of electricity rates is exorbitantly high for the South African poor, electricity tariffs in South Africa have been defended as cheap compared to world standards. According to Bella and Grigoli (2016:4), "high electricity costs and electricity shortages act as a disincentive to investment, hamper competitiveness, and complicate efforts aimed at poverty reduction, overall resulting in reduced efficiency and a bottleneck to economic activity." Thus, in other words it is detrimental to economic and socio-economic development. Considerably, in South Africa, literature exposes that the government has a mandate to ensure accessible and affordable energy resources to the poor as identified below, despite its justifications for increasing electricity prices.

The South African government mandated to provide and ensure free basic electricity (FBE) to the poor. This initiative, which was launched, meant to ensure that electricity becomes an accessible utility for everyone. Under this initiative, an allowance of 50kWh per month is given to poor families to cater for their domestic energy needs such as water heating, lighting, ironing, and entertainment using a television set or a radio (Eskom, 2016).

This clearly outlines the considerations and the sacrifices the government has put in place to cater and address the plight of the poor through policy. These sentiments are well justified and supported by the National Energy Act 34 of 2008 (NEA) which further articulates in Section 2 on the mandate of the government to facilitate and ensure accessibility of energy to improve quality of life. Whilst Section 5(1) indicates that the Minister must put in place measures that ensure that energy is accessible or available at affordable costs. Section 5(2) clarifies that whilst 5(1) emphasizes on affordability, energy resources should be available still even though recipients or communities in question cannot afford the cost. Section 6 mandates the Minister to develop and annually release an Integrated Energy Plan (IEP) that deals with issues involving supply, storage of and demand for energy in a way that accounts for economically available energy resources, universal accessibility and free basic electricity. Essentially, this entails the need for the government needs to develop ways to increase access to energy and, if possible, access to free electricity (Gladwin and Mathebula, 2016).

However, it is no gain saying that despite the existence of such policies that are keen to ensure the accessibility to affordable electricity and even access to 'free electricity' to the poor in South Africa, it remains expensive and inaccessible in some areas, mostly rural areas.

In addition, considering that energy resources are regarded as mandatory commodities that must be accessible and affordable, the question then is why such policies are not yet a reality in South Africa. In exploring literature Chihore (2014) outlines that,

"…if higher electricity consumption on a single connection places their tariffs outside the lifeline tariff, the hiking of electricity prices in South Africa since 2006] reveal that low-income households would not only fail to benefit from the free basic electricity allocation, but end up incurring significantly higher real electricity costs. The true escalation of average electricity costs will consequently be significantly underestimated if the gaps between such realities and theoretical scenarios are not considered."

Eskom justifies that this increase in electricity prices is due to the mismanagement of electricity across households in South Africa. The Electricity Basic Services Support Tariff (Free Basic Electricity) Policy of 2003 states that "certain groups of people who meet specific criteria qualify for the allocation of free basic electricity, which is limited to a maximum of 60kWh per household per month and anything over this limit will be charged to the customer" (Gladwin and Mathebula, 2016). Most households fail to meet these stipulations due to overuse of electricity through illegal connections. As Chihore (2014) highlighted that "…high electricity consumption on the one connection places the households in higher tariff blocks, and coupled with the premium charged by the resellers, it results in higher energy bills and the households fail to benefit from the pro-poor initiatives. The main challenge is the arrangement of the informal settlements, and the lack of awareness of the benefits of the pro-poor initiatives. To resolve the challenges that remain, action is required from several different stakeholders including Eskom and other government departments."

Therefore, it is these realities identified across literature, which helps one to understand the factors surrounding energy issues and the consequences thereof. Thus, it is clear that South Africa acknowledges and understands that electricity is a basic commodity and must put significant measures in place to make it an accessible and affordable utility considering the poor background of the majority. And as such, relevant authorities have a duty not only to educate the communities

on the importance of saving energy but to quickly facilitate availability of electricity in various households (urban poor and rural) to ensure proper regulation to limit electricity theft.

2.5.2 Electricity Theft in the urban areas.

In both developed and developing nations, rapid urbanisation coincided with numerous social problems, among them urban crime. Urbanisation is a process whereby towns, cities and metropolitans grow naturally or through migration or when societies become modern. Based on a 2013 World Bank Report cited by Bruekner and Lall, (2014), an additional 2.7 billion people in developing countries would have moved to urban areas by the year 2050. However, the more common type of urbanisation occurs when people migrate to urban areas to seek economic opportunities and better their living standard (Ghani, 2016). This is more common in developing countries particularly Africa and Asia. When people migrate to cities to find better living standards or secure economic opportunities, this is not always the case as many of them often find themselves trapped in unemployment and poverty cycles as evidenced by the proliferation of slums in developing countries particularly Sub-Saharan Africa (Standing, 1981, Bruekner and Lall, 2014). One of the social ills resulting from rapid urbanisation is crime, often resulting from high population densities, poor living conditions and sudden changes in social environments (Shopeji, 2003; Boggs, 1960).

To explain some of the predisposing factors to urban crime, Shopeji, (2003) states that urbanisation reduces the possibility of social control. This is because, urban citizens are exposed to numerous non-conventional means and therefore they are presented more opportunities to commit illegal activities unlike their rural counterparts.

Therefore, from studies such as this one can conclude that electricity theft in urban areas is linked to factors such as poverty, unemployment, social inequality, and economic deprivation. In an eNews Channel Africa (eNCA) interview (April 2016), many of the people who carried out illegal connections (on behalf of other people) confessed that the reason they chose to do something as risky as this is because they are unemployed and that this was the only way possible for them to access electricity because even if provision were to be made for them, they would still not afford to pay the bills. The same interview highlighted that electricity theft is more prevalent in developed urban areas. Results from various studies have suggested that socio economic ills such as poverty, inequality and unemployment have long run effects on crime levels within a society (Mauro and

Carmeci, 2007; Kelly, 2000). When governments are reluctant to allow for the supply of electricity to informal settlements, people resort to power theft to meet that need (Scott et al, 20005). However, in the case of urban centres, electricity theft is not only limited to informal areas. Another one of the reasons for power theft is that the chances of accessing someone who can illegally bypass a meter etc., is much higher in developed urban areas. Corruption also perpetuates other forms of electricity theft in urban areas, i.e. fraud and unpaid bills. There are some powerful individuals or organisations who take advantage of their popularity to evade paying their bills. For example, according to Corruption Watch RSA (2015), the Maluti-a-Phofung and Ngwathe local municipalities are among the worst indebted municipalities in the Free State, owing over R26 million (over 73 per cent of the total municipal debt) to Eskom. Mileham (2017) even notes that corruption is one of the major causes of the electricity crisis in some urban municipalities due to the Councillors' connections to the political elite.

2.5.3 Electricity Theft in the rural areas

There are various crimes which happens in rural areas all over the world. Criminological literature often ignores the distinction between rural and urban crimes (Mosher and Rotolo, 2002). It is no gain saying that South Africa is one of the countries with high rural crimes which range from murders to livestock theft (Khumalo, 2009). World Bank statistics have put the rural population in South Africa at 35.2 % of total population in 2015 (Trading Economics, 2016).

The South African Police Services in their National Rural Safety Strategy (2013) established that high levels of poverty and underdevelopment in rural areas are the major factors which drive crime. Pelser et al., (2000), outlines that "Some 18 million people — more than 46% of South Africa's population live in rural areas, and years of racial discrimination have ensured that this population is predominantly very poor, undereducated and underemployed." It is important to understand that their consequences of poverty and underdevelopment is imbedded in history. However, the failure to redress these factors of the past by the government remains one of the major factors that sustains rural theft.

With the understanding above, one can zoom into the problem of electricity theft. Though there has been an increase of rural electrification in South Africa since the 1990s, the process remains slow. Therefore, considering that electricity is a necessity for survival various communities in rural areas have engaged in illegal connections.

More so, it is important to note that poverty and unemployment in South African rural areas is very high. This means that most people in rural areas cannot afford paying for electricity. Clarke (2016) clarifies that for those in low income brackets in South Africa, electricity bills take a large percentage of their income. This means that if there are any options of getting electricity without paying for it they would do it without hesitation. For instance, in the Chaneng village in Zandspruit, meter tampering is a customary practice since they cannot afford paying for high electricity bills due to their low income of R29900 per annum. According to Katiyar (2005), "high costs, both at the entry level and in terms of regular electricity bills, also lead to higher incidence of theft." Thus, electricity costs for people in rural areas are slightly high and unaffordable thus electricity theft. Vuk'uzenzele (2011) outlines that poor people in South Africa are the culprits of electricity theft through illegal connections. Though suggestions have been made and processes are said to be put in place to make electricity accessible for the poor in South Africa, its remains immaterial. Chihore (2014) outlines that,

Though the concept of Free Basic Energy was introduced as a means of providing energy for the basic needs of indigent households, implementation has not been without its challenges. The major challenge, as highlighted by the DoE, is the "lack of indigent policies; the registration, verification and management of indigents; contravention of policy; and token collection." In other words, the execution of this concept is complex and has not been carried out effectively.

Corruption of employees in the public service utilities is also one of the factors which has increasingly enhanced electricity theft in rural areas in most developing countries (Katiyar, 2005). Utility employees often take bribes from individuals that have been fined for illegal connections or meter tampering in various communities around South Africa (Clarke, 2016). Therefore, it is no gain saying that, the opportunity of paying a bribe to keep electricity running at the cost of a R6000 fine for meter tampering is always welcome for most individuals (Clarke, 2016). This outlines one of the issues constituting to electricity theft in rural areas.

2.5.3.1 A rural Case study- Rajasthanm (Source: Katiya, 2005)

In a study titled Political economy of electricity theft in Rural Areas: A case study from Rajasthan, India. This study was conducted in rural areas where for decades electricity theft was unheard of- the results showed that some of the high observed levels of theft were rooted "in utility management and some in the wider socio-political environments in the country." Although in the

context of India, many of the factors mentioned below also apply to many other rural areas particularly in developing countries.

According to Katiyar (2005), power theft in rural areas is most commonly as a result of the slow pace of reforms in the power sector. This inefficiency of public services is a major contributor to poverty and economic growth. Therefore, most of the electricity theft taking place in rural areas is as a result of large scale corruption and inefficient management (Katiyar, 2005). Authorities tend to not cater for the rural consumers very well through infrastructural development, consistent supply or reasonable tariffs. In India, for example, as of 2005 there was a backlog of agriculture connections whereby the waitlist for such connections exceeds a decade in some cases. Such conditions provide farmers with the incentive to tap lines illegally.

On the other hand, due to the location of some of these areas, electricity supply in Rajasthan did not exceed 8 hours at the maximum or peak demand. And when transformers burn out, farmers would resort to corrupt engineers who would exploit them to get commissions. Rural households do not receive high incomes and do not use as much electricity as urban households or industries, therefore when the tariffs or entry costs are too high for these people, the result is an increase in domestic disconnections which according to Katiyar (2005) dissuades most of the people in rural areas from applying for a connection and preferring to connect illegally. Another factor is corruption among public employees who institutionalise a culture of theft through exploiting consumers by making them pay extra for work that is part of their job description such as in the case of Rajasthan where farmers were charged a commission for the utility employees to release transformers. Such atmosphere for corruption validates electricity theft in rural areas.

2.5.4 Rural and Urban electricity theft in South Africa

Approximately two-thirds of South Africa's population resides in urban areas while. This has been reported by recent statistics where the number of urban dwellers rose from 52% in 1990 to 62% in 2011 (SAIRR, 2013). South Africa's rapid urbanisation is due to people moving to cities in as much as it is due to the development of rural areas as it is the largest and most industrialized country in Africa (Turok, 2012). South Africa is also characterized by circular migration which means that the observed rural-urban migration is not permanent (Wentzel et al, 2009). The result of this urbanization has been a huge inequality gap between the rich and the poor; the segregation of high and middle-income households to low-density suburbs while the poor settle in

overcrowded townships and informal settlements which have expanded in numbers in recent years. In comparison to other African countries, there is likely to be no significant difference between urban electricity theft and rural electricity theft (Andrew and Prachi, 2013). The reason for this being that in the context of South Africa, the factors that constitute to this crime are more to do with the huge inequality gap between the rich and the poor and nothing to do with the living conditions i.e. rural versus urban (Edmonds, 2013). This is evidenced by the trends shown by the most common forms of electricity theft. For example, in Khayelitsha (Western Cape) and Mdantsane (Eastern Cape) both severely disadvantaged and poverty stricken high density urban and rural communities, respectively, - illegal connections are the most common types of electricity theft (EE Publishers, 2008). On the other hand, non-payment is rife in the business sector, particularly by municipalities of both rural and urban areas (Yelland, 2008; Majoro, 2014). This suggests that the factors that influence power theft have to do with other factors such as inequality which exists in both South African urban and rural areas, not the obvious urban and rural factors that may apply to the rest of Sub-Saharan Africa. As an example, Jamal (2015) stated that more than 95 per cent of households that do not have electricity connection belong to the low-income threshold and therefore they are not necessarily rural although more than 50 per cent are classified as being located in rural areas.

While South Africa's electrification is vigorously targeting both rural and urban regions of the country (Mzini and Muhiya, 2014), approximately 10% of South Africans live in informal settlements that are neither rural nor urban and usually exist between the two (Gaunt et al, 2012). The reason why Eskom has not expanded into these areas is that consumptions levels are very low to the point that should Eskom connect these areas, the company would not be able to recover operating costs from the tariffs alone, thus the delays in formal connections (Jamal, 2015). These are the areas that have lagged in terms of electricity supply and the main reason for this being that, these types of settlements are different and usually fast changing. This lack of formal connections is what encourages illegal connections in these areas.

Notably, the Eskom (2016) press release in the campaign for Operation Khanyisa outlined that "96% of South Africans believe that electricity theft was wrong, only 16% believed that they would get caught and a mere 14% believed that they would get prosecuted if caught." It clearly expresses the attitude and perceptions of people towards the criminalisation of electricity theft. It tellingly

exposes the limited exposure and education on the intensity and consequences of electricity theft in the country. Literature exposes that the ignorance of people towards electricity theft stretches even into businesses. Reports clearly articulate that industries in South Africa are also highly responsible for perpetuating the bulk of electricity theft. Moodley (2013) explains that since the beginning of Operation Khanyisa in 2010, Eskom's Energy Losses Management Program (ELP) has established that "it is a misconception that the bulk of electricity theft occurs in residential areas, predominantly townships and informal settlements." Maboe Maphaka, the national project sponsor of ELP, outlined that about 60% of the energy theft in the country is done in business areas, agricultural, commercial and industrial sectors (Moodley, 2013). Therefore, Maphaka further articulates that, though these facts are telling, the goal of Operation Khanyisa remains focused on curbing the increase of illegal connections in residential areas to ensure a safe environment and bring awareness to the consequences of electricity theft. Cases of electricity theft remains unreported in most residential areas.

2.6 The consequences of electricity theft:

Electricity theft in all forms has a negative impact on the financial and social aspect of all parties involved. Economically, Eskom (2016:3) states that "electricity theft and the resultant energy losses suffered by Eskom and municipalities contribute to increased electricity tariffs." Ultimately, the resultant consequences of this is that food prices and other essential commodities will rise. Moreover, when one does not buy electricity, it is of no cost to them hence they are not likely to adopt an energy efficient life style.

Electricity theft affects the financial status of the producer of electricity, which is Eskom. Eskom (2016) reported that they lost an amount of about R15.4bn in the financial year of 2016. This loss is in terms of the Non-Technical loss of energy, that is, the energy that is lost due to illegal connections, meter tempering and the buying and selling of illegal electricity prepaid. Moreover, it does not allow for Eskom to be able to predict the demand of electricity in a country, as a result, one finds that the country experience an issue of power shortages due to the overloading of the system. Sigauke (2010) attests that "accurate prediction of daily peak load demand is very important for decision makers in the energy sector because this helps in the determination of consistent and reliable supply schedules during peak periods." As a result, the country would be

able to fight against the issue of "load shedding" – a phenomenon that was highly prevalent in 2008 to 2014. In 2016, electricity theft cost the eThekwini municipality more than R150 million (News 24, 2016). This money was used to fix damaged meter boxes as well as replace vandalised infrastructure.

Electricity theft contributes to power outages as it threatens the stability of power supply (Vuk'zenzele, 2014). This thus affects and inconveniences businesses and hospitals, private and public organisations. To illustrate, power outages are partly caused by increased power consumption through illegal means and as such threaten the livelihood and lives of many households and individuals. Power outages have proven to be especially lethal for Hospitals. Electricity theft leads to high costs of electricity, for example the South African government has already estimated that theft costs the country a massive R4.4 billion each year (Eskom, 2016).

Power theft carries fatal risks and many of the thieves have paid for the crime with their lives. When illegal connections claim lives, it is not only the lives of the perpetrators, but also innocent community members (Vuk'uzenzele, 2014). Electrocution is a serious consequence of illegal connections, mainly because it affects even those who are not directly linked to the crime. To illustrate, eNews Channel Africa (eNCA) (2015) reported that a woman was electrocuted to death by an illegally connected cable in the Stanger Shacks at the KwaDukuza municipality. Theft can also have social implications for the community members. As such, electricity theft in the form of illegally connected cables can be left on the floor surface whether outside or inside the houses, as a result, there have been reports of individuals that had had their houses burnt down and lives of innocent people taken by illegally connected cables. When power-lines become overloaded with electric energy, it can harm electronic gadgets and appliances of innocent consumers who are connected to the same line as they can only receive a balanced amount of electricity.

Electricity theft has huge effects in South Africa. Eskom (2016) posits that "it remains concerned about the safety of communities that may be at risk due to the escalating number of illegal connections, meter bypassing or tampering with and vandalism to electricity infrastructure." This shows that electricity theft is not just a danger to the economy or the sustenance of the country's power utility but a hazardous act to the health of people particularly in instances of illegal connections and meter tampering. Therefore, this section revisits the different ways of electricity theft identified in South Africa, to outline the effects of electricity theft in the country. According

to Vuk'uzenzele (2011) "Electricity theft is costing the country more than R4.4 billion per year. About 60 per cent of this amount is theft committed by business, commerce and agriculture. The remaining 40 per cent is theft committed by residents through illegal connections."

Another effect of electric theft is that of non-technical loss of power. The causes of non-technical losses of power that are relevant to this paper are electricity theft and the non-payment by the legal consumers which is one that contribute the greatest degree of loss (Soriyamongkol, 2002). The cause of non-technical losses vary, while natural phenomena can be responsible for non-technical losses e.g. cables and connections struck by lightning, wind storms or snow are rare to find, they do however occur and forms a small portion of the non-technical loss. According to Soriyamongkol, 2002:56) "large-scale non-payment by consumers has led to enormous consequences both at the micro and macroeconomic level." People abstain from paying their bills because of, firstly, "the stabilization measures after regime changes in most of the countries. Secondly, the inability of the utilities to disconnect supplies for non-payment. Thirdly, the unsustainable subsidies installed by governments. The fourth reasoning is that of the tax laws and their enforcement. The fifth reason is the poor corporate governance; the sixth one is the tensions between federal and local agencies and the final one is that of the concept of property rights" (Soriyamongkol, 2002: 58).

2.6.1 Electricity Unpaid Bills and its effects

Eskom outlines that a problem of non-payment of electricity in South Africa remains very high. According to Mkhwanazi (1999), such a culture of non-payment is very evident in South Africa. Utility authorities have come to conclude that non-payers are not always the poor who cannot afford, they can also be rich and influential and therefore know that because of their status their electricity will not be cut regardless of whether they pay or not (Smith, 2006). Therefore, the problem of unpaid electricity bills has increasingly become a challenge in South Africa. According to eNCA news (2014), "Municipalities are under enormous pressure due to non-payment of electricity bills. Municipalities are owed R68-billion in unpaid electricity bills." This outlines a telling crisis.

Electricity theft cannot be measured but it is rather traditionally estimated usually by conducting thorough analyses of power stations or using balance metres (Smith, 2004). While effective, Cardenas et al (2012) notes that these traditional methods are not enough as it is easy for a person

with moderate computer knowledge to compromise and reprogram meters and it would be difficult for the service provider to pick out who the culprits are despite figuring that tampering has taken place.

More so, corruption remains one of the factors which is promoting the increase of unpaid bills in South Africa. Clarke (2016) outlines that even in instances whereby people are fined for illegal connections or meter tampering to access free electricity, utility employees are often paid bribes when they follow up for the payment of owed debts. These instances have increasingly furthered electricity theft.

2.6.2 Effects of Electricity Fraud

Electricity fraud is defined as "a dishonest and illegal use of electricity equipment or service with the intention to avoid billing charge" (Dangar and Joshi, 2015). This kind of fraud usually occurs when consumers deliberately deceive the utility company and it most commonly occurs through tampering with the meter so that a lower reading is displayed. This is a risky procedure and can only be done by professionals. Sabah, a Malaysian utility company estimated a loss of RM64 million (approx... 15 million USD) through meter tampering and illegal hook-ups (New Straits Times, 2016). In 2014, the Daily mail newspaper reported that Power theft costed the United Kingdom 500 million pounds a year which pushed annual bills by 30 pounds each year. Metre tampering takes place in several ways which include putting either a film or feeding viscous fluid or thin hair to interrupt the movement of the disc (Mandava et al., 2014).

2.6.3 Illegal Connections and their effects.

Illegal connections are one of the most common electricity theft problems in South Africa. It is important to note that the effects of illegal connections are twofold. Firstly, it is a hazardous practice which has resulted in the deaths of thousands. Electricity theft sometimes occurs through rigging a line from the power source to where it is needed thus bypassing meter (Smith, 2004). This practise is quite common in South Asian countries where poor residents may not be able to afford if the lines were legally connected or if the provision has not yet been made by authorities. Eskom warns that "illegal connections are not suspended at a safe height above ground. This means that children, animals and even adults often touch these unprotected wires accidentally, causing electrocution, which can cause injury or even deaths" (Eskom, 2017). Several disasters because of

illegal electricity connection are recorded in South Africa. For example, in Alex 17 families were left homeless in 2016 after their homes were burned by fire caused by illegal connection (SANews, 2016).

Secondly, it causes overload and unnecessary power failures as it overstretches the regulated resources allocated for legal power users (Times live news, 2016). According to BusinessTech (2014), Eskom loses approximately 7 per cent of the country's electricity to illegal connections. Illegal connections are quite common in South Africa's high-density suburbs to the point that locally owned businesses (e.g. spaza shops, car wash) rely entirely on illegally connected cables to keep afloat (Sowetanlive, 2016). According to Campbell (1999) cited by Smith (2004), 6 tons of illegal cables were collected by Eskom within a period of six months in Soweto, Gauteng. This outlines the effects of illegal connections and their devastating consequences.

2.6.4 Billing irregularities and its effect.

Billing irregularities occur in different ways which incorporate the inaccurate meter reading taken by bribed servicemen and intentional fixing of the bill by offices in exchange of illicit payments from the consumers (Dike et al, 2015). For example, power authorities may be ineffective at measuring the amount of electricity used such that the amount of electricity used is given a much higher or much lower figure. However, it is also very possible for some systems or employees of national authorities to arrange for lower bills to be given whereby the amount of power used cost more (Smith, 2004). In some cases, employees are bribed such that they get an additional salary and the consumer pays less. These factors have resulted in the inconsistence of service delivery and are costing government millions of rand.

2.7 Strategies Implemented to Prevent Electricity Theft

There are various policies which have been put in place by the South African government to manage the crisis of electricity theft. Electricity theft is not just a South African challenge but a global one. Thus, there are various strategies identified across literature to help prevent electricity theft. Despite the criminalisation of electricity theft in South Africa, it remains very high. Considering that electricity theft has both economic, political, and social consequences, there are

various strategies and policies identified to address the challenges and the policies and measures include: detecting electricity theft, awareness campaigns, and prosecution of electricity thieves.

2.7.1 Detection and reduction of electricity theft

The struggle against electricity theft continues in all of the related countries, but this is mainly conducted through different special devices, engineering techniques and other various detective methods. To suggest effective policy recommendations for such a sensitive subject, which contains social, economic, and natural elements, the underlying drives of high rate of illegal consumption should be determined (Yurtseven, 2015). In recent years, detecting electricity theft has emerged as an active area of research as governments all over the world seek to find ways of dealing with this very economically costly and deadly practice (SEI, 2017). To estimate electricity theft, some countries such as Kenya through their Last Mile Connectivity Project have applied only traditional methods of detecting electricity theft i.e. verifying connections by analysing power stations. This project was very successful as it resulted in the arrests of a number of members of a syndicate that connected illegal lines (ESI Africa, 2016). However, this kind of success is not guaranteed because as mentioned before electricity theft occurs in a number of ways and illegal connections are not the only form of theft. In addition to periodic physical checks and utility meter readings, utility companies also rely on consumers reporting electricity theft (George et al, 2016) sometimes in return for big rewards. For example, Eskom has promoted the reporting of electricity theft through affordable and anonymous messaging services, free hotline services and emails even door to door engagements with community members (Eskom, 2016; News24 2015).

Electricity theft cannot be virtually stopped in any power system despite some very efficient systems being observed in Japan, Western Europe, and North America. These regions achieved their success through improving their managerial and technological methods necessary to reduce theft to tolerable levels (Smith, 2004). This is possible in the presence of a governance culture that endorses good organisation and law enforcement against theft (Jamil, 2014). Electricity theft can be curbed by applying technical solutions such as tamper-proof meters, managerial methods such

as inspection and monitoring, and in some cases restructuring power systems ownership and regulation (Antmann, 2009; Smith, 2004).

2.7.1.1 Understanding Free Basic Electricity (FBE) in South Africa.

Having understood that the South African government has put in place legal frameworks and policies to ensure affordable and accessible energy resources, it is important to go into detail in understanding the Free Basic Electricity policy and how it works. Understanding its role as expressed across literature may help one to understand how electricity is distributed in the country. It also helps one to understand the role of the national and local governments in electricity provision. As highlighted above, FBE is a policy which was initiated in 2003 which recognizes electricity as a basic energy need and seeks to ensure that electricity is accessible and affordable for all and mostly the poor (Eskom, 2016). This was a policy passed by the national government and approved by the cabinet in acknowledgement of the various socio-economic challenges that face the poor in South Africa, and the measure meant to provide benefits to lessen the burden of women and children suffering from carrying firewood to sustain households in various communities (FBE Guidelines, 2003).

It is important to note that in South Africa the role of providing electricity rests on both the local governments/district councils and Eskom. Therefore, according to the FBE Guidelines (2003:3) "Eskom is Service Provider within many Municipalities and in order for the service to be uniformly applied throughout a municipality it will be necessary for Eskom to standardize on the provision of such services as agreed in the service level agreements." Constitutionally, municipalities are the primary service authorities that are meant to ensure that every individual within their jurisdiction have access to electricity. The FBE guidelines (2003) clarifies that municipalities are liable to implement the FBE since they have the power of decision making. However, the national and provincial government have to provide support to the local government in fulfilling this mandate. Interestingly, Gladwin and Mathebula (2016) identifies that despite the various stipulations of the FBE there is still no single law that places the duty of FBE on national and provincial government, hence the failure of the municipalities to implement the cause does not necessarily result in the national or provincial government chipping in to address the challenge. These impasses highlight how FBE has remained limited and slow in South Africa in helping to address the lack of adequate, accessible, and affordable electricity resulting in the increase of electricity theft.

The notable challenges with this technique were that it was unable to determine the exact households that qualify for the free electricity (poor). This was caused by the fact that there were no instruments and resources to measure poverty among the households. The second challenge is that, the size of the household was not put into consideration when the program was designed. As such, smaller household will find that the 50 unit of electricity goes a long way while it is not very beneficial to the larger households. Also, it was found that the larger households were female headed hence the program was accused as one which discriminates and oppresses woman (Malzebender, 2005)

2.7.1.2 The free electricity Method

South African authorities are aware that there exists electricity theft within the country and even globally. As such, there are methods put in place that are used as a tool to minimise the act of electric theft. These range from the free electricity method (50 first units) to meter and consumption monitoring programs. In 2015, the government embarked on a R4.7 Million Electricity Installation in the Emhlabeni informal settlements of Umlazi Township in KZN (eThekwini Municipality, 2015). This was after a noted issue of vast illegal electricity connections in the area that even the community felt were a danger to their livelihoods. It was established during the removal of the illegal connections that "About 868kg of cable were removed and about 350 houses were found to be connected illegally" (Ndlovu, 2015 1). The township has since become safer and the municipality urges everyone who has information on illegal connections to report such. The project of free electricity has since been initiated in the uMlazi-Ezakheni area and residents reap the benefits of using electricity wisely.

2.7.1.3 The Mobile Remote Check Meter

Another method used to reduce electricity theft is Mobile Remote Check Meters. This method is used to detect electricity theft at a small scale that is "low voltage" electricity through the metres (Doorduin, Mouton, Herman and Beukes, 2004). The method operates in a way that "the resolution of illegal consumers detected depends on the deviation of the losses and the connected time of the check meter." This way, the machine is able to pick up energy that is being consumed illegally hence the ability to combat it. In fact, according to Siebel Energy Institute (SEI, 2017), smart metres and internet-based software have created more and even complicated opportunities for theft and yet, most government infrastructures (including developed countries) cannot detect these

sophisticated attacks. The process of installing smart metres that use algorithms to detect usage patterns is already underway in some parts of India where the problem is endemic (The Hindu, 2016)

2.7.1.4 The Vigilant Energy System

Vigilant Energy Metering System (VEMS) is also a tool that is utilised in detecting electricity theft. This system is an "advanced energy metering system that can fight against electricity theft. It can collect, transfer and process data between other energy meters, local station and base station. It also identifies probable locations of theft and helps the utility companies to control theft." The significance of this method is that it can locate both domestic and commercial sources of electricity theft as it locates abnormal patterns of electricity consumption from both the meter and the station from which electricity is distributed.

2.7.1.5 The Power line impediment technique

Another means of theft eradication in the case of electricity is the utilisation of the Power line impedance technique. The significance of this method is its ability to track down the exact place/house that is stealing electricity. The detection is done through a comparison between genuine source (legal consumer) and the source that is stealing electricity. According to Shekara et al. (2010:4), "An illegal connection is located between two genuine meters, if the illegal consumer's load directly to distribution feeder or the illegal consumer's load will be parallel to a legal customer if the thief uses extra phase before a genuine customer."

2.7.1.6 Smart Grid Technologies, Advanced Meter Infrastructure, and the Intelligent Electricity Device

The new strategies to address the challenge of electricity theft include the use of smart grid technology and Advanced Meter Infrastructure (AMI). Amin et al. (2015: 66) defines smart grid technology as "the modernization of the power grid infrastructure with new technologies, enabling a more intelligently networked automated system with the goal of improving efficiency, reliability, and security, while providing more transparency and choices to electricity consumers." Further explains AMI as the "the modernization of the electricity metering system by replacing old mechanical meters by smart meters. Smart meters are new embedded devices that provide two-

way communications between the utility and the consumer." This explains that solutions to electricity theft across literature have been increasingly identified as technical.

Smart grid technologies are increasingly being pushed into place to address the challenge of electricity theft using intelligent electricity device (IED). Amarnath et al. (2013) highlighted that the new challenges of power blackout and electricity theft can be tackled by engaging smart grid technologies that modify the traditional ways of distributing electricity. This allows for the implementation of control algorithms that are "very simple and has better reliability and gives quick protection and being immune from the power system disturbances, it is widely used in the transmission network" (Amarnath et al, 2013:2). This use of IED has been introduced in India and it is "inserted in the generating system and transmission" to detect and avoid the theft of electricity. Nagi et al (2008) confirms how in India, Hyderabad the genetic Algorithm was put in place as a measure to ensure a Non-Technical Loss (NTL) through a hybrid approach to reduce electricity theft, avoid billing errors and increase of faulty meters. Therefore, the use of these IEDs is argued to provide "an automatic feature extraction method for load profiles with a combination of Support Vector Machines (SVMs) which is used to identify fraudulent customers" (Nagi et al, 2008:1). However, despite the measures and control to address the problem, electricity theft remains and persist in India.

According to Depuru (2012: iii) "With the advent of advanced metering technologies, real-time energy consumption data will be available at the utilities end, which can be used to detect illegal consumers." In understanding the various challenges of meter tampering as measures to avoid payment of electricity in the US, Jokar et al. (2016:216) suggest the "Implementation of advanced metering infrastructure (AMI) as one of the key technologies in smart grids promises to mitigate the risk of energy theft through its monitoring capabilities and the fine-grained usage measurements." These technologies measure the data which is being consumed on smart meters to detect and find fraudulent customers. More so, one of the strategies which has attracted researchers in the past in traditional power systems is to monitor the loaded customers' profiles to detect signs of energy theft (Jokar et al, 2016). This literature exposes how measures have been implemented in several nations in developed countries to try to mitigate the challenge of meter tempering. Thus, it clearly identifies that electricity theft has attracted various technological innovations in trying to mitigate the damage and loss it incurs within countries.

2.7.2 Case Study: Operation Khanyisa South Africa (Eskom, 2016)

In 2010, Eskom established a national campaign called Operation Khanyisa which is aimed at promoting legal, safe and efficient use of electricity. As part of this campaign's strategy, it is intended to employ law enforcement against perpetrators in all sectors i.e. business and residential. This is achieved in unity with law enforcement agencies such as the Hawks, SAPS, the South African Local Government Association (SALGA) and Crime line. Prior to the launch of Operation Khanyisa, electricity theft was a silent crime but as of 2016, Eskom had received 19 760 tip-offs through Operation Khanyisa. Over 120 arrests have been made, an excess of R689 million in revenues recovered, more than R121 million recovered in tamper fines and over 138 542 disconnections of illegal connections and tampered metres. Some businesses have been disconnected after being discovered to have been connected to illegal power lines. An example is a popular pizza franchise in the Limpopo province. After appearing in Court, Eskom disconnected the business. Some people however are calling for a harsher sentence regarding electricity theft issues. Illegal connections resulted in water shortages for four days in White River near Rocky Drift, but the perpetrators were given a sentence to pay a R500 fine or face only 3 months imprisonment. Questions are raised over the efficiency of Eskom in tackling the problem of electricity theft considering that in some reported cases, the company took over nine months to disconnect an apparent illegal connection in Emoyeni, Pienaar.

2.7.3 The effectiveness of South Africa's Judicial System in prosecuting offenders

The electricity sector is not independent of acts, bills and regulations that regulate activities which take place within the industry. As regards South Africa's Electricity Act of 2006, it does not explicitly address issues of illegal connections and illegal uses of electricity although, according to Lowvelder (2016), the Act does state that if a person who has been disconnected by officials reconnects himself, he will be disconnected again. In 2010, the government announced partnership with Eskom in the fight against power theft and also that there was a serious need for legislation that declared electricity theft a serious crime and that the process of reviewing the legislature had already begun. Seven years on however, faithful consumers are calling for the government to impose harsher sentences for electricity theft. In some reported cases, suspects who have been found guilty on all charges have only been handed sentences as short as 3 months or 6 months (eNCA, 2016). Approximately 49 per cent of cases that have been opened by Operation Khanyisa

have not made it to the court roll. Head of Operation note that electricity theft remains a very serious issue yet much underreported crime in spite of its negative consequences in communities. An Eskom National Survey revealed that while many South Africans (96 per cent) are aware that electricity theft is a crime, only 16 per cent actually believe that they will get caught and 14 per cent believe that they will be prosecuted (Lowvelder, 2016). This has more to do with people's perception of the crime because people have never seen prosecutions taking place and electricity theft has never been considered as being comparable to other similar crimes such as bank fraud or robbery, for example.

According to Seger and Icove (1981), electricity theft is a silent crime that even when people acknowledge that it is wrong they will not report it, therefore it is not as effective to rely on tip-off. Some utility companies in some countries such as the United States of America have developed in-house capabilities whereby they use former police officers to detect electricity theft. Utilities providers require assistance from law enforcement agencies to enforce the laws and regulations against electricity theft. In 1981, for example, The FBI Agents were armed with search warrants where they were able to raid buildings where illegal gambling took place and they were also able to detect power theft which the authorities had initially bypassed as being unimportant to investigate (Seger and Icove, 1988). The prosecution of electricity thieves is not easy because for the utility to enforce the law they need to prove the intention since there is a possibility that consumers may not be aware they are committing a crime when they illegally use electricity. As a result, when exposed, most consumers are given an opportunity to pay for electricity stolen or face prosecution. This is true for many countries including South Africa and it undermines the extent of the crime and its impact on the economy. According to the Electricity Regulation Act of 2006, repeated offenders should be prosecuted however, this necessitates criminal investigation is necessary, which is expensive, and might sometimes lead to a dead end. The list of regulations that guide electricity demand and supply in South Africa are the Constitution of South Africa of 1996, the Public Finance Management Act of 1999, the Local Government Municipal Systems Act of 2000, the Eskom Conversion Act of 2001, the Municipal Finance Management Act of 2003, the National Energy Regulation Act of 2004, the Electricity Regulation Act of 2006, the Municipal Fiscal Powers and Functions Act of 2007, and the Electricity Regulation Amendment Act of 2007, among others (Mzini and Lukamba-Muhiya, 2014:22).

2.8 Concluding remarks

The subject of electricity theft across literature is dealt with more as a technical subject. There is very limited literature which deeply explore the political, social and economic factors behind the problem of electricity theft. It is important to understand that the problem of electricity theft is a global phenomenon which has deeply rooted itself in societies in both developed and developing nations. Various measures are being put in place to ensure the reduction of electricity theft all over the world and South Africa is no exception. As exposed in the review, the solutions provided across the globe in addressing the challenge of electricity theft remains highly technical. This study seeks to add to literature the various social economic factors that influences electricity theft in South Africa. The advances of various technological strategies to address the electricity theft remains the future of ensuring the technical issues that often allow electricity theft to continue with very little consequences. It is important to acknowledge that despite electricity theft being a very intricate matter in South Africa little has been done to hold the perpetrators of such a crime accountable. Therefore, this chapter has explored the various causes of electricity theft in South Africa, explored literature on global factors surrounding the subject, engaged issues behind the continuity of electricity theft and the consequences thereof. This helps in building an argument and analysing the various factors this study seeks to put into perspective.

CHAPTER THREE

THEORETICAL FRAMEWORK

3.1 Introduction

A theoretical framework is the guiding blueprint for every research study. Grant and Osanloo (2014:13) posits that it "provides the structure to define how you will philosophically, epistemologically, methodologically, and analytically approach the dissertation as a whole." Thus, a theoretical framework seeks to help clarify the argument of the study and provide an explanation for a particular thinking guiding the understanding and planning of the study. Thus, to strengthen the validity of any academic claim, there is need for a theoretical framework to help interpret and outline the concepts, ideas and definitions that are key in that study (Eisenhart, 1991; Lovitts, 2005; Grant and Osanloo, 2014). As such, this study utilises the Strains Theory, the Rational Choice Theory, and the Economic Theories in explaining the phenomena of electricity theft within South African rural settings.

3.2 General Strain Theory

The Strain Theory is developed from the work of Émile Durkheim. It was advanced by Merton (1938), Cohen (1955), Cloward and Ohlin (1960), Smelser (1963), Agnew (1992), Messner and Rosenfeld (1994). All these scholars have had significant input on the theory. The theory outlines that there are various laws and rules that exist within society (state or community) to keep individuals in check and maintain a certain conduct which is regarded as good and acceptable. Despite these set *boni mores* of society to influence a tolerant behaviour, society itself lacks various social means (service delivery) of supporting the needs of the people. This leads to deviant behaviour (crime) to attain the desired life. Thus, the strain theory outlines that there is a structural and individual strain. The former refers to the societal structures that guide needs of the individual and how their inherent inadequacy to provide the necessary needs often influence the deviance of individuals. The latter outlines how the desires and needs of the individual often drives them to seek for satisfaction through other alternative means.

With this understanding, this research will focus on a version of Strain Theory by Agnew (1992). This version is coined the *General Strain Theory*. Agnew (1992) states that general strain theory argues that people or organisations preventing one from achieving their goals contribute to one's

decisions to commit crime (Murphy and Robenson, 2008). To illustrate, in the context of electricity theft, the need or goal to have electricity and live a quality life is prevented by the poor service delivery in some metropolitan areas. While people are aware that illegally connected electricity is against the law they continue to install it because they have been deprived of the opportunity to do so under legal means. The slow process of the South African government in providing electricity in rural areas has influenced electricity theft on a huge scale.

While the Strain theory places emphasis on the inability to achieve goals, Agnew (1992) focuses on the failure to achieve three related goals, which are money, status, and autonomy in delinquents. However, autonomy is not of relevance to this study as one has found no link between electricity theft and autonomy.

(a) **Money**

The General Strain Theories acknowledges that not all strain will lead to criminality. However, it takes note of strains that are most probable to lead to criminality. McLaughlin and Newburn (2010) attest that "life hustles" that result as means of losing money or the inability to procure money within "legal channels" increases the chances of criminal individuals. Agnew (1999) sight residence in extremely deprived poor communities as one of the contributing factors to strain. Electricity is a commodity, one that cost money. As such, it becomes relatively difficult for one to apply for the installation of electricity when they do not have the funds. Also, in situations where some families have had electricity installed within legal means, it becomes difficult for the families to then maintain their electric consumption within the legal framework. One then finds that some families engage in meter tempering.

(b) **Status**

According to McLaughlin and Newburn (2010), strains that are most likely to result in acts of criminality are the ones with a high magnitude. Magnitude is the extent to which the strain is disliked and viewed to have negative impacts to one's life (Agnew and Brezina, 2010:102). Electricity theft in this case can be categorised as both money related and status related. In the 21st century, it is unfortunate that some households are still without electricity. This in turn has motivated residents in the rural area to engage in electricity theft. For one, the rural setting is an area where economic activities are highly poor. With poor service delivery and poor economic

activities, the communities resort to illegal methods for attaining their goals. Strain is more likely to lead to crime among individuals with poor coping skills and resources (Agnes and Brezina 2010). Some individuals may be able to cope with the strain, but some would fail at doing so hence engage in criminal activities.

3.3 The General Strain Theory and community difference crime rates.

Stress or strain is according to this perspective the main cause of criminality. The community's different crime rates hold that the structures and characteristics of certain communities facilitates the notion of criminal individuals. According to Agnew (1999), such communities are those which are slums. Such communities put a great deal of strain on community members and hinder them from achieving certain goals. The ability for one to achieve financial goals is said to be at the heart of such hindrances. This viewpoint posits that strain by community characteristics, e.g. resource deprivation, may have a direct or indirect cause on individual strain. Within the context of electricity theft, the KwaXimba area is relatively deprived of resources such as electricity. It is the strain that may amount to individuals addressing these shortcomings via an illegal route. Electricity theft is a crime that is punishable by law yet individuals and families resort to it.

3.4 Rational Choice Theory

Rational choice theory originated during the late 18th century with the work of Cesare Beccaria and was first advanced by Anthony Downs (1957). It is regarded more as an economic theory which explains the human need for profit as the major driving factor in decision making. Thus, the theory "assumes that all people try to actively maximize their advantage in any situation and therefore consistently try to minimize their losses. Moreover, Levin and Malgrom (2004:1) define it as "mean the process of determining what options are available and then choosing the most preferred one according to some consistent criterion." The theory is based on the idea that all humans base their decisions on rational calculations, act with rationality when choosing, and aim to increase either pleasure or profit" (Investopedia, 2017). The theory has been expanded upon and extended to include other perspectives, such as deterrence, situational crime prevention, and

routine activity theory. The theory argues that human beings are rational beings who calculate the risk of a crime and weigh them against the benefits (Westhuisen, 2011).

In the context of the Community of KwaXimba, one can assume that the act of stealing electricity has been one which is of more benefits than risks of getting arrested. The people in the rural communities view their access to illegal electricity as a more profitable cause than the consequences thereof. Clarke (2016) clarifies how electricity rates are regarded as expensive for low income communities and how bribery of electricity officials for illegal connection and avoiding paying electricity bills is more profitable for them than adhering to the legal processes. According to Petracca (1991:289), "the rational choice approach to politics assumes that individual behaviour is motivated by self-interest, utility maximization, or, more simply put, goal fulfilment." Therefore, the theory helps to outline the inconsistences in service delivery processes in the country, which forces the individuals to rationalise and validate illegal activities as they act in self-interest and profitable manner.

Furthermore**,** the theory explains how the individuals will attempt to maximise their financial gains and minimise their losses in their acts of criminality (Sato, 2013). Moreover, Scott (2000) reveals that "the fact that people act rationally has, of course, been recognised by many sociologists, but they have seen rational actions alongside other forms of action, seeing human action as involving both rational and non-rational acts. This assumes that while some acts of criminality may be rational, some may be non- rational. While the community engages in electricity theft, it is not the entire community members who rationalise the act of stealing electricity. To illustrate, one may have bought a house that has illegally installed electricity, they have not rationalised this act but find themselves in this predicament**.**

It is paramount important to understand that it is the individualistic decisions that defines the structural outcome for communities. Members of the community form part of the structure of the community. This is to say that, if one or more persons decided to steal electricity then naturally, there would come a time where such behaviour of individuals defines the whole community. This theory is specifically essential in explaining the electricity theft phenomena

Unlike the General Strain Theory, Rational choice theory does not assume that individuals commit crime because of the pressure that is resulted by the community. Its premise is that individuals

weigh out the options that they have in goal attainment and thus make the sober decision to commit criminal acts because the crime is of more benefit to than the risk of getting caught.

To sum up the Rational Choice Theory, it is important to note that, firstly, individuals are rational. This means that they can contemplate in a logical manner. Secondly, people have interests. This means that everyone is different from the next and they have differing interests which define their utilities. Thirdly, persons make choices which influence their utilities. Lastly, the choices that individuals make are designed in a way that they maximise their utilities. However, it is said that the resultant implications that are to be faced by individuals cannot in any manner be controlled by the individuals. "Rational choice theories usually represent preferences with a utility function. This is a mathematical function that assigns a numerical value to each possible alternative facing the decision maker" (Green, 2002:1).

3.5 The Economic Theory

The Economic Theory is a framework founded by Becker in 1968 with an attempt to explain how an individual can be driven towards criminality through economic factors (Klevorick, 1985). It stipulates that crime causation can be occasioned by several external forces. At times, the decision for one to commit a crime is a clearheaded choice that they make based on their rationale. The Economic Theory is closely linked to the Rational Choice Theory: both theories attempt to explain the criminal behaviour of individuals by taking into cognisance their ability to rationalize, calculate the risks and the benefits and the merits and the demerits of a crime before it is committed. The founder of the Economic theory makes use of some of the Rational choice theories. Becker (1985: 13) believes that "there is a reason for economists to feel reasonably confident about the validity of basic assumptions of rational individuals weighing costs and benefits before choosing courses of action." The Radical Political Economic Model and The Present-oriented or Myopic Model of Crime are the two models that will be discussed to illustrate their relevance to this study. The two models attempt to explain the internal and external forces that drive individuals towards criminality.

The KwaXimba area is a rural area. Although there exists a police station at the heart of the community, some criminal activities go without punishment. They are either neglected by the

police or the police are unaware of such incidences. Electricity theft is generalized to be a crime without a victim. As such, how and who is to report individuals or even families that steal electricity. The economic theories also speak of policing and the methods that are put in place so as to maximize or increase the risk/cost of criminality compared to that of benefits of the crime. According to Ehrlich and Mark (1977:303), as cited in Loftin and MacDowall (YEAR), "Potential offenders on the whole are assumed to be deterred by the threat of punishment and encouraged by the prospect of differential illegitimate rewards. Potential victims, in turn, are assumed to respond to the threat of victimization by allocating resources both privately and collectively to minimize the net losses from crime. The behaviour of law enforcement agents is assumed to be compatible with social optimization: the minimization of net social loses from crime, including the costs of combating crime."

The central issue in this context of KwaXimba is that Eskom and the Municipality who are the "victims" of the act of electricity theft have not put any measures in KwaXimba to minimize the net loss from the act of criminality. Contrary to this, the community under the Thaba Chweu Municipality reported to the municipality and Eskom that there had been illegall consumption of electricity by certain members within the community. As such, these stakeholders embarked on a project of checking every household of the employees of Eskom and those of the local councillors. This project revealed that about 19 houses and 22 Eskom staff had been consuming electricity illegally through meter tempering. Also, it was identified that several Eskom staff were responsible for the bridging of meters and for installing electricity for the community members illegally (Steelburger/Lydenburg News, 2016). The implication of their act was that they would pay a R5000 fine, a possibility to face suspension and a cut in their salaries repaying all the electricity that was consumed illegally. The purpose, therefore, of this narrative is to emphasise that policing as defined and discussed above is a method used to instil fear and to minimize the gains of theft when weighed against the benefits. It is financially viable for the employees of Eskom to retain their jobs and buy electricity every month as compared to being unemployed and having no source of power within the household. Eskom assumed the role of minimizing the effect that the crime has on them. This was done by means of allocating funds that will assist in identifying and combating electricity theft within the identified area of concern.

Electricity is a generally expensive commodity. As such, one finds that households who buy electricity and consume it legally are the ones that will implement measures that will assist in saving power within their households. The illegal consumers of power are more likely to abuse and misuse electricity because it comes at no cost to them. A study that was done by Thogerson and Gronhoj (2010:1), revealed that "households' electricity consumption depends on both structural and motivational factors" (2010: 1). The motivation to save electricity would be for one to spend less on the commodity. When one does not buy or pay for electricity then the motive to save is cancelled out. They will not be affected by inflation or price drops. Their role is to utilize power with no direct implications or costs to them.

3.5.1 The Radical Political Economic Model

According to Jacod (2011: 278), "the key factors in this model are relative deprivation, poverty and inequality, unemployment, and class." This perspective explores the reasoning behind the choice of the legal or the illegal route as a means of procurement of required services or the achievement of certain goals. While this paper has explained some of these factors through the Rational Choice Theory and the Strains theory, it is empirical to note that a scholar came up with a model that would explain the motivation for criminality using specific factors that would be thoroughly explained. Crime is said to take place in different areas and it takes shape in different contexts. The economic theories, with their attempts to explain the motivations of criminal behaviour through understanding the financial underlying components of criminality are a means of answering the "why" question behind criminality.

(a) **Poverty and inequality.**

Criminal activities vary between different areas of residence. According to Nickerson (1983), as cited by Jacob (2011: 279), "poverty amelioration would eventually lower crime by enhancing the living conditions of the poor and thereby reduce their involvement in criminal activities." The South African government has implemented a number of projects that are aimed at poverty eradication and inequality, however, these programs have not been successful in reaching all spheres of the South African community. As such, one still finds that there still exist a large number of people who are still without electricity or basic sanitation. The community of KwaXimba is no exception. The last electrification project in this area was last done in the year 1994 and there has been many people who have built houses in these communities since then but have not received

any electricity from the Eskom/municipality alliance. Gordon (1973) believes "crime is an outcome of the poor's trying to create a better existence for themselves. The challenge here lies in clearly differentiating between Ehrlich's relative poverty formulation and Danziger's relative deprivation approach."

(b) **Unemployment**

There are two perspectives that seek to understand crime in relation to employment. The Radical approach poses that there is indeed a link that unemployment may lead to a rise in level of crime. On the contrary, some economic frameworks argue that employment and criminality are two independent variables. One can deduce that there is a relationship between people's inability to buy electricity legally because they are unemployed or have very limited sources of income.

According to Jacod, 2011: 280), "one weakness in connecting employment with crime is that the two activities are assumed to be independent of each other." Some criminals (e.g., drug dealers) switch between legal and illegal work depending on available opportunities." This statement can be utilised in explaining why Eskom employees would consume electricity illegally and why those who are able to connect electricity would connect it illegally without the knowledge of Eskom. Reasoning behind criminal motivations vary in the same way those who commit criminal acts are from different backgrounds.

(c) **Class.**

The classification of people into different groups was facilitated by the apartheid regime. Till date, some of the inherent outcomes of the regime still affect certain people or communities. Urban areas and townships received some attention form the government while rural communities were left neglected. There are programs that are specifically for these previously disadvantaged communities but as mentioned above, the gap between these rural communities and the urban areas remains great and unfilled. Jacob (2011:280) is of the opinion that "crime is really a response to societal prejudice against the poor." The direct motivation for why people would steal electricity is unknown, but scholars try to come up with reasoning behind why people steal electricity. KwaXimba community is a relatively poor community, one can then deduce that the criminal act of stealing electricity is just merely a response against poverty and deprivation. Moreover, Taylor,

Walton, and Young (1975) cited in Jacob (2011: 280) suggest that deviant behaviour may be a reaction to the challenges of living in a conflicted society.

3.5.2 The Present-oriented or Myopic Model of Crime

This model assumes that criminal activities are in the 'now' or are 'current'. They have not been thought out thoroughly. According to this framework, individuals who commit crime are highly impatient (Jacod, 2011). They will commit crime because they would rather reap the benefits immediately. Moreover, the effects or implications of the criminal act are said to be greater than the benefits of the crime eventually. Individuals who commit crime are present-orientated and are said to be highly irrational beings. To contextualise this perspective to the issue of Electricity Theft, one may propose that the longer the family or individual consumes the illegal electricity the higher the amount to be paid back should they be caught one day. Not even the issue of being incarcerated stands in the way of such determined individuals because they are more concerned about the current situation than they are about the future. Individuals who commit this crime of electricity theft do not put this into consideration. They want electricity immediately and will go through any means to have it installed. Eskom has through television advertisement warned against illegal electricity as it poses health hazards, but selective individuals will ignore this and embark in the process of installing electricity illegally and face health hazards in the future when incidences occur.

3.6 Conclusion

This chapter provides a broad understanding of electricity theft that exist across literature. It is important to note that there is limited academic literature on this subject. The available literature that exists mainly focus on electricity theft as a technical and economic problem rather than as a social one. Very little literature focuses on electricity theft because of the unattended socioeconomic challenges that are pursuant in the post-apartheid South Africa. Thus, engaging the general strain theory and rational choice theory and the economic theory seeks to expose more the social factors that cause electricity theft in South Africa

These three theories are relevant to this study and aids in explaining the problem of electricity theft in KwaXimba area. The findings of this study will add to the existing knowledge on electricity theft in the country while providing new insights in terms of electricity theft in KwaXimba area.

CHAPTER FOUR

RESEARECH METHODOLOGY

4.1 Introduction

This study will utilise qualitative methods as a procedure used in classifying, selecting, and examining the data applied to bring light to the research problem. The reason behind this method is that it allows one to obtain rich information of lived experiences as opposed to statistical data. The chapter takes one through the nature of the study, the location, sampling, research instruments, data collection, data analysis, ethical consideration, the procedure followed, informed consent and the limitations faced by the investigator.

4.2 Nature of the study

This study is qualitative in nature. It employs a qualitative approach in the procurement and analysis of the data. It is said that qualitative research method is the best tool when one wants to gain rich information about a subject matter (Hancock et al., 2009:4). The qualitative approach is therefore a tool with sensitivity to people's emotions and lived experiences. This study employs individual interviews as a Data Collection method. It is important to note that the data gathered was interpreted using the researcher's observation of the writing responses as well as their tone in addressing the semi-structured questions.

4.3 Location of the study

The eThekwini Municipality is situated on the east coast of South Africa in the Province of KwaZulu-Natal (KZN) and is bordered by three district municipalities, namely, iLembe in the north, Ugu in the south and uMgungundlovu. The eThekwini Municipal Area (EMA) spans an area of approximately 2297km^2, extending from Tongaat in the North to Umkomaas in the South and from the coastline in the East to Cato Ridge in the West and is characterized by coastal plains and steep and dissected topography.

KwaXimba is part of the Catorigde proximity area and is located under the eThekwini municipality. The area is a rural area and is situated under ward 1. Miya (2010) attests that the KwaXimba community was one of the first rural areas to be incorporated under the eThekwini Municipality when local governments were first introduced in 1996. The research took place across the smaller regions of KwaXimba landscape.

4.4 Sampling

Participant selection is an important part of data collection. According to Webster (1985), a sample is a finite portion of a population whose characteristics are studied to obtain data. Works of different scholars correlate in this regard. More explicitly, Fridah (2005:1) best describes sampling and its purpose as "the act, process, or technique of selecting a suitable and representative part of a population for determining parameters or characteristics of the whole population. What is the purpose of sampling? To draw conclusions about populations from samples, we must use inferential statistics which enables us to determine a population`s characteristics by directly observing only a portion (or sample) of the population. We obtain a sample rather than a complete enumeration (a census) of the population for many reasons. Obviously, it is cheaper to observe a part rather than the whole, but we should prepare ourselves to cope with the dangers of using samples."

For this study, the researcher utilised purposive sampling for collecting data. Reasoning behind the utilisation of purposive sample is that the researcher gets the opportunity to use candidates that are suitable and possess the characteristics that the researcher is looking for (Ritchie et al., 2013). Moreover, "this can involve developing a framework of the variables that might influence an individual's contribution and will be based on the researcher's practical knowledge of the research area" (Safakli and Eyyam, 2012). The researcher has chosen this study because it is budget and time friendly. The subjects of the study are concentrated in one area hence no need for travelling which can waste both money and time.

The researcher had a sample size of 20 participants. The researcher chose this number because it is relatively efficient to analyse the data obtained for this number of participants. The researcher recruited the participants by means of going door to door and scheduling interview meetings with

individuals that were willing to take part in the study. The researcher thoroughly explained the purpose of the study and what would be required from the participants. The interviews took place at the comfort of the participants' homes, and those who were not comfortable using their homes as a venue for the interviews suggested ones that were convenient for them. The age range was not identified.

4.4.1 Characteristics of the participants

The 20 participants were African, isiZulu speakers. Some were illiterate hence the researcher had the interview schedule translated from English to isiZulu to mend that shortfall. The gender division within the sample amounted to 12 females and 8 males.

4.5 Research instrument

The research instrument to be utilised by this paper is the interviews where a researcher had an interview schedule to guide the research interests. The individual interviews were semi structured. This form of interview was formal in nature. However, there are no structural questions aimed at inducing certain information (Kothari, 2004). The questions are open-ended, that is, the interviewer has more room to probe the interviewee. The probing is done along the line of the interview guide that the interviewer has set prior to the interview. The reasoning behind the utilisation of this form of interviewing is that "Semi-structured interviews also allow informants the freedom to express their views in their own terms" (Gillham, 2005)." Primarily, interviews were chosen (against focus groups) as the best form of data procurement because the topic is sensitive. No one person would speak of their engagement in a criminal activity in the presence of others. This in turn allows for a richer data. Numerous scholars prefer the use of semi-structured interviews since questions can be prepared prior to the interview meaning they will be better prepared and ready hence competent. Moreover, the researcher will translate the questions from English to IsiZulu as it is the language spoken within the KwaXimba households. Translations will also be done in the transcription process.

4.6 Data Collection

The researcher utilised the Primary data only. Primary data was collected in the form of individual interviews. Individual interviews are defined as a one on one contact between an interviewee and an interviewer; this may last between thirty minutes to an hour. The researcher interviewed 20 participants in the process of data collection.

4.7 Data analysis

Once the data was collected, the researcher transcribed it. Following which she conducted thematic analysis. Thematic analysis is a useful tool used in qualitative methods of enquiry for "'identifying, analysing and reporting patterns (themes) within data. It minimally organises and describes a data set in (rich) detail. However, frequently it goes further than this, and interprets various aspects of the research topic" (Braun and Clark, 2006: 79). To effectively utilise this method the researcher followed the 6 steps of analysis accordingly. The initial step was for the researcher to familiarise herself with the data. In this process the researcher immersed herselves with the data. This was done by means of reading and re-reading the transcriptions or listening to recordings countless times. In this regard, the researcher induced ideas from the data.

Secondary to this, the researcher utilised the ideas noted from the data in the following which she generated initial codes. These codes are not themes, they are more specific. The third step was to interpret the codes that had been collected. Researcher then organised the codes in terms of their similarity of split them because of the differences. The fourth step was the Review themes. According to Joffe and Yardley (2004) a review of the identified themes is done so that the researcher decides whether to combine, improve, separate, or reject initial themes. It is important to note that there must be distinction between the themes. The next step was to then create names for the themes. The names captured the very essence of the codes that exist under them. Finally, the researcher reported on the findings. The researcher interpreted and analysed the data and presented with empirical evidence that supported the research questions of the study.

4.8 Ethical Considerations

The researcher obtained written permission from the KwaXimba Ward one councillor. The letter gave authority for the researcher to conduct interviews in the community of KwaXimba. The researcher was granted ethical clearance by the University of KZN Ethics Committee. The researcher produced two letters to the participants. These were the informed consent letter for participation and the informed consent for audio recording. The interviews were recorded as per the consent of the interviewee; if the interviewee is not comfortable disclosing himself or herself under record then hand-notes will act as the primary record for data. To obtain the most quality data from the participants, the questions were asked in two languages, IsiZulu and English to accommodate different ethnicity. The duration of each session was 30 minutes.

4.8.1 What do ethical considerations entail?

Ethical considerations are there to protect the participants. Several attempts have been made in trying to protect the participants during a study. The principle of research is that no individuals taking part have been forced into participation. In assuring that the participants have not been forced, there is an informed consent form that needs to be filled by participants prior to the study. Essentially, participants are explained the study in the language they understand. The research must not subject the participants to any form of harm. Oakes (2002) attests that "Harm can be defined as both physical and psychological." Anonymity is used as a means of assuring privacy and confidentiality. It is therefore important that the researcher explains to the participants that they have rights and may withdraw from the study at any point during the interview. Ethical consideration are an essential part of any academic study and its guidelines should always be followed.

4.8.2 Procedure followed

For one to initiate the process of data collection, a gatekeeper's letter needs to be obtained. The researcher found that it was relatively easy for her to obtain the letter. The ward 1 Counsellor Musa Mkhize was willing to assist. The gate keeper letter was awarded to the researcher by the secretary of the councillor at his instruction.

The identification of participants was not challenging. Participants were not coerced into participating. Every interview was voluntary. They had understood after the explicit explanation of the study by the person investigating. This process took place in September 2017 at the KwaXimba Area.

4.8.3 Informed Consent Letter

Informed consent provides participants with sufficiently detailed information on the study so that they can make an informed, voluntary, and rational decision to participate (Shahnazarian, 2013). An informed consent form is therefore an ethical guideline that is utilised by persons conducting research. This assures that the researcher has not breached any of the ethical requirements prescribed by the University.

Upon beginning this study, the researcher followed all the ethical issues that were embedded in the informed consent form. The researcher assured confidentiality. Informants were made aware that information they provided could not be utilised against them as it was collected for the purpose of research. The interviews would last for about 30 minutes to an hour and participants were made aware that they could withdraw at any point. This information would be stored for five years at the location known by the researcher and her supervisor. The participants were made aware that there would be no financial benefits for them. Lastly, those who chose to take part in the study were given a form to sign. They therefore had to indicate if they want to be recorded by voice recorder or video recorder or none of the two mentioned. Mlamla (2017) posits that "many misunderstandings can occur between the researcher and the participants that may be caused by some barriers. Such barriers may be related to gender, identity issues, and cultural aspects such as language differences and religious dogma. Most importantly, the process of informed consent was designed to protect and respect the participants." As such, the researcher translated the Informed consent form into IsiZulu to accommodate the participants who are unable to understand English.

4.8.4 Limitations of the Study

Upon arrival at the homes of the participants. Some individual was reluctant to take part in the study because of their underlying assumptions. Electricity theft is an act that is against the law. The residents of KwaXimba were aware of this and thus afraid to speak out about the letter. The researcher had to explain thoroughly the purpose of this study and take the participants on a step by step process of the utilisation of the data that they were presenting.

Some of the participants were not available at the allocated time of the meeting, the researcher then had to reschedule or find alternative participants for the study.

CHAPTER FIVE

DATA PRESENTATION AND DISCUSSION

5.1 Introduction

This chapter is an analysis, discussion and presentation of the data that was obtained during interviews with the community members of KwaXimba area. A total of 20 participants aided the researcher in gaining knowledge about the community. Interviews were done in IsiZulu as the participants were comfortable in this language. The researcher initially transcribed the interviews in their original language (IsiZulu) then translated the transcription into English. The researcher then objectively interpreted the data. Participants are not presented by their names due to ethical considerations. The data obtained from the interviews has been linked with the readily available data within the thesis hence corresponds with the objectives of the study. This chapter discusses the following topics:

- The presence of electricity in homes.
- The community's general understanding of electricity theft.
- Causes of electricity theft.
- Electricity connection in KwaXimba.
- Monthly expenditure on electricity.
- Forms of electricity theft identified in KwaXimba.
- Reasons for the theft of electricity- Monetary, service delivery/ increasing households since 1994, the choice not to purchase electricity and Houses bought with illegal electricity.
- Effects of theft on Eskom.
- The effects of theft on the community.
- Community awareness about stolen electricity.
- Personal accounts of the dangers.

- Societal perceptions of the theft of electricity.
- Prevention Measures.
- The removal of stolen electricity.

5.2 The presence of electrify in homes

All respondents interviewed for this said they had electricity at their homesteads, although most of these households had installed it in an illegal manner. They all agreed that the presence of electricity makes their life easy. All of them were of the view that without electricity nowadays it is difficult to undertake daily tasks, hence it is a must for everyone to have electricity at their home. Most of the respondents described electricity to be one of the basic needs which every individual of our generation does need at his or her disposal all the time for survival. One of the respondents had this to say:

Nowadays everything is now electrified, so it is very difficult to live without electricity.

Echoing same sentiments another respondent said:

Yes, I do have electricity, what can we do nowadays without electricity? It is like one of the basic needs for our daily lives.

The need for electricity seemed to be a common conception within the community. The findings of the study confirm that the presence of electricity in KwaXimba rural community confirms Mbabele's (2015) notification of Eskom's efforts of completing rural electrification by 2020. Electricity has become one of the most essential things the society needs for survival and livelihood hence the urgency by the government in pursuing the rural electrification program (Eskom, 2016). However, the fact that all the respondents confirmed that the presence of electricity in most of the surroundings including in some of the respondents' homes is illegally connected shows that the process of connecting electricity in these rural communities has been slow.

5.3 The KwaXimba community's general understanding of the notion of electricity theft

Upon conducting the interviews at the community, the researcher found that the members knew electricity theft is a punishable act that is against the South African law. Some claimed to have been made conscious by the media through radio or television while some claimed, "they just know." Reflecting on the general strain theory, there are various laws and rules that exist within society (state or community) to keep individuals in check and maintain a certain conduct which is regarded as good and acceptable. This means KwaXimba communities have general understanding of what is wrong and right with regards to electricity theft and its consequences. Thus, the interview revealed that they are aware of electricity theft and its dynamics, but they do not know for sure how they came about to knowing. However, it was clear that the people of KwaXimba are aware of what electricity theft is and it is a common practice around the community. They confirmed that they are aware it is an illegal act, but they continue to do it anyway. One of the respondents said:

Yes, electricity theft is a common thing, people connect directly from the poles without the assistance nor the knowledge of Eskom.

Respondents justified that they understand electricity theft but in most cases Eskom does not respond to fix all the reports of faulty electricity and people end up doing it for themselves. Electricity theft does not occur because of lack of knowledge hence the study discovered some of the reasons that attribute to the theft of electricity within this KwaXimba community specifically. The community seemed to have some understanding of the fact that electricity theft is an act that is against the law.

5.3.1 Communities awareness that stealing electricity is an illegal act.

All respondents said they are aware that stealing electricity is an illegal act. Some of them especially those who use their neighbours' electricity, reported that they are waiting for Eskom to

come and install for them, while others blamed poor service as the cause for them to steal electricity though they know it is illegal. One of the respondents had this to say:

Yes, we are aware that it is an illegal act, but we do what we must do, service delivery is poor in this community specifically in the provision of power for us.

Another respondent said:

Yes, I am aware that it is illegal to steal electricity, but we have no choice, even today we are still waiting for Eskom to install electricity for us.

Citing financial problems another respondent said:

Yes, I am aware it is illegal, but I am poor, so I have no choice.

It is of interest to note that the KwaXimba society perceive electricity theft in their area as a common practise which is now socially acceptable. Seger and Icove (1981) posits that electricity theft is a silent crime that even when people acknowledge that it is wrong they will not report it, therefore it is not as effective to rely on tip-off. This was attributed to the high number of people who are connected illegally in the area which nobody in the area complain of the practice. It is something which they have embraced, accepted and see no wrong in doing it as a society. This clearly confirms the understanding of rational choice theory, which clarifies that consistent practices in communities are often ignored even though they are wrong, people feel it is part of their lifestyle. One can relate the findings of responses and findings of this study to that of Eskom (2016) in Operation Khanyisa which revealed that 96% of South Africans acknowledges that electricity theft is wrong, however despite this acknowledgement, only 16 percent believed that they will be caught. This clearly shows how electricity theft has been normalised not only in KwaXimba but in communities around South Africa.

Moodley (2013) notes that there is much ignorance in communities and businesses when it comes to electricity theft, as they lack understanding of the consequences. The findings of this study were revealing in showing how ignorance also exists in Eskom as respondents outline that Eskom knows of electricity theft practices that happen in the community, but do not react or complain. Respondents confirmed that such reluctance by Eskom has encouraged the community to consider electricity theft as a normal thing to do. Above all the society do help each other to connect illegally

marking how the society has come to consider the practice as a common practise amongst them. Rational choice theory confirms this behaviour by people of KwaXimba as a logical practice they choose to engage in to minimize their losses. However, this has led to respondents revealing that there are no measures which have been taken in the area to prevent electricity theft.

The findings of this study outline that respondents reported that all attempts to prevent electricity theft were never successful as the community always find a way to jam the electricity meter. This clearly explains why the Operation Khanyisa reports of 2016 revealed how Eskom lost an amount of R15.4 billion in 2016 alone due to Non-Technical loss of energy; that is, the energy lost due to illegal connections, meter tempering and the buying and selling of illegal electricity prepaid. The community of KwaXimba may be a clear reflection of many other communities that might have normalised electricity theft.

5.4. Causes of electricity theft in the area

All respondents reported economic hardships as the main cause of electricity theft in their area. Some said the grant money they receive is not enough to cover everything and electricity is expensive, so they cannot afford to buy, as a result they end up connecting with their neighbours. Some reported that due to high unemployment rates and poverty it is difficult for people to afford electricity thus resulting in them stealing. Some respondents pointed delay by Eskom in installing electricity as one of the main reason people end up stealing electricity. One of the respondents had this to say:

People steal electricity because unemployment rate is very high in this community and Eskom does not install electricity for us, and we are not able to afford electricity bills.

Another respondent also said:

It is because of poverty and lack of employment, people are without money, most of the households around here are run by old people who rely on the old age grant and child grant for their livelihoods, as such, people cannot afford to buy electricity and pay for water along with other household necessities.

Complaining of the Eskom's delays one of the respondents also said:

It is faster and easier to steal electricity than waiting for Eskom to come and do it for you. Eskom do not even care about us and they take ages to come and install electricity if called, so people become so impatient and end up stealing electricity to cut Eskom's long waiting period.

Participants gave different reasons as to why people steal electricity. Some of the reasons include poverty, expensive rates for electricity, and poor service provision by Eskom. However, the most common and dominant responses was the lack of finance as people are unemployed as well as delays from the side of Eskom in installing electricity. Both theories utilized in this study can perfectly relate to the responses given by the interviewees. The general strain theory justifies that if the people are socially or economically strained they are most likely to resort to illegal measures to sustain their needs (Agnes and Brezina 2010). More so, the rational choice theory clarifies that it is always viable and logical for people to embark on activities that minimises their cost despite illegal processes that might be aligned with their choices. The people of KwaXimba relate with these theories and their responses justifies the sentiments portrayed by these theories.

Various scholars, clarify that in high density urban areas and rural areas electricity theft is dominant due to extreme poverty and lack of employment that affects the communities (EE Publishers, 2008; Andrew and Prachi, 2013). More so, Edmonds (2013) reveals that the crime of electricity theft in influenced by the huge inequalities that exist between the rich and the poor. In noting the findings of the research, the respondents clarified that they had no choice but to engage in illegal connections of electricity since they could not afford to pay. This explains why only two of the 20 respondents confirmed that they pay electricity, even though only 6 respondents confirmed that they connected electricity illegally. Thus, poverty influences electricity theft through various means of non-payment and illegal connections.

5.4.1 Reasons for electricity theft

Any behaviour by human beings is motivated. As such, there are various reasons behind the notion of electricity theft within any given community, the reasons may vary across communities or more specifically among families. Scholars outline that in South Africa, the dominance of socio-economic ills which include poverty, unemployment, and inequality always have the biggest effects on criminal activities within societies (Mauro and Carmeci, 2007; Kelly, 2000). According

to Westhuisen (2011), rational choice theory expresses that human beings rationally calculate the risk of a crime and weigh them against the benefits. Meaning electricity theft is a decision that people make after weighing their opportunities and benefits of engaging in the act despite the knowledge of its illegal consequences. More so, people consider the strain that the issues might present to their various needs if they are to follow proper procedures. The means, whatever choices and decisions people make in communities, they are carefully weighed and considered on the costs and benefits. Thus, the first reason electricity theft dominate in South Africa is related to socio-economic factors. Scott et al. (2005), notes that when governments are reluctant to allow for the supply of electricity to informal settlements, or rural areas people resort to power theft to meet that need. This means the second reason that influence electricity theft is poor service provision by the government. However, there are also other various reasons found in literature, for instance Gaunt et al. (2012), suggest that the fast-growing population in South Africa is one of the reasons that the government has failed to keep up with in terms of provisions such as electrification, housing and so forth. The third reason why people engage in electricity theft is because of their rational choice to benefit at zero cost. The fourth reason is when people buy houses that already have illegal electricity connections. Therefore, these reasons were clear in KwaXimba as revealed by the findings.

(i) Socio-economic ills.

The setting within the rural areas is the most probable reason for the theft of electricity. The economic status of the families and the communities are one of the contributory factors that were attributed by the participants of the study. Upon the identification of patterns and themes within the interviews, the researcher observed that the issue of money formed a large portion of households that are utilising stolen electricity. This is because most people are unemployed and have no other source of income to cater for bills. One respondent revealed that:

Only my granny works in this house. The money she gets is not enough to feed all of us and to add electricity on top of that would be an extra strain. Government should give us free electricity the same way it has given us free water in this community.

This assertion is in line with Depura et al., (2011). According to them, electricity theft is proportional to the socio-economic conditions of the consumers of electricity. This clarifies that people are strained economically and as such choose to engage in electricity theft. The community

is of poor economic status but claims to need electricity at this age. One participants went further to say that they can't even use wood now as a source of energy because even the forests are now cleared off from deforestation. Electricity is a necessity that they require for their livelihood.

Another respondent also said:

We do not pay for electricity, we are using illegal electricity because conventional electricity is it expensive. Eskom installed electricity meters and never came back for check-ups.

The above response reflects that the members of the community took advantage of the fact that chances of them being caught are minimal. This is because Eskom does not come for check-ups and does not have any monitoring systems put in place to install some degree of fear and compliance with electricity policies.

(ii) Poor (reluctant) service delivery and the increase in households since 1996

Out of the twenty respondents interviewed for this study, only four people said they pay for the electricity they use, one saying he pays R250 while the other said R100 per month. All other twelve reported that they do not pay for the electricity they are using in their households. Some of them reported that they are illegally connected to the power cables, while others said they are connected to their neighbours and some said their electricity meters are scammed. Most of respondents noted that Eskom was reluctant to come and connect electricity for them and to address some of their electricity faults. Therefore, they had to resort to electricity theft. One of the respondents had this to say:

We robbed it, our electricity was faulty, and we called Eskom to come and fix it but they never came, therefore we were forced to get someone else to help us.

Empirical data also reveals that the demographics of this area are the reason why there has been an increase in the theft of electricity in KwaXimba. Community members believe it is because they are situated in the outskirts that they do not have electricity and they are left neglected. One respondent attested that:

Everyone who came here after 1996 should be attended first by Eskom and install new electricity for them. Eskom last came to this community in 1996 so all of us who came after were never given the opportunity to have power in our homes.

Another reason that was attributed by the community was that of poor service delivery. One elderly woman expressed that she has been living in the community long enough to know that service delivery in the area is very poor. As mentioned above, the last time Eskom did an electrification program was in 1996. The lady even went as far as to show the researcher her receipt/licence of installation (Appendices 1). An electrification program was only evident in the community in 1996, however, families who are well off financially have been able to procure electricity for their households. The number of these families is significantly low compared to the number of households without electricity or compared to the number of households with illegal electricity. Moreover, the participants were not shy of the fact that of authorities don't provide them with electricity then they will continue to steal electricity. The number of household is increasing every year, and this means that the degree at which Eskom is losing electricity is also increasing. According to Bekker et al., (2008), electrification of rural areas began in 1990 in South Africa but slowed down around 2013 due to lack of resources. The KwaXimba community falls victim to such as there has been no electrification program in the area since 1996. Twenty-one years later, families have had to make alternative means of electric installation.

One can note that Eskom's failure to show a level of commitment to the community of KwaXimba has become one of the major reasons for electricity theft in the community. Soriyamongkol (2002) notes that people abstain from paying bills and engaging in illegal process if they are not satisfied by the way the service provider is rendering the services. Thus, the reasons influencing the people of KwaXimba to engage in electricity theft are clear.

(iii) The choices not to purchase electricity

Scott (2000), Sato (2000), and Westhuisen (2011) believe human beings are logical beings who weigh the option of being caught with the benefits. Upon studying the interviews, the researcher also noted that one of the twenty_households were utilising illegal electricity because they were merely avoiding putting money towards electricity. In understanding that this research utilized Rational Choice Theory, one can understand that people always make conscious decisions considering their advantages and benefits. This means individuals will weigh the risk of being caught committing criminal acts with the benefits. Almost half of the respondents expressed their dislike for legal connections of electricity because it would deprive them of free electricity. One

of the respondents attested that she would rather have free electricity than to buy it. One of the respondents said:

No, I would hate to have to pay because then we would stay in the dark. No one works in this house. How would I pay then?

Households have been increasingly opting for this illegal electricity because no authority has come to the community. Not one community member has faced any form of consequences or justice of stealing electricity and thus when weighing risks and benefits members find that there are more benefits to the issue of free illegal electricity. One of the young respondents had this to say:

Why should I pay for electricity when I can use free electricity? At first, I was scared. I was away and when I came back they had tempered with the metre. I shouted at everyone here at home but over time I got used to this life of not having to buy power. Back in those days, we would go get wood from the fields if we want to cook things that take long to get ready, I remember hating Stamp, Beans, and steam Bread for this reason. We were not allowed to put it on the electric stove because it wasted electricity and sometimes we would sleep in the dark. Free electricity has made life easier for me. We don't go to the fields for wood, but we get to cook four hour long dishes because of this kind of electricity. I am not saying it is right but I am enjoying the benefits of it but I pray every day that we don't get caught and sent to jail.

If there are no repercussions for stealing electricity, then members are more likely to engage more and more in illegal theft. The rural areas are however left unmonitored. The assertion above is in line with Golden (2012: 4) "unmetered use is even more common in rural settings, where it may be difficult and expensive to install individual meters and even more problematic to ensure that they are regularly and accurately read." This means that because meters are left unmonitored, the risk of being caught stealing electricity are minimal. This is then in line with the Rational Choice Theory.

(vi) Houses bought with readily installed electricity

This is the fourth reason which was less popular among the households. Only 4 households reported that they bought a house that had electricity installed already. This electricity was illegal in nature. While two of these household reported to have made attempts to have this kind of

connection removed. Two of them said to have made no attempt and are enjoying the fruits of such connections. One woman attested that:

We bought the house from a family that was moving from the community. The house had electricity and water. Both utilities are not legally paid for. At first, I was very reluctant about using the electricity but eventually I and my husband decided it was okay to use it, it is not us who put it here. We bought a house and there it was. I know that if police came they would arrest one of us but that is a risk I am willing to take – it's not like they will come. It been years and years now and I don't even know how long exactly, and it is true, the police have not come.

5.5 Electricity connection in the KwaXimba community

Slightly above half of the respondents interviewed for this study said electricity at their households was connected by Eskom. Interestingly four of the respondents said they do not have electricity meter at their household but they are connected and use electricity from their next-door neighbours. Only one respondent said he connected by himself while another respondent said an Eskom employee came and connected the power illegally from his neighbours. One of the respondents had this to say:

Yes, Eskom connected for us the power, we had to call them to come and connect.

Another respondent also said:

Yes, we bought a house that already had an electricity meter which I perceive it is Eskom which connected.

One of the respondent who said he does not have electricity meter said:

No, it is not Eskom, I do not have an electricity meter. Someone who works at Eskom connected electricity illegally for me from my next door.

Most of electricity connections in KwaXimba appear to have been done illegally. Jamal (2015) explains that it is often costly for Eskom to expand into low threshold income areas to connect electricity because the consumptions levels are very low. This means that should Eskom connect these areas; the company would not be able to recover operation costs from the tariffs alone thus

the delays in formal connections. Thus, the fact that legal connections are limited, people have no choice but to connect electricity illegally.

5.6 Monthly expenditure on electricity

Out of the twenty respondents interviewed for this study, only two household said they pay for the electricity they use, this household claimed to be utilising an amount around two hundred and fifty a month on electricity. Two households could not say how much they are paying exactly for the electricity but claimed it is very expensive. The rest of the sample reported that they do not pay for the electricity they are using in their households. Some of them reported that they are illegally connected to the power cables, while others said they are connected to their neighbours and some said their electricity meters are scammed. One of the respondents had this to say:

We robbed it, our electricity was faulty, and we called Eskom to come and fix it but they never came, therefore we were forced to get someone else to help us.

Another respondent also said:

We do not pay for electricity, we are using illegal electricity because conventional electricity is it expensive. Eskom installed electricity meters and never came back for check-ups.

Katiyar (2005) notes that illegal connections in rural areas are very common. The respondents of this research study justified the illegal connection of the electricity claiming that it is an expensive process. Interestingly, most of these participants do not even know how much it will cost to install electricity. This means they did not even try to install it legally because of rumours that it is expensive. However, Katiyar (2005) notes that, "high costs, both at the entry level and in terms of regular electricity bills, also lead to higher incidence of theft." What is also revealed is that some of the workers of Eskom come and install electricity illegally according to the participants, but there is no indication of whether they confirm if these people were really working for Eskom or not. Interestingly, findings in literature validates this claim as incidents of Eskom officials being bribed for illegal connection are noted by Clarke (2016) in Chaneng village in Zandspruit. Corruption Watch (2015) and Mileham (2017) agree that corruption is one of the major causes of the electricity crisis in various communities.

5.7 Forms of electricity theft identified by the participants

There are different forms of electricity theft that exist. These forms of electricity theft include meter-tempering, electricity fraud, illegal connections, billing irregularities, and unpaid bill or non-payment of electricity. The most common forms of electricity theft identified in literature are illegal connections, non-payment and meter-tempering (Moodley, 2013; Eskom, 2016). The research revealed that 17 of the 20 households had stolen electricity as their source of energy. Of the 17 households, 3 revealed that they bought a house where there was electricity that was illegally connected, one family had tried (through applying to Eskom for new connections) to have it removed for a legal electricity metre but Eskom never delivered. The remaining two attested that they have never made any attempts.

The types of theft identified in the area were, firstly, illegal connections. That is, the residents are connected to the main source of electricity through tiny cables that extend from the poles to their households. To illustrate this, one lady said that:

There is a boy from the community who has some knowledge of the connection of electricity and he is the one who normally connects it for every new household which comes into the community. He is not informed enough so sometimes you find that his connections are dangerous and there are lose wires.

The respondents clearly clarified that the young boy mentioned is not the only one who participate in assisting people to engage in illegal connections. Some people get individuals from outside the community to come and assist them. Thus, people rationally weigh their options in considering options that are cheap for them as stipulated by rational choice theory. More so, some respondents indicated that in some occasions they pay some Eskom officials to come and do illegal connections for them.

Tempering of meters was the second most prominent form of electricity theft in the area. Two families admitted to having tempered with a metre that was installed by Eskom around 1994/1996.

Electricity is expensive my child, we had to do something to keep it connected. We had someone fix it for us and now we do not pay.

The third form of electricity theft was the connection from the neighbours. Some households utilise one metre for many families. An example of such was a woman who expressed that:

I applied to Eskom for electricity, but they have not come and we have given up, I have a tiny cable they extend to my neighbour's house. I don't pay her because she also does not pay, I do however help up with money to fix it when it malfunctions. The capacity of the electricity is not sufficient for 2 families but what are we supposed to do?

The few families that buy electricity believed the rates in which they buy electricity and it depreciates solely because of the households that steal electricity. These families were strongly against the theft of electricity within their community.

Fourthly, it is also important to note that of the twenty respondents interviewed only two confirmed that they pay electricity, meaning that the rest engage in theft through non-payment of electricity. Soriyamongkol (2002) posits that non-payment of electricity is a form of theft that is found in every country across the world. Mkhwanazi (1999) notes that non-payment of electricity is a culture that is evidently common in South Africa. Smith (2006) explains that findings by the utility authorities of South Africa revealed that non-payment of electricity is not only found amongst rural communities or urban poor areas but also amongst the rich and industries. In 2014 eNCA news revealed that, "Municipalities are under enormous pressure due to non-payment of electricity bills. Municipalities are owed R68-billion in unpaid electricity bills." This clearly indicates that non-payment of electricity is not just a result of being poor but also a choice of one. With this understanding one can concur with Mkwanazi's (1999) assessment of the culture of non-payment of electricity being a common practice.

5.8 Awareness of the dangers involved in illegal electricity theft

There are various incidents recorded across literature which reveal the dangers of electricity theft. This study found out that all the respondents were fully aware of the dangers involved in illegal electricity. Most of them pointed out that people do not know any safety measures when installing electricity which leads to explosion and electric shocks. Some identified death as a consequential danger and gave reference to cases of electricity shocks and explosion of electricity meters which

once happened in the society. Some reported that if electricity wires are not covered well it is dangerous to children. One of the respondents had this to say:

I am aware of the dangers, illegal electricity kills and if electricity is stolen, electrical cords does not get covered properly and that becomes a danger to children and these people who install electricity illegally do not work at Eskom and are unprofessional.

In support, another respondent said:

Yes, I am aware of the dangers, some of these cables are on the ground and are exposed, this is more dangerous the kids. Electricity is dangerous and can be very harmful especially when you have no knowledge on how to protect yourself.

Echoing same sentiments another respondent also said:

Of course, these people do not know any safety measures that should be put into installing electricity. Sometimes they install electricity and leave the cable wires exposed.

According to Gumede (2016), illegal connection of electricity which is known as *izinyoka* is a danger to health and livelihood of people especially children. Eskom's website warns about the dangers of illegal connections and how they have resulted in the deaths of many people. Various news outlets and platforms have revealed incidents of electrical fires and electrocutions of people which resulted in death. For example, eNCA (2015) reported about a woman who was electrocuted to death by an illegally connected cable in the Stanger Shacks at the KwaDukuza municipality. In understanding the danger of illegal connection of electricity, one would expect the people of KwaXimba to hope for legal and properly connected electricity. However, despite being aware of the dangers, most of them still prefer to use illegally connected electricity. One can therefore relate such dangerous choices to Petracca's (1991:289) assessment that, "the rational choice approach to politics assumes that individual behaviour is motivated by self-interest, utility maximization, or, more simply put, goal fulfilment." Hence it does not matter the dangers that might be associated with such choices.

Findings of the study show that people of KwaXimba are not fully aware of the dangers involved in illegal electricity theft. The knowledge they have is only based on practical incidences which happened in the area including deaths. Explosions and electric shocks due to poor and wrongly

connected cables are the main dangers which they know. There is death which they reported to have happened in the area and some have lost their properties due to wrong connection of electricity. This is so as it was revealed that people who connect electricity illegally do not know most of the safety measures to be taken when connecting electricity. In explaining how some dangers has manifested in their households, some individuals reported death, electric shocks as well as loss of properties. More so, it is important to note that the respondents only noted the dangers related to the health of people. Literature exposes that the dangers of electricity theft stretches froth to the economy of the country and power failures (Smith, 2004; Times live news, 2016; Sowetanlive, 2016). Therefore, one can conclude most people's knowledge on the dangers of electricity is limited to human health threats only.

5.8.1 Experience of illegal connected electricity dangers.

Out of twenty respondents eleven of them said they experienced dangers associated with illegal connection of electricity. Most of them pointed to their relatives who died due to electric shocks, majority being children. Some reported their appliances which said they were burnt due to electricity which was connected illegally. Some pointed to community members whom they know to have died due to uncovered electricity cables. One of the respondents had this to say:

Yes, I experienced it, a small child died due to illegal electricity, my sister's kid held on to a cable that was suspended between the zinc roof and the pole on the ground. The wire was meant to protect the roof from hard winds. However, one day the cable/wire caught power and the child was playing outside. When my mom looked around she saw that the child was standing still for a long time but paid no attention. When I came home I saw that there was something abnormal in the way that the child was holding the cable. I called his name in a playful manner as usual but he didn't respond as he usually does. Upon realising that the child was in trouble I pulled out a plank and used it to remove the child from the wire, but it was too late. The child had already passed on. This was the second death in the community and it's very sad.

Another respondent said:

Yes, well my grandfather from Richmond died from electrification. Also, my nephew got electrocuted by a lose cord not so long ago, this type of electricity is very dangerous.

In line with burnt appliances, one of the respondents said:

Obvious if you are connected illegally expect anything anytime. This other time, the cables burnt, and that affected my Television, radio including my kettle.

Vuk'uzenzele (2014) sadly notes that when illegal connections claim lives, it does not only affect the lives of perpetrators but also the lives of the innocent members of the community that may be children. One can note an example of Alex where an illegal connection caused fire that left 17 families with no homes (SA News, 2017). Experiences such as these confirm some of the experiences that people of KwaXimba witness due to illegal connections of electricity.

5.9. Effects of electricity theft in the community

Vuk'zenzele, (2014) outlines that electricity theft has various negative effects which include power outages and instability of power supply. This means electricity theft results in some ripple effects that end up affecting businesses, hospitals, public and private organisations. Out of twenty respondents interviewed for this study, eighteen of them said they are aware of the effects of electricity theft while only two said they do not know of any effects of electricity theft. The first effect that was cited by the participants was the issue of thin cables that are suspended across the roads and block cars from passing through. The second one was that the power is weak across the community at certain hours i.e. peak hours. One cannot cook as the power is weak/ low, and stoves are unable to heat up. The third effect cited by the interviewees was electric shock. This was said to be evident in the community where two kids have been electrocuted to death. It was also pointed out that load shedding is also part of the effects that electricity theft has on the community.

One respondent said:

Electricity theft results in increased load-shedding, since almost everyone is this community is using illegal electricity, Eskom is not benefiting from us.

Another respondent said:

If electricity is stolen, electrical cords does not get covered properly and that becomes a danger to children and these people who install electricity illegally do not work at Eskom and are unprofessional.

In support, another respondent said:

Electricity does not work properly, the power becomes very weak, unknown fires are mostly common.

Lastly, a respondent said:

Some of us have cars, at some point you find that a cable extends from one family to another. It may be that these families are situated across each other and there is a road in between. These cables are supposed to extend from high up in the air to not disturb cars or even people passing by, but you find that they are very low. How are we supposed to pass by then?

On issues pertaining to effects of electricity theft, findings show that load shedding, death and unscheduled blackouts as well as some individuals paying more money than others are main effects of electricity theft. Results also shows that some community members complain of weak power flows of electricity due to overuse since one electricity meter will be used by more than 1 household connection.

5.10 Society's perceptions towards illegal connection of electricity (socially accepted or not)

Interestingly seventeen of the twenty respondents interviewed for this study perceive illegal connection of electricity as a common socially acceptable practice, and only one respondent said it is not socially acceptable. From those who said it is commonly acceptable practise socially, most of them said since nearly half of the community is doing it, everyone has come to a point of accepting it to be right. Some said even Eskom knows that we are connected to power illegally and they do not do anything about it, to mean it is acceptable. Others said the society members normally help each other to connect electricity illegally to mark it is a commonly acceptable social practice. One of the respondents had this to say:

Yes, it is acceptable, and it is common, but it is illegal. Even Eskom knows that we do not have electricity and we are connected illegally.

Another respondent said:

Yes, as a society we have come to accept it, there are more illegal here than legal connections around here.

In line with this, one respondent said:

It's funny to say this and I do not mean it in a humorous manner. Electricity theft is a thing in this community. It is normal. All of us have it, you apply, and they don't come to install it for you therefore what we do is we have people install for us. I can say it is acceptable for people to steal electricity in this community.

In contrast, only one person said it is not acceptable said:

No, it is not socially acceptable, and it is wrong, but people do it anyway.

In line with this though, another participant responded by saying:

Just because something is being done by almost everyone then it does not make it right. Illegal connections are wrong and can never be acceptable. If so then every crime e.g. rape should be normal and acceptable, but it is not. Electricity theft is also a crime and should fall under the same category.

The analysis is that while the act of stealing electricity is widely spread in the community, some of the community members still have a moral sense. They can say that this is wrong, and this is right, this is legal, and this is not without being influenced by what society is doing or accepting as normal. The portion of the people who believe stealing electricity is an offence that is unacceptable is less than those who believe it normal and acceptable because it is done by relatively everyone and they have sound reasoning for partaking in this activity.

5.11. Participant perception of how Eskom is dealing with electricity theft

Various governments across the world are increasingly putting in place measures of detecting electricity theft. Scholars agree that detecting theft of electricity has emerged as an active area of research as a measure to deal with this very economically costly and deadly practice (Mandava et al., 2014; SEI, 2017). However, it is surprising that nearly all respondents said there are no measures which are put in place to prevent electricity theft in their community only one person mentioned that Eskom tried to change electricity meters as one of the measures, but he also concluded that it was not effective. Some said if there is any, people do not know them. Most of them were quick to point to the high number of people who are using and stealing electricity and

the way they help each other connect electricity illegally as a sign that there are no measures which are in place to control electricity theft: one of the respondents had this to say:

None (but Eskom supports us if anything burns Eskom comes and assists, I do not know why they don't come when we apply for electricity).

Another one said:

They promised to change the electricity meters and install proper ones but since then, they have not delivered.

Referring to an incident of death which once happened in the society another respondent said:

None. There are no measures at all. If there were any, deaths which we have seen would not have happened. So there is none and Eskom should support us because this electricity will continue killing us.

Electricity theft control does not exist in the community, but one respondent seemed to have had knowledge of an attempt by Eskom to minimise electricity theft within the community. The respondent said:

Some men came years ago, and they attempted to change our metres. the community unfortunately away chased Them. This community is closely knit and if they agree on one thing that they do it and succeed. The personnel sent by Eskom was rumoured to be thieves who were here to remove one metres for their personal benefits. As a result, the community chased these people away and they never came back. I cannot be too sure if it was Eskom, but I think if it was them they would have come back at a different time using a different approach like calling a community meeting and informing us of the changes that are to take place within our community……moreover, about two years ago, some people also came in the community in relation to electricity. They did not come to remove out electricity, but they claimed to have been sent out to change the "tiny pole" which were not meant to connect electricity in the first place.

The respondent showed the researcher that next to the illegitimate pole there was a hole dug out. Upon visiting different households, the researcher noticed that every "tiny pole" had a hole dug out next to it. The issue is that the community members are not aware who sent out people to dig out these whose hence 2 years later, some of the households still have these holes next to their

illegitimate poles. The need to reduce tariff rates and for Eskom to regularly check if the electricity meters people are using are legitimate were suggested as ways to reduce electricity theft. Provision of free electricity by the government, especially to grant holders and old people was also suggested as a solution to end electricity theft through Free Basic Community (Eskom, 2016). Strict rules and harsh punishments to electricity thieves is also one of the reasons respondents suggested to be one of the ways to end electricity theft. However, other studies show that those who are prosecuted for electricity theft are only sentenced between 3-6 months or a fine of R500 (Eskom, 2016).

5.12. Suggestions to minimize electricity theft:

All respondents were of the view that Eskom must install electricity to everyone and they must be fast about it. They all cited that Eskom must be quick to respond when a fault is reported. Some said there is need for the government to create jobs so that everyone will have work to do and afford to pay for electricity. However, some said electricity is now a basic commodity so the government must provide it for free. Strict rules to control electricity usage and preference to people who came to the area before 1996 must be given when installing electricity. The need to reduce tariff rates and for Eskom to regularly check if the electricity meters people are using were suggested as ways to reduce electricity theft. One of the respondents had this to say:

Electrify every household legally, minimise costs of power. Have measures or methods of checking if connections are still in the original state set up by Eskom.

Echoing the same sentiments another respondent said:

Electricity should be free, government must pay for electricity, this will eliminate electricity theft and people will be safe from illegal electricity.

Another respondent also had this to say:

Everyone who came here after 1996 should be attended first by Eskom and install new electricity for them. Eskom last came to this community in 1996 so all of us who came after were never given the opportunity to have power in our homes.

Citing intervention of security forces, one of the respondents said:

People who are using illegal electricity should be arrested and in this way, no one will continue with using illegal electricity.

Another responded said:

Government should install electricity for us. When that is done, they must put in place those program they put in informal settlement. We are in rural areas and we are poor. How are we supposed to pay for our electricity? I listen to the news a lot, and I know that if you use electricity wisely then you can get some free electricity in those informal settlements.

Considering the above response, it is evident that the government together with Eskom have put in place programs that are to assist both the community and the producer of power. Eskom (2016) is one of the programs that have assisted communities with power and affordability. In addition, communities like UMlazi Township is the very benefits that the responded cited in her response. To deal with electricity theft in the area all respondents were of the view that Eskom must install electricity to everyone in time. When their electricity faults the community suggested that Eskom must respond as quickly as possible before people turn to stealing electricity.

5.14. Feeling over removal of illegal electricity

It is of interest to note that most of the people including those who are using illegal electricity said they will be happy if the use of illegal electricity is removed, while some said they will be hurt since they will not afford to pay the bills. Most of the people who said they would be happy mentioned that they will have to pay less money for the electricity. Some said it will reduce dangers and death which might happen due to wrong connections. One of the respondents had this to say:

I would be happy because we will be safe but still electricity should be made affordable for everyone.

Another respondent said:

I would be very happy since that will minimise the incidents caused by illegal electricity and everyone would be safe. (It becomes problematic when you are the only one buying power, this is because the charges become higher than they should be.

The respondents are highly unhappy with the dangers around electricity that is stolen such that one respondent said:

I would be happy because this will minimise the dangers of electricity.

In line with those who said they will be hurt if the use of illegal electricity is removed, one of the respondents said:

I will be hurt, and I want to continue using illegal electricity since I cannot afford electricity. I am not employed.

Another one said:

It will hurt to start paying for electricity but how many more deaths do we need? I would appreciate if Eskom come and help the situation.

All the study participants were much aware of the dangers that come with the utilisation of electricity that is stolen. As such, one may deduce that it is for this reason that the community feels positively about the removal of stolen electricity. While only two were against the idea of removing electricity from their household and they represent the minority of this group of people. The idea that the participants was reaping the fruits of unpaid electricity but would still opt for one that needs to be paid for because it is safer to use is of great significance in this case. It shows the degree of determination for a safer connection and a great dissatisfaction with the status quo.

5.15. The effects of electricity theft on Eskom

Research revealed that Eskom is the stakeholder that had more to lose than any other party in this electricity production and consumption alliance. Eskom is a producer of power. This production requires money for it to be a recurring cycle. The issue arises when people start stealing electricity. This means that Eskom is unable to have funds to produce any more power for its consumers because the profits and some of the capital outside profits goes missing in the cycle of electricity theft.

One of the participants attested that:

I heard on the radio that government had borrowed Eskom some money because they were falling short, I heard this during those days where there were elevated levels of Load shedding.

Some of the community members attested that they are not aware of any form of effect that the theft has on Eskom. They believed that if Eskom was affected then they would do something about the lack of electricity in the area. One respondent went as far as to say:

We have been living in this community for years and years. Not once has Eskom come to install electricity for us. Is it because we are poor, or we are in the rural areas? If Eskom had an issue with theft they would come ad have the whole community arrested. They do come here when there are incidents and they see that the connections here are dangerous (pointing at one of the tiny cable that was suspended across us). You cannot tell me that they are not aware of this. Even a lunatic can see why they cannot see.

5.16. Summary of Findings

Findings of this study show that everyone in the community has access to electricity or have electricity in their homes. It was revealed that electricity has become one of the most essential things the society needs for survival and livelihood. It was described to be one of the basic needs which every individual of our generation does need at their disposal all the time for survival. All participants were also of the view that without electricity nowadays it is difficult to cope up with life. On issues of who connected the electricity which households in KwaXimba it is of interest to note that some people do not have electricity meters, but they illegally connected their power cables to their next doors, marking the prevalence of electricity stealing in the area. However, some household's electricity was connected by Eskom. It is also of interest to note that findings of this study reveal that, in connecting electricity illegally people do hire Eskom workers to come and do the job.

It is also of interest to note that the KwaXimba society now perceive electricity theft in their area as a common practise that is now socially acceptable. In terms of monthly expenditure on electricity, those who are illegally connected do not pay for electricity, since there is no meter

which records the electricity they have used. Findings also show that some of the electricity meters are scammed and no longer records the amount of electricity used, thereby marking that those with scammed meters do not pay electricity so they end up connecting illegally to have power in their homes.

Generally, people of KwaXimba are aware that stealing electricity is an illegal act. However due to financial constraints resulting in them failing to pay electricity bills compels them to steal electricity. Delay by Eskom to come and install electricity and meters also forces residents into stealing electricity. Some blamed the high unemployment rate and poverty as part of the main reasons why people steal electricity. Although they suggested ways to end electricity theft in their area, all those who are using electricity illegally reported that they will feel hurt if the use of illegal electricity is stopped. Utilization of one meter by 2 households was reported to be a way of saving as they would share the electricity bill when paying.

5.17. Conclusion

This chapter has discussed raw data that was obtained from the field. It was then analysed through the utilisation of a thematic analysis approach. The community of KwaXimba was aware that there exists a problem of electricity within the community. Empirical data revealed that there has not been any electrification program in the community of KwaXimba. The vast existence of electricity theft in the community is largely informed by this. The key theories of the study general strain theory and rational choice theory were utilized to reflect on the findings for effective analysis of the outcomes. The analysis of this data disclosed that the community members are in the habit of stealing electricity. The levels of such are seemingly increasing yearly as the number of households increase. An intervention is highly needed from stakeholders of power supply. Eskom together with the eThekwini municipality need to intervene and curb levels in illegally connected electricity within the community. The data that was collected indicates that such interventions would be received warmly by the community members as most of the participants indicated that many were not happy about the risks associated with illegal connections, especially on the lives of people. The installation and the utilisation of such electricity is not by choice for some but by circumstance. Such interventions would be received warmly by the community as the data collected.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This study was aimed at analysing the phenomena of electricity theft in the KwaXimba Community. This section discusses the recommendations and conclusions drawn in this study.

6.2 General conclusion

Conclusions derived from this study are as a result of consider the following objectives of this study:

- To determine the major cause of electricity theft in KwaXimba.
- To determine the approaches implemented to reduce electricity theft.
- To evaluate the effects electricity theft has on electricity supply and the community.

6.2.1 The KwaXimba community's general understanding of the notion of electricity theft

The research reviled that the community is aware that electricity theft is an act that is against the law. This however this does not stop them from engaging in this illegal phenomenon. The members of the community assert that they are exposed to electricity theft through media and even though he community as it is a prevalent activity.

6.2.2 Electricity connection in the KwaXimba community

The study found that the KwaXimba community is highly electrified, however, this electrification was not done by Eskom or the Municipality. The community has connected its own power through the main power poles and consume electricity there illegally. Participants explained that it is the employees of Eskom that connect electricity for them for a small fee. Moreover, a small portion bought houses with readily installed electricity. Eskom deems none-reporting of such cases as electricity theft hence this too is part of the electricity theft perpetuation group.

6.2.3 Causes of electricity theft in the area

Notably, vast reasons were cited for the act of stealing electricity. The study found that people steal electricity for many reasons. These were found to be "economic reasons, poor service delivery, and the choice not to buy electricity." Finally, houses bought with unlawful electricity were found to be one of the causes for perpetuated theft and consumption of electricity. Interestingly, economic reasons were the most cited followed by poor service delivery. While some people chose not to buy electricity for the pleasure of not paying, only a few were stuck with houses they had bought with electricity that had been tempered with prior to them coming.

6.2.4 The effects of electricity theft.

Interestingly, the dangers of stolen electricity have affected the community members. For some, this has been through direct contact but for some indirect. KwaXimba is a loosely knit community and one death was peculiar in a way that above 75% of the participants cited it as one of the effects of stolen electricity. Secondary to death, appliances have been said to burn out because of this electricity. Only one incident of a fire outburst was cited during the interviews.

6.2.5 Strategies implemented to prevent the theft.

Unfortunately, most of the interviewees said there had been no interventions from a Municipal level nor has there been any from Eskom. The community members say Eskom is aware of the issues that they are facing. Again, the issues of 2 children who had died was cited because Eskom had come through for the families of the deceased. That Eskom would have known that the electricity was illegal because of the nature in which it is set up. The cables are suspended suspiciously on the floor and in the air on tiny poles. Secondary to this, 2 members of the community mentioned an intervention that was not however clearly defined to them. The community then chased away people who had been trying to remove electricity metres. The community assumed it was thieves hence they were chased out of the community. The second one was that of digging holes next to illegitimate electric poles. This was also notably seen by the researcher as she conducted the study. Findings revealed that Eskom personnel never came back after they had promised they would be changing the inappropriate poles utilised by the community as they were dangerous.

6.2.6 What can be done to decrease electricity theft?

The study revealed that the community members want safe electricity. It was cited by more than 80% of the participants who answered "yes" to the question of whether they would be happy should the free, illegal and dangerous electricity be removed. Also, one participant was adamant that they would continue to steal electricity if there were no security measure. It would then be essential for there to exist security measures too when installing legal electricity. This will combat further theft. Within the sample interviewed, many households had had electricity installed by Eskom but had later tempered with their metres because there was no form of control within the area.

Another recommendation made by the community members was that Eskom should give them electricity for free. Some attested that it would at least be better if the electricity was cheaper. It was recommended that at least there should be an amount of electricity that would be free. In connection to this, a case of Umlazi was cited.

6.3 Recommendations

- Communication is vital within any organisation. This may be in a formal or informal setup. The Counsellor and Eskom should inform the community members of any attempts to fix electricity issue before any activities can take place. This can be done through meetings or any other means of communication.
- Organisations such as community safety and Eskom should formulate programs that are aimed towards de-normalising the act of electricity theft in the community of KwaXimba and across other communities
- An electrification program should be made to save both Eskom Revenue from illegal consumption and to save the lives of the community members especially the vulnerable group, children.
- Electricity awareness education. Programs that would install some degree of ethics within the community members are an essentiality.

- Alternative use of power sources i.e. solar energy. This form of power would be especially appropriate for a community that is of low economic status. Rural areas would benefit more from such alternative sources of power.
- The South African Police Services should work hand in hand with institutions such as Eskom in the prevention of electricity theft.

These are the workable solutions by the researcher in terms of how and what should be done to decrease the issue of theft in electricity in the KwaXimba community.

6.4 Conclusion

Alarmingly, the community of KwaXimba sources power mainly from illegal connections. It is of significance to note that while they engage in illegal electricity connections and consumption, members of the community are aware of the dangers and the implications of stolen electricity. The causes and the effects vary but the essential point remains that power is being stolen and Eskom is the biggest victim in terms of finances. People steal electricity because they are poor and cannot afford to utilise power within the legal realm that requires for one to pay through prepaid in the case of KwaXimba. While this is the reason, the community fails to acknowledge that the biggest victim is Eskom hence the prominent loads shedding incidences from repeatedly. Community members themselves also fall victim when cables are suspended too low on the roads and their cars are unable to pass through. The greatest effect however is the loss of life. An intervention is needed in the community to prevent any more deaths caused by stolen electricity.

REFERENCES

Abdullateef, A.I., Slami, M.J.E., Musse, M.A., Aibinu, A.M and Onusanya, M.A. 2012. Electricity theft prediction on low voltage distribution system using autoregressive technique. International Journal of Research in Engineering and Technology vol 1 no. 5 pp 2277-4378.

Agnew, R. and Brezina, T., 2010. *Strain theories*. 2010. The SAGE Handbook of Criminological Theory, pp.96-113.

Amarnath. R, Kalaivani. N, Priyanka. V. 2013. *Prevention of Power Blackout and Power Theft using IED*. IEEE 2013 Global Humanitarian Technology Conference. 978-1-4799-2402-8/13.

Amin. S.; Schwartz. G.A.; Cardenas. A.A.; Sastry. S.S. 2015.Game-Theoretic Models of Electricity Theft Detection in Smart Utility Networks: Providing New Capabilities with Advanced Metering Infrastructure. *IEEE Control Systems* Volume: 35, Issue: 1 (Feb. 2015) DOI: 10.1109/MCS.2014.2364711.

Andrew, S and Prachi, S. 2013. *The political economy of electricity distribution in developing countries: A Review of Literature*. Political Governance, UKAID.

Antmann., P. 2009. Reducing technical and non-technical losses in the power sector. World Bank, Technical Report.

Becker, G.S. 1968. Crime and punishment: An economic approach. In *the Economic Dimensions of Crime* (pp. 13-68). Palgrave Macmillan UK.

Bella. G.D. and Grigoli. F. 2016. *Power It Up: Strengthening the Electricity Sector to Improve Efficiency and Support Economic Activity. International Monetary Fund: Working Papers*. April 2016. WP/16/85.

Boggs, S.L. 1965. Urban crime patterns. *American Sociological Review* vol 30 no. 6: pp-899-908.

Brueckner, J.K. and Lall, S.M. 2014.Cities in developing countries: Fueled by rural-urban migration, lacking in tenure security, and short of affordable housing. *Handbook of Regional and Urban Economics* Ch 5. Eds G Duranton,JV Henderson and W Strange. Elsevier, North-Holland.

Dangar, B and Joshi, S.K. 2015. *Electricity theft detection techniques for metered power consumer in Guvnl, Gujarat India.* Paper presented at Clemson Power System Conference (PSC 2015)

Depuru, S.S.S.R. 2012. *Modelling, Detection, and Prevention of Electricity Theft for Enhanced Performance and Security of Power Grid*. Doctor of Philosophy Degree in Engineering Dissertation. The University of Toledo: USA.

Dike, D.O., Obiora, A.U., Nwokorie, E.C and Dike, B.C. 2015. Minimizing household electricity theft in Nigeria using GSM Based Prepaid Meter. *American Journal of Engineering Research* vol 4 no. 1, pp 59-69.

Electricity Regulation Act. 2006. *Government Gazzette*, Republic of South Africa.

Eskom. 2016. Factsheet: The power is in your hands. Operation Khanyisa, Eskom.

Eskom. 2016. Free basic electricity. Published 2016/04/18. Available at http://www.eskom.co.za/news/Pages/Apr18.aspx. Accessed June 16, 2017.

Gaunt, T., Salida, M., Macfarlane, M., Maboda, S., Reddy, Y. and Borchers, M. 2012. Informal Electrification in South Africa: Experience, Opportunities and Challenges. *Cape Town, Sustainable Energy Africa*.

Gaunt, T., Salida, M., Macfarlane, M., Maboda, S., Reddy, Y. and Borchers, M. 2012. Informal Electrification in South Africa: Experience, Opportunities and Challenges. *Cape Town, Sustainable Energy Africa*.

Gaur, V and Gupta, E. 2016. The determinants of electricity theft: An empirical analysis of Indian States. *Energy Policy* vol 93, pp 127-136

Ghani, Z.A. 2017. A comparative study of urban crime between Malaysia and Nigeria. *Journal of Urban Management* dx.doi.org/10.1016/j.jum.2017.03.001

Gladwin, C and Mathebula, M. 2016. *Free Basic Electricity: Do you have a right to it*? Schindlers Attorneys (website) published APRIL 28, 2016. Available at http://www.schindlers.co.za/free-basic-electricity-do-you-have-a-right-to-it/ Accessed June 16, 2017.

Glauner, P. 2016. *Detecting electricity theft. Interdisciplinary Centre for Security, Realiability and Trust.* University of Luxembourg

Glauner, P., Boechat, A.P., Dolberg, L., State, R., Bettinger, F., Rangoni, Y and Duarte, D. 2016. *LargeScale Detection of Non-Technical Losses in Imbalanced Data Sets*. Paper presented The Seventh IEEE Conference on Innovative Smart Grid Technologies (ISGT 2016)

Gordon, D. (1973). Capitalism, class, and crime in America. *Crime and Delinquency*, 19(2), 163–186.

Hancock, B., Ockleford, E. and Windridge, K., 1998. *An introduction to qualitative research*. Nottingham: Trent focus group.

Jamal, N. 2015. Options for the supply of electricity to rural homes in South Africa. *Journal of Energy in Southern Africa* vol 26 no. 3, pp 2413-3051

Jamil, F and Ahmad, E. 2014. An empirical study of electricity theft from electricity distributuion companies in Pakistan. *The Pakistani Development Review* vol 53 no. 3, pp239-254

Joffe, H. and Yardley, L., 2004. Content and thematic analysis. *Research methods for clinical and health psychology*, *56*, p.68.

Jokar, P., Arianpoo, N., Lueng, V.C.M. 2016. Electricity Theft Detection in AMI Using Customers' Consumption Patterns. *IEEE TRANSACTIONS ON SMART GRID*, VOL. 7, NO. 1, JANUARY 2016

Kelly, M. 2011. Inequality and crime. *Review of Economics and statistics* vol 82 no. 4, pp 530-539.

Klevorick, A.K. 1985. On the economic theory of crime. *Nomos*, *27*, pp.289-309.

Majoro, L.E. 2014. *An assessment of informal power distributors in low income urban areas: A case of Kibera, Nairobi*. United States International University-Africa (MA Thesis)

Malzbender, D. 2005. Domestic electricity provision in the democratic South Africa. *University of Pretoria, AWIRU/CiPS, 2*.

Mauro, L. and Carmeci, G. 2007. A poverty trap of crime and unemployment. Review of Development Economics 11, pp 450-462 DOI:10.1111/j.1467-9361.2006.00350.x

Mkhwanazi, X.H. 1999. *Electricity as a birthright and the problem of non-payment*. Paper presented at the Third Annual South Africa Revenue Protection Conference

Mzini, L and Lukamba-Muhiya, T. 2014. An assessment of electricity supply and demand at Emfuleni Local Municipality. *Journal of Energy in Southern Africa* vol 25 no3, pp 20-27

Mzini, L. and Lukamba-Muhiya, T. 2014. An assessment of electricity supply and demand at Emfuleni Local Municipality. *Journal of Energy in Southern Africa*, *25*(3), pp.12-20.

Nagi, J., Yap. K.S., Tiong, S. K., Ahmed, S.K. and Mohammad, A.M. 2008. Detection of abnormalities and electricity theft using genetic Support Vector Machines. TENCON 2008 - 2008 IEEE Region 10 Conference 19-21 Nov. 2008 Hyderabad, India. DOI: 10.1109/TENCON.2008.4766403.

Navani, J.P., Sharma, N.K. and Sapra, S., 2012. Technical and non-technical losses in power system and its economic consequence in Indian economy. *International Journal of Electronics and Computer Science Engineering*, *1*(2), pp.757-761.

Nunoo, S and Attachie, J.C. 2011. A methodology for the design of an electricity theft monitoring system. *Journal of Theoretical and Applied Information Technology* vol 26 no.2, pp 112-117

Oakes, J.M. 2002. Risks and wrongs in social science research: An evaluator's guide to the IRB. *Evaluation Review*, 26(5), pp.443-479.

Reiche, K., Covarrubias, A. and Martinot, E., 2000. Expanding electricity access to remote areas: off-grid rural electrification in developing countries. *Fuel*, *1*(1.2), pp.1-4.

Seger, K.A. 1988. Power theft: The silent crime. FBI Law enforcement Bulletin, pp 20-25

Shepherd, J. and Rubin, P.H., 1968. The Economic Analysis of Criminal Law. *Journal of Political Economy*, *169*, p.170.

Shopeju, J.O. 2007. Urbanisation and crime in Nigeria. *Asset* vol 2 no. 1, pp 154-163

Smith, T.B. 2004. Electricity theft: A comparable analysis. *Energy policy* vol 32, pp 2067-2076

Steadman, K. 2009. *Electricity Theft in Jamaica*. State University of New York at Binghamton Department of Economics (PhD thesis)

Thøgersen, J. and Grønhøj, A. 2010. Electricity saving in households—A social cognitive approach. *Energy Policy*, *38*(12), pp.7732-7743.

Turok, I. 2012. Urbanisation and Development in South Africa: Economic imperatives, spatial distortions and Strategic responses. *International Institute for Environment and Development, UNFPA*

Webster, M. 1985. Webster`s ninth new collegiate dictionary. Meriam - Webster Inc.

Wentzel, M., van Zyl, J and Cross, C. 2008. Contemporary South African Urban Dynamics. Paper presented at the UNU-WIDER Conference, Cape Town

Witte, A.D. and Witt, R. 2000. *Crime causation: economic theories*. University of Surrey, Department of Economics.

Yelland, C. 2008. *Electricity theft and non-payment: Impact on the SA generation capacity crisis*. EE Publishers

Yurtseven, C. 2015. The causes of electricity theft: An econometric analysis of the case of Turkey. *Utility Policy* vol 37, pp 70-78

Internet References

Clubb, S. (2005). Do economic theories of crime explain the causes of criminality in the United Kingdom in the present day? Available at http://www.scottishlaw.org.uk/journal/mar2001/sclubecmar01.pdf Accessed on 22/6/2017Mbabela, Z. 2015. Eskom to target rural areas. The Herald Live.

http://www.heraldlive.co.za/news/top-news/2015/11/24/eskom-target-rural-areas/ Accessed: 20/06/2017

Corruption Watch. 2015. Taxpayers paying alleged fraudstres' legal bills. http://www.corruptionwatch.org.za/taxpayers-paying-alleged-fraudsters-legal-bills/ Accessed on 03/09/2017

Dailymail. 2014. How middle-class families are turning to crime by getting specialist gangs to 'hotwire' their gas and electricity supplies to beat soaring energy bills. http://www.dailymail.co.uk/news/article-2542487/Energy-theft.html

Edmonds, I. 2013. Urbanisation in South Africa. Vandebuilt University https://my.vanderbilt.edu/f13afdevfilm/2013/09/urbanization-in-south-africa/ Accessed on 11/10/2017

EE Publishers. 2008. Electricity theft and non-payment- Impact on the SA generation capacity crisis http://www.ee.co.za/article/electricity-theft-and-non-payment-impact-on-the-sa-generation-capacity-crisis.html Accessed on 23/9/2017

eNCA News. 2016. Electricity theft more prevalent in developed urban areas: Eskom https://www.enca.com/media/video/electricity-theft-more-prevalent-developed-urban-areas-eskom?playlist=107 Accessed on 03/09/2017

eNCA. 2016. Half year prison sentence for electricity thief. http://www.enca.com/south-africa/half-year-prison-sentence-for-electricity-thief Accessed 10/07/2017

ESI Africa. 2016. Kenya Power intensifies surveillance on electricity theft. https://www.esi-africa.com/news/kenya-power-intensifies-surveillance-on-electricity-theft/

Eskom (2016) Illegal connections can be deadly. Retrieved from: http://www.eskom.co.za/news/Pages/Oct13.aspx Accessed 28/05/2017.

Forbes. 2013. Electricity Theft: A bigger issue than your think. https://www.forbes.com/sites/peterdetwiler/2013/04/23/electricity-theft-a-bigger-issue-than-you-think/#6bd0647f5ed7 Accessed on 22/4/2017

Fridah, M.W., 2004. Sampling in research. Last accessed on 12th.

Gumede, P. Free electricity for informal settlement residents. News24. http://www.news24.com/SouthAfrica/Local/South-Coast-Fever/free-electricity-for-informal-settlement-residents-20160706 Accessed on 20/06/17

Investopedia (Website) Rational Choice Theory. Retrieved at: http://www.investopedia.com/terms/r/rational-choice-theory.asp Accessed on 21/05/2017

Kelly-Detwiler, P (2013) Electricity Theft: A Bigger Issue Than You Think. Forbes. APR 23, 2013. 09:50 AM. Retrieved at: https://www.forbes.com/sites/peterdetwiler/2013/04/23/electricity-theft-a-bigger-issue-than-you-think/#1e5a20005ed7 Accessed 15/05/2017

Khumalo, S (2009). How is the government going to tackle rural crime? Mail and Guardian. 05 Apr 2009 09:43. Retrieved from: https://mg.co.za/article/2009-04-05-how-is-the-government-going-to-tackle-rural-crime. Accessed on 28/5/2017.

Kover, L. 2013. 11% of SA households still without electricity: http://www.engineeringnews.co.za/article/11-of-sa-households-still-without-electricity-2013-11-14/rep_id:4136 Accessed 20/06/2017

Levin, J. and Milgrom, P., 2004. Introduction to choice theory. Available from internet: http://www.web.stanford.edu/~jdlevin/Econ, 20202. Accessed 19/16/2017

Lowvelder. 2016. Eskom intensifies fight against electricity theft. http://lowvelder.co.za/353557/eskom-intensifies-the-fight-against-electricity-theft/ _Accessed on 28/5/17

Mileham, K. 2017. Corruption cause of electricity crisis. Politics web http://www.politicsweb.co.za/news-and-analysis/corruption-cause-of--electricity-crisis--kevin-mil Accessed 27/5/17

Miya, S. 2010. KwaXimba rocked by violent politicking. Accessed from: http://www.news24.com/Archives/Witness/KwaXimba-rocked-by-violent-politicking-20150430, Accessed on 04/8/2017

Mosher, C and Rotolo, T (2002) "Rural Crime." Encyclopedia of Crime and Justice. *Encyclopedia.com.* Retrieved from: http://www.encyclopedia.com/law/legal-and-political-magazines/rural-crime Accessed on 28/5/2017

National Agricultural Library (NAL). 2017. What is rural? https://www.nal.usda.gov/ric/what-is-rural Accessed on 25/5/2017

New Straits Times. 2016. Electricity theft in squatter areas spells huge losses for Sabah https://www.nst.com.my/news/2016/10/183012/electricity-theft-squatter-areas-spells-huge-losses-sabah Accessed on 20/5/2017

News24. 2015. Report illegal electricity theft. http://www.news24.com/SouthAfrica/Local/Maritzburg-Fever/Report-illegal-electricity-theft-20150811 Accessed on 21/5/2017

Pelser. E, Louw. A and Ntuli. S (2000) Monograph 47: Poor Safety: Crime and Policing in South Africa`s Rural Areas. Retrieved from: https://issafrica.org/research/monographs/monograph-47-poor-safety-crime-and-policing-in-south-africas-rural-areas-by-eric-pelser-antoinette-louw-and-sipho-ntuli. Accessed 28/05/2017,

Petracca, M.P (1991). The Rational Choice Approach to Politics: A Challenge to Democratic Theory. The Review of Politics, Vol. 53, No. 2 (Spring, 1991), pp. 289-319. Available at: https://www.jstor.org/stable/pdf/1407756.pdf?refreqid=excelsior%3Ae282fcd52301c68cd0436cc66e2be6e7 Accessed 21/05/2017

Siebel Energy Institute. 2017. Theft detection algorithm thwarts electricity theft from smart meters. http://www.siebelenergyinstitute.org/theft-detection-algorithm-developed-with-support-from-the-siebel-energy-institute-helps-utilities-catch-electricity-thieves/

South African Government News Agency (Online Website). Alex fire victims warned of illegal power connections. Retrieved from: http://www.sanews.gov.za/south-africa/alex-fire-victims-warned-illegal-power-connections Accessed 28/05/2017

Sowetanlive. 2016. High number of illegal electricity connections and unemployment in Zandspruit http://www.sowetanlive.co.za/news/2016/08/22/high-number-of-illegal-electricity-connections-and-unemployment-in-zandspruit Accessed 20/5/2017

'TCM staff caught stealing electricity', Steelburger/Lydenburg News. 18 November 2016 Avilable at: http://steelburgernews.co.za/226124/tcm-staff-caught-stealing-electricity-2/ Accessed 26/6/2017

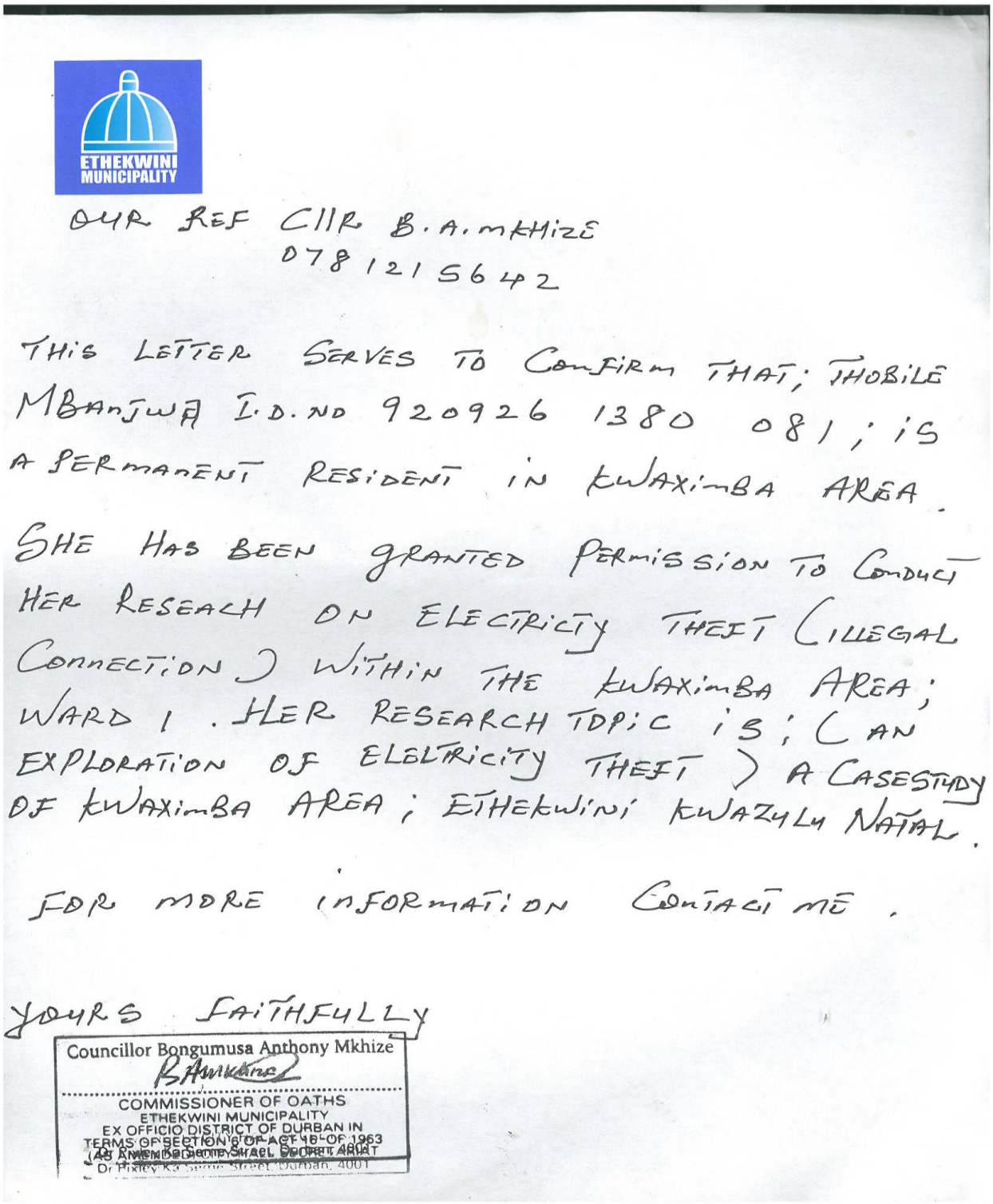
The Hindu. 2016. The 'Smart metre' solution to the problem of power theft. http://www.thehindu.com/news/national/karnataka/the-smart-meter-solution-to-the-problem-of-power-theft/article5186952.ece Accessed 18/5/2017

Vuk'uzenzele. 2011. Operation Khanyisa: Stop electricity theft-the power is in your hands. http://www.vukuzenzele.gov.za/operation-khanyisa-stop-electricity-theft-%E2%80%93-power-your-hands Accessed on 15/5/2017

Vuk'uzenzele. 2014. Illegal electricity connections endanger lives. Government Communications GCIS http://www.vukuzenzele.gov.za/illegal-electricity-connections-endanger-lives

APPENDICES

Appendix A: Permission to conduct research



ETHEKWINI MUNICIPALITY

OUR REF CllR B.A.MKHIZE
078 121 5642

THIS LETTER SERVES TO CONFIRM THAT; THOBILE MBANJWA I.D.NO 920926 1380 081; IS A PERMANENT RESIDENT IN KWAXIMBA AREA.

SHE HAS BEEN GRANTED PERMISSION TO CONDUCT HER RESEACH ON ELECTRICITY THEFT (ILLEGAL CONNECTION) WITHIN THE KWAXIMBA AREA; WARD 1. HER RESEARCH TOPIC IS; (AN EXPLORATION OF ELELTRICITY THEFT) A CASESTUDY OF KWAXIMBA AREA; ETHEKWINI KWAZULU NATAL.

FOR MORE INFORMATION CONTACT ME.

YOURS FAITHFULLY

Councillor Bongumusa Anthony Mkhize
BAMkhize

COMMISSIONER OF OATHS
ETHEKWINI MUNICIPALITY
EX OFFICIO DISTRICT OF DURBAN IN
TERMS OF SECTION 6 OF ACT 16 OF 1963
(As Amended) Dennis Israel, Durban Area
Dr Pixley Ka Isaka Street, Durban, 4001

Appendix B: Informed Consent Letter

School of Applied Human Sciences,

University of KwaZulu-Natal,

Howard College Campus,

Dear Participant

INFORMED CONSENT LETTER

My name is Ms. Thobile Mbanjwa. I am a Masters candidate studying at the University of KwaZulu-Natal, Howard College campus, South Africa. I am currently conducting a research study titled: An exploration of electricity theft: The case of KwaXimba Area, eThekwini, KwaZulu-Natal. The aim of the study is to investigate the phenomena of electricity theft in kwaximba area to understand its causes and effects. Your area has been purposively selected to be the focus area for the research study and you have also been purposively selected to be one of the individuals to participate. The information provided by participants is used for the academic requirements of the person investigation.

To gather the information, I am interested in asking you some questions.

Please note that:

- Your confidentiality is guaranteed as your inputs will not be attributed to you in person, but reported only as a population member opinion.
- The interview may last for about 1 hour and may be split depending on your preference.

- Any information given by you cannot be used against you, and the collected data will be used for purposes of this research only.
- Data will be stored in secure storage and destroyed after 5 years.
- You have a choice to participate, not participate or stop participating in the research. You will not be penalized for taking such an action.
- The aim of the study is to investigate the phenomena of electricity theft in KwaXimba area and to understand its causes and effects.
- Your involvement is purely for academic purposes only, and there are no financial benefits involved.
- If you are willing to be interviewed, please indicate (by ticking as applicable) whether or not you are willing to allow the interview to be recorded by the following equipment:

	willing	Not willing
Audio equipment		
Photographic equipment		
Video equipment		

I can be contacted at:

Email: 212506428@stu.ukzn.ac.za

Cell: 0731677520/ 0622676677

My supervisor is Dr. S Mkhize who is located at the School of Applied Human Sciences, Criminology Department, Howard College campus of the University of KwaZulu-Natal.

Contact details: email: mkhizes1@ukzn.ac.za Phone number: 0312601773.

You may also contact the Research Office through:

P. Mohun

HSSREC Research Office,

Tel: 031 260 4557 E-mail: mohunp@ukzn.ac.za

Thank you for your contribution to this research.

Appendix C: Interview Schedule

Interview Schedule

Do you have electricity in your household?

Was it connected by Eskom?

If yes, how much do you spend on average on electricity per month?

Are you aware that stealing electricity is an illegal act?

Are you aware of electricity theft? Please explain

In your opinion what are the causes of electricity theft in the area

Are you aware of the dangers involved in illegal electricity theft?

What are the effects of electricity theft in the community?

Have you or anyone related to you experienced any dangers with illegally connected electricity?

Is illegally connected electricity a common socially acceptable practice within the community?

Are there any measures implanted in this particular community to prevent electricity theft?

What would you suggest be done to minimize the issue of electricity theft within your community?

How would you feel about the removal of illegally connected electricity and an installation of legal electricity in your home?

Appendix D: Ethical Clearance letter

30 October 2017

Ms Thobile Mbanjwa
212506428
School of Applied Huma Sciences
Howard College Campus

Dear Miss Mbanjwa

Protocol reference number: HS5/0525/017M
Project title: An analysis of the rise in electricity theft : The case of KwaXimba Area in eThekwini, KwaZulu-Natal.

Approval Notification — Full Committee Reviewed Protocol With regards to your response received on 24 October 2017 to our letter of 19 June 2017, the Humanities & Social Sciences Research Ethics Committee has considered the above mentioned application and the protocol has been granted FULL APPROVAL.

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach/Methods must be reviewed and approved through an amendment /modification prior to its implementation. Please quote the above reference number for all queries relating to this study. Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

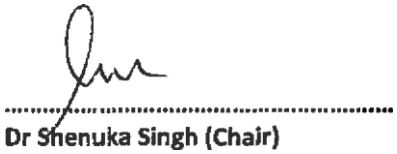
PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter

Recertification must be applied for on an annual basis.

Best wishes for the successful completion of your research protocol.

Yours faithfully



Dr Shenuka Singh (Chair)

/ms

cc Supervisor: Mr Sazelo Mkhize
cc Academic Leader
Research: Dr Jean Steyn
cc School Administrator:
Ms Ayanda Ntuli

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