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# IMPACT OF ACCESS TO FREE BASIC ELECTRICITY ON HOUSEHOLDS' POVERTY IN BUFFALO CITY MUNICIPALITY IN THE EASTERN CAPE

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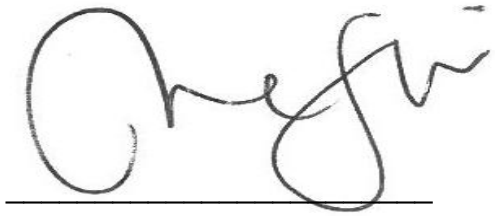
# DECLARATION

I, Jephthe Jire Mve Mvondo, declare that the contents of this dissertation represents my own unaided work, and that the dissertation has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the University of Fort Hare.



Signed

Date: 28 December 2010

# DEDICATION

This study is dedicated to my beloved wife Dorothy Tomcha, and my children, Arnold, Ulrich and Edwards for their understanding, patience, support and constant encouragement during my years of absence while working and studying in South Africa.

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# ABSTRACT

Since 1994, the South African Government embarked on an ambitious Reconstruction and Development Program (RDP) to correct the injustices of the past. One of the major programmes, which the government is implementing within the RDP framework, is the "Integrated National Electrification Programme" (INEP) with the aim to address the electricity backlog by 2012. Recent figures from Statistics SA, indicate substantial progress with regard to access to electricity throughout the country and especially in previously disadvantaged areas. This study is an investigation of the impact of access to free basic electricity (FBE) on the welfare of indigent households in Buffalo City Municipality (BCM). This study aims at better understanding ways in which indigent households use electricity and to what extent access to electricity is improving the level of poverty in the households. Empirical evidences from pro-poor electrification programmes worldwide and especially in Asia suggest that greater access to electricity by poor people leads to economic and social development at both micro and macro levels. This study investigates the impact of electricity on household poverty, with focus on household income, household health and children's education. This study used mixed research methods to investigate the research problem. Both quantitative and qualitative data were collected using survey questionnaires, focus group discussions and interviews of key informants. Respondents, who participated in the household survey, were selected using a systematic sampling method on a list of residential addresses from three wards (Ward 7, Ward 10 and Ward 27); while non-probability purposive sampling was used to select respondents for focus group discussions in two wards. In total, 150 households were interviewed and 20 community members participated in the two focus group discussions that were organised. Data were analysed using The Statistical Package for Social Sciences (SPSS) software to generate descriptive and inferential statistical information. Overall, the study's main finding is that access to electricity through the FBE policy in BCM has highly contributed to the improvement of the health condition in indigent families as well as the education of children, but to a lesser degree on family income levels. In addition, indigents are of

the opinion that 50 kwh of free electricity per month is totally insufficient compared to their needs, hence limiting the optimum use of electricity to improve their welfare.

In detail, the study revealed that only 9% of indigent households are able to live within the limit of the FBE allocation. The rest either pay for additional consumption or are illegally connected to the electricity network. There was enough statistical evidence to suggest that the level of electricity consumption is highly related to the size of the household. In terms of the domestic electricity usage pattern, the study found that 40% of households still highly depend on alternative energy sources like paraffin and firewood and consequently are getting low welfare benefits from electricity, compared to the others. The study found enough statistical evidence to suggest a strong relationship between monthly consumption of electricity and the domestic usage pattern. With regard to the health capability benefits of electricity, the study found that about 92% of households, who indicated no illness case in the family over the past nine months, are of the opinion that access to electricity is contributing to improving the health condition in the family. The study found no association between the domestic usage pattern and the health condition in the families. In the area of educational capability, the study found that when there is electricity, children, in the majority of the households, spent more time studying and when there is no electricity, more children spent very little time studying. There was enough evidence to suggest a strong relationship between the monthly consumption of electricity and the children's study time at home. The study also found that the productive use of electricity, as source of income, is very limited among the indigents' population. Only 34% of households indicated running at least one electricity dependent business activity. The number of electricity dependent businesses per household is strongly related to the level of monthly consumption of electricity. Only households that are consuming more than 150 kwh per month, including all illegally connected households, are highly associated with operating business activities from home. The study has also found that access to electricity does have a huge social impact among the indigent population in BCM, which are jeopardising the benefits of access to electricity for indigent households. To ensure greater impact of electricity on the living conditions of poor households, the study recommends three main actions: firstly, increase the FBE allocation substantially so that poor people will use electricity in

a pattern that will provide them with high welfare benefits; secondly, organise social education programmes among indigents to curb the negative social effects of access to electricity and lastly, invest in job creation through electricity, to reduce the number of people living from government subsidies like FBE.

# LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| **ADB** | **Asian Development Bank** |
| **BCM** | **Buffalo City Municipality** |
| **CIFOR** | **Centre for International Forestry Research** |
| **DME** | **Department of Mineral and Energy** |
| **DPLG** | **Department of Provincial and Local Government** |
| **ESCAP** | **Economic for Social Commission for Asia and the Pacific** |
| **EBSST** | **Electricity Basic Services Support Tariff** |
| **ESI** | **Electricity Supply Industry** |
| **EU** | **European Union** |
| **FBE** | **Free Basic Electricity** |
| **FHISER** | **Fort Hare Institute for Social and Economic Research** |
| **GDP** | **Gross Domestic Product** |
| **GHS** | **General Household Survey** |
| **HPI** | **Human Poverty Index** |
| **HSRC** | **Human Sciences Research Council** |
| **IEA** | **International Energy Agency** |
| **IEG** | **Independent Evaluation Group** |
| **IES** | **Income and Expenditure Survey of Households** |
| **ILO** | **International Labour Organisation** |
| **IMF** | **International Monetary Fund** |
| **INEP** | **Integrated National Electrification Programme** |
| **MDG** | **Millennium Development Goals** |
| **NEP** | **National Electrification Programme** |
| **NGOs** | **Non-Governmental Organisations** |
| **QoL** | **Quality of Life** |
| **RDP** | **Reconstruction and Development Plan** |
| **SACN** | **South African City Network** |
| **SECC** | **Soweto Electricity Crisis Committee** |
| **SOE** | **State Owned Enterprises** |

| | |
|---|---|
| **SSA** | **Sub-Saharan Africa** |
| **SPSS** | **Statistical Package for Social Sciences** |
| **UN** | **United Nations** |
| **UNDP** | **United Nations Development Programme** |
| **UNGA** | **United Nations General Assembly** |

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# CHAPTER 1

# INTRODUCTION AND BACKGROUND

## 1.1. Introduction

The provision of basic social services, such as, electricity, water, education and health care represents both the end and the means to economic development (Asian Development Bank - ADB, 2009). The development of many African countries is challenged by many factors, among which is the population's poor access to sustainable and modern sources of energy. Access to electricity is estimated at 17% for Sub-Saharan African (SSA), of which less than 5% is channelled to rural areas (Davidson & Sokona, 2002). It is widely accepted that households' access to sustainable energy not only contributes to improving the living conditions within the family, but also represents an opportunity for small-scale income generating activities. According to Reddy, Annecke and Blok (2000:40) "poverty alleviation and development depend on universal access to energy services that are affordable, reliable, and of good quality".

Prior to 1994, in South Africa, energy policies, including those for the provision of electricity, were conceived in priority to support industries, like mining, chemical and agriculture, which formed the nerve centre of the economy. There was little or no investment for improving household access to electricity, especially for the majority of black South Africans living in townships and in rural areas (Malzbender, 2005). By the

end of 1993, over 40% of the total population (approximately 4, 5 million households) in South Africa did not have access to electricity (Henson, 2004). This huge electricity backlog was similar with regard to the access to other basic social services, such as, water, sanitation and health. In response, the first democratically elected government embarked (since 1994) on a vast and ambitious Reconstruction and Development Programme (RDP), with a special focus on the provision of electricity and water services for the poor. The government's commitment to electrification as contained in the RDP resulted into several specific policy documents and programmes. One of the major programmes, which the government has been implementing since 1994, is the "Integrated National Electrification Program" (INEP). The INEP seeks to address the electricity backlog by 2012. Some of the key policy documents include "The Energy White Paper" released in 1998, and the "Free Basic Electricity" (FBE) policy released in 2003.

The FBE policy was developed from the national municipal Indigent policy framework, adopted by the government in 2001, as a way to alleviate the poverty of the vast majority of South Africans. This policy provides a basis for the provision of free basic municipal services to poor households. The municipal services targeted by the policy are electricity, water, sanitation and refuse. According to the National Government, the overall objective of the Indigent policy is,

> …To substantially eradicate those elements of poverty over which local government has control by the year 2012; this implies that all (indigents) should have access to basic water supply, sanitation, energy and refuse services by this date. (Department of Provincial and Local Government - DPLG, 2005:1).

In 2003, the Department of Mineral and Energy (DME) launched the FBE policy. The FBE policy prescribes free electricity to an amount of 50 kWh monthly for every poor household. The objective of the policy is to, “address ways and means through which government interventions can bring about relief to poor electrified households and ensure optimal socio-economic benefits from the National Electrification Programme (NEP)” (DME, 2003:1).

While the world has lauded South Africa’s transition from apartheid to democracy and freedom, the high level of poverty in the country and the extreme disparities in income and wealth, more than fifteen years into democracy, remain a major concern. Eight years after the promulgation of the Indigent policy framework, a tool to alleviate poverty, and six years into the implementation of the FBE policy, the poor have received a tremendous increase into the levels of access to basic services. The access to electricity services, for example, has increased from 60% in 1993 (Henson, 2004) to 80% in 2007 (Statistics SA, 2007). Despite the increase in service delivery, the persistent high level of poverty, among the population, especially in the rural areas, however, reveals that poor people have not sufficiently gained from the increase (BCM, 2010).

This study has targeted the indigent population in three wards of Buffalo City Municipality (BCM), in the Eastern Cape, to investigate the impact of access to FBE on the poor’s welfare. Administratively, BCM is located within the Amathole District Municipal Area. Buffalo City is centrally situated in the Eastern Cape Province, bounded

to the southeast by the long Indian Ocean coastline. The Eastern Cape is regarded as covering the second largest land area in South Africa, comprising 169,580 $km^2$.

In addition, the province has the third largest population in the country with approximately 6,4 million people (Statistics SA, 2001), which represent 14.1% of the total population of South Africa. The recent estimates indicate the total population of BCM as 724,306 (Statistics SA, 2007). The population has grown relatively slowly from 1996 – 2001, with a growth rate of 2.7%, an average of 0.6% per annum. In contrast, however, within the same period, households have grown at a much faster rate. The household growth, over the five years, was 19.82%, an average annual growth of 3.68% (BCM, 2010).

In terms of poverty, the Eastern Cape and Limpopo are regarded as the two poorest provinces in South Africa[1] (Armstrong, Lekezwa and Siebrits, 2008). According to a classification done by the Human Sciences Research Council (HSRC) in 2004, seven of the ten poorest municipalities in South Africa are located in the Eastern Cape, while two are in Limpopo and one in the Free State. The unemployment among the active population in BCM is very high. A study conducted by the University of Fort Hare in 2007 for the BCM on the Quality of Life (QoL), shows an average unemployment rate of 56% among interviewed people aged 15 – 65 (BCM, 2007). According to Census 2001,

[1] Recent poverty statistics (Income and Expenditure Survey of households-[IES] 2005) and (General Household Survey-[GHS] 2006) indicate an overall poverty rate of 57.6% in the Eastern Cape and 64.6% in Limpopo.

about 70% of the population in BCM indicated a monthly income of less than R1,500[2]; an amount considered as the household subsistence level (BCM, 2010). However, the QoL survey conducted by the University of Fort Hare, however, shows that the income of blacks increased by almost 50% to R2200 in 2007 (BCM, 2007:8).

## 1.2. Statement of the Problem

The main problem this study seeks to investigate is the fact that poor people's access to FBE in BCM has not yet contributed to the alleviation of the indigent's poverty conditions. The Eastern Cape Province reflects the widest poverty gap with a poverty rate of over 70% in the predominantly rural areas; this statistic also contains the 78% of children in the province, who live in poor households (Fort Hare Institute for Social and Economic Research - FHISER, 2006). Despite the tremendous increase in the number of households having access to electricity over the past fifteen years, hardship and poverty remain a daily reality for many households. While electricity is being used to facilitate cooking and access to information through the media of television and radio, its overall intended upliftment impact on the state of impoverished families, is still not felt. Experiences from other countries, especially in Asia, have demonstrated that access to energy can contribute to the reduction of household poverty. A study carried out by the ADB in 2003 demonstrates that electricity investment has a strong impact on poverty, such that for every U$1,435 (10,000 Yuan) spent on electricity development, 2.3 persons are brought out of poverty (ADB, 2003).

[2] The poverty line of R 1500 per month per household is based on estimates by the Bureau of Market Research Minimum Living Levels of R587 per capita and per month (HSRC, 2004).

## 1.3. Research Hypotheses and Questions

The study is based on a development assumption widely accepted stating, “poverty alleviation and development depend on universal access to energy services that are affordable, reliable, and of good quality” (Reddy *et al*, 2000:40); and that the provision of basic services to poor people represents both the end and the means of economic development (ADB, 2009). Therefore, the theoretical hypothesis which guides the study, is that, poor households’ capabilities and living conditions should be significantly improved with greater access to electric energy. The knowledge claims about the study theoretical hypothesis, derived from the following key research question: What are the living conditions of people in households who benefit from FBE in BCM? This central research question was operationalised through the following secondary questions:

1. How do people move out of poverty by accessing electricity?
2. How do indigent households, benefiting from FBE in Buffalo City, use electricity to improve individual conditions of poverty?
3. Which benefits does access to electricity bring to indigent people in Buffalo City, especially with regard to household income, household health and children’s education?
4. How is access to electricity affecting the social and community life of people in indigent settlements in BCM?
5. What influences the impact of electricity in the life of indigent people in BCM?

## 1.4. Objective of the Study

The main objective of this study is to discover how beneficiaries of FBE in BCM are using electricity to improve individual conditions of poverty. Underpinned by the capability theory of poverty, the study specifically aimed at:

- Examining the relationships between electricity consumption and household income, as well as health and children's education;
- Identifying the factors, which most influence the ways beneficiaries of FBE use electric energy by examining the relationships between electric energy utilisation and family size, as well as the household head's occupation and his level of education;
- Generating knowledge that will contribute towards the reformulation of the FBE policy in South Africa; the implementation thereof should have a holistic impact on the indigent.

## 1.5. Significance of the Study

This study is timely and significant in view of the following reasons:

- Firstly, the study fills the gap in the current research about the implementation of the FBE policy and leads to its greater understanding. Since the promulgation of the Indigent policy framework, many studies have been conducted, mainly to assess the progress that municipalities are making concerning meeting targets set by the government for the provision of free basic services to indigents (Balfour, Wilson, and de Jager, 2005; FHISER, 2006; Henson, 2004 and Calfucoy, Cibulka, and Davison, 2009). Almost all these studies are focusing on challenges faced with the delivery of free basic services to the poor. No study has yet questioned the extent, to which free basic services affect the poverty conditions of beneficiaries. Taking the case of FBE, this study is opening a new debate about the actual impact of free basic services on poverty alleviation at household level in South Africa and in the BCM in particular.

- Secondly, the study reflects contemporary thinking around the impact of infrastructure development on poverty alleviation. Many studies have been done, especially in Asia, to show how access to electricity has contributed to poverty alleviation in rural areas (ADB, 2003). It is this study's argument that access to electricity represents a major opportunity for the poor in South Africa to improve living conditions.

- Thirdly, considering the current difficult economic situation in the country, it becomes urgent to find ways to ensure that access to free basic services does not create dependency, but rather builds opportunities for self-help initiatives. As mentioned above, the study aims to generate knowledge that will contribute towards the reformulation of the FBE policy in South Africa; the implementation thereof should have a holistic impact on the poor people.

- Finally, the study contributes to the field of development studies. By interrogating the impact of free basic services on household poverty, the study will be contributing to a debate to ascertain whether the government's social welfare programmes are fighting poverty in South Africa and in the Eastern Cape in particular.

## 1.6 Ethical Considerations

Ethical considerations in social research are standards of conduct that should be adhered to by researchers in the course of conducting research (Creswell, 2003).

As a an institution of Higher Education engaged in social research, the University of Fort Hare has established an Ethical Committee to screen research proposals and issue ethical clearance letters authorising research. The Ethics Committee of the University of Forth Hare screened this study against the respect of ethical principles and granted permission to carry on with the research. The study committed and lived up to the following principles of Ethics:

- Beneficence (Flick, 2006): This principle entails that the research subject should be beneficial to research participants. For Creswell (2003:63), the research should not, “further marginalize or disempower study participants”. Practically, the research knowledge generated by this study is likely to contribute towards improving the implementation of FBE in BCM.
- Non-malfeasance (Flick, 2006): This principle entails that the research should not in any way put participants either physically or psychologically at risk. During data collection, all research participants were briefed on the purpose of the study, and given an opportunity to ask questions before consenting to be involved in interviews and group discussions. Proper authorisation was obtained from relevant government and municipal powers to allow officials to participate in discussions affording employees protection from any disciplinary consequences for participating in the research.
- Autonomy or self-determination (Flick, 2006): This principle entails respecting research participants’ values and decisions as to whether or not to respond to a particular question. In many cases, families did not want to provide answers to certain questions; these decisions were always respected and this is reflected in the data analysis.
- Anonymity and confidentiality: Tools designed for data collection did not provide any possibility of identification of the respondents by another person other than the researcher. Participants were not identified by names or ID numbers; but by a code, just for statistical purposes. Maintaining anonymity was essential to avoid victimisation of research participants by people, who might come across the

research questionnaire. In addition, by informing people of the anonymous character of the questionnaire, many felt re-assured and started to respond to questions without fear.

- Honesty: The principle of honesty deals with data interpretation. The researcher is expected to provide honestly, an accurate account of the findings (Creswell, 2003). This study strived to provide an unbiased and accurate account of the observations and relationships that were established between the numerous variables.

## 1.7 Delimitations of the Study

The findings of the study are subject to at least three limitations:

- Firstly, the study was limited to three of the forty-five wards that constitute the Buffalo City Local Municipality. The limited budget and time for the research have greatly contributed to this delimitation. It is acknowledged that a wider scope is necessary to arrive at findings that are more representative of the problem in the entire BMC.
- Secondly, the study has been limited to investigate one free basic service from a package of many other services provided to the indigent by the government through the municipalities. However, this was done to maintain a focus. While access to electric energy has a great potential for alleviating poverty in households, a research into the government's "safety net" package may be necessary to ascertain the extent of that type of policy on the poor in South Africa.

- Thirdly, the study did not investigate the institutional arrangements within BMC dealing with FBE. Institutional arrangements and budgetary implications are important aspects of the policy and require a separate study.

## 1.8 Organisation of the Study

The study is organised in six chapters.

- Chapter one is an introduction to the entire study. It provided the background against which the study was conceived. It posed the problem that the study deals with; the main objective expected to be achieved, justified the relevance of the study and posed certain ethical issues that the research has considered throughout the research phases.
- Chapter two is a literature review about the concept of poverty that underpins the study as well as its theoretical framework. A presentation is made of the leading definitions of the concept ‘poverty’ as well as the main poverty reduction approaches promoted by international organisations in developing countries. The chapter also presents the ways, which the provision of electricity is used as a strategy to promote economic development and fight poverty in many parts of the world. One of the major features of this chapter is the presentation of the theoretical framework. A detailed presentation is made of the statist approach to the social policy, the market approach and the populist approach.
- Chapter three is a detailed presentation of the FBE policy. The chapter starts with a presentation of the concept ‘poverty’ within the context of the South African Government, followed by the government’s Indigent policy, which

governs all social pro-poor policies of the government at local government level. There is an exhaustive presentation of the FBE policy from its policy intention to its implementation guidelines.

- Chapter four is a detailed presentation of the study design and the research methodology. In this chapter, clarity is provided on the research design, the sampling method and sampling size, the data collection tools and the data analysis model that was used.
- Chapter five presents the research findings. Data generated from the Statistical Package for Social Sciences (SPSS) are presented in a form of tables and graphs and interpreted accordingly.
- Chapter six provides the study conclusions as well as recommendations in line with the study objectives and anticipated assumptions. Based on the limitations of the study, some points have also been identified in this chapter for further research.

# CHAPTER 2

# HOUSEHOLD POVERTY IN DEVELOPING COUNTRIES: THE CONCEPTUAL AND THEORETICAL FRAMEWORK

## 2.1 Introduction

Poverty is one of the oldest scourges of humanity. Throughout the history and across all societies, there have always been people who possess less than others and those who are exploited for the benefit of the powerful. While this reality seems linked to the very fabric of human society, the extent to which some groups of people in certain parts of the world are deprived from essential survival needs, is alarming. The elimination of poverty has become a key concern for politicians and international development organisations; at the same time, the fight for social justice and welfare has gained momentum among poor people and social activists.

The international community, through the United Nations (UN), has recognised that the enormity and complexity of the poverty issue could very well endanger the social fabric, undermine economic development and the environment, and threaten political stability in many countries (United Nations General Assembly - UNGA, 1997). In Africa, basic services, such as, water, electricity, health and education are essential ingredients for developing the capacity of people to work for personal welfare. Ensuring access to these services to the poor, is taking an essential step towards poverty reduction and

social development. However, despite common agreement, among development actors on the urgency to act against poverty, there is no common definition of poverty and consequently there are many anti-poverty policies and strategies.

Within the context of this study, household poverty is understood as a situation, in which a household lacks income and other resources to obtain the conditions of life aspired to and especially to enjoy the benefits of access to electricity as desired. In addition, a poor household lacks the capabilities to transform opportunities provided by an enabling environment (access to electricity) to sustainably improve its wellbeing in order to play the roles and meet its social and cultural obligations. This definition is underpinned by the monetary and capability approaches to poverty, described below.

This chapter presents some of the contemporary definitions of poverty and its impact on households. The study will however align itself with Hall and Midgley (2004:1), who posit,

> … in order to address long term issues of poverty and social deprivation in the South, it is increasingly recognised that a more comprehensive holistic and cross-sector livelihoods analysis is more appropriate. The goals of social policy have broadened to include poverty alleviation, social protection, social inclusion and the promotion of human rights".

In addition, this chapter also presents major poverty reduction strategies promoted by international organisations in developing countries with a special emphasis on the theoretical link between electricity provision and poverty[3].

[3] See Section 2.4 on page 28

## 2.2 The Concept of Poverty

The concept 'poverty' is multi-dimensional and cannot be reduced to a single definition (Fukuda-Parr, 2006; Townsend, 2006). Internationally, the level of income remains at the core of defining poverty and the indigent. However, many researchers have attempted to broaden the concept 'poverty' to include aspects of wellbeing and inequality, which reflect the lived experience of being poor, more realistically. While it is not the ambition of this study to criticise the various points of view, it is, however, very important to present these to facilitate better understanding thereof within the context of the study. Stewart, Laderchi, and Saith (2005) have adequately summarised the various points of view by mentioning three approaches to defining and measuring poverty: The monetary approach, the capability approach and the social exclusion approach.

### 2.2.1 The Monetary Approach

The monetary approach to poverty defines poverty in terms of shortfall in consumption or income from a defined poverty line. According to Stewart et al (2005)[4], the valuation of the different components of income or consumption is done at market prices, which requires identification of relevant markets and the imputation of monetary values for those items that are not valued through the market.

The United States and Great Britain played key roles in pioneering, what is today referred to as, the "poverty line".

> ... In the United States, the poverty line approach has its historical roots in two groups of studies that began at the turn of the century, one seeking to establish minimum family

[4] Stewart *et al's* opinion is based on a Study conducted by Grosh and Glewwe (2000).

> budgets in real terms at different levels of living and the other attempting to measure the cost of living. At the same time, economists and statisticians were expanding and improving techniques for measuring the cost of living and changes in it" (Will & Vatter, 1965:3-4).

In Great Britain, the monetary approach to poverty measurement was pioneered by Booth and Rowntree in the late nineteen and early twentieth century (Stewart *et al*, 2005). This source relates that Booth's research was prompted through widespread rioting by the poor, who constituted one-third of the population, as claimed by socialists of that time. Booth categorised people into eight social classes, four of which represented different degrees of poverty. According to Marshall (1981), Booth's classification went beyond a pure monetary identification of the poor, including more sociological concerns, such as, conditions attaining in the home, the nature and regularity of employment et cetera. In the early twentieth century, Rowntree (1902) defined the poverty line by estimating monetary requirements for a nutritionally adequate diet together with estimated needs for clothing and rent and those below this line were defined as in primary poverty (Stewart *et al* 2005).

Based on the above-mentioned historical researches, economists believe that the monetary approach is compatible with the assumption of utility maximising behaviour, which underpins micro-economics, that is, the objective of consumers is to maximise utility and that expenditures should reflect the marginal value or utility people place on commodities. In a market driven economy, the level of consumption of electricity of a household for example is function of its purchasing power. In that case, welfare can be measured as the total consumption enjoyed, proxied by both expenditure or income data and, "poverty is defined as a shortfall below some minimum level of resources,

which is termed the poverty line" (Stewart *et al* 2005:8). Practically, the monetary or poverty line approach is justified by the fact that, it sets a certain basic income per individual, which is regarded as a basic right as it provides freedom of choice. In case of this study, the poverty line approach defines poor people based on their ability to afford to pay a basic consumption of electricity of 50 kwh per month. Furthermore, it is assumed that the monetary indicator can appropriately proxy other aspects of welfare and poverty. Some of these aspects commonly associated with welfare and poverty are nutrition, health, clothing and education.

Internationally, there has been a common agreement on the use of the monetary approach to measure the extent of poverty and design development strategies. According to Sen (1999), the measure most commonly used by Breton Woods Institutions (World Bank and IMF) in examining poverty in the world in general, is the head count measure of poverty (Grusky, Kanbur & Sen, 2006). The absolute poverty line is set at U$1 per day per individual. Based on this definition, any individual living with less than U$1 per day is therefore considered as living in absolute poverty. The World Bank estimates, "about 1.2 billion people subsist with less than U$1 per day and some 2.8 billion live on less than U$1 per day. By 2001, 48% of the population in Africa was poor, living with less than U$1 per day (Smith, 2005:1). Despite being widely accepted, the monetary approach to poverty has also come under severe criticism. Stewart *et al* (2005:14) outlines some of these major critics as,

> ... The approach disregards social resources that are of great importance in determining individual achievements in some fundamental dimensions of human well-being such as nutrition and health … the methodological elements, which are part of the monetary poverty assessment are derived from economic theory; poverty in itself is not an economic category … the approach is fundamentally addressed to individual achievements; social interactions and inter-dependences are considered only from the mechanical point of view of appropriately scaling the household resources to take into account different household structures.

For some economists, income related statistics are not always sufficient to explain the causes of deprivation. Sen (2006) argues that money is just one of the means to obtain good living conditions and it is important to consider the quality of life resulting from an expression of self-realisation. For Sen, "If life consists of various things that people are able to do or be, then it is the capability to function that has to be put at the center stage of (poverty) assessment" (Sen in Grusky *et al*, 2006: 34). In other words, the lack of money to pay for a basic consumption of electricity is not sufficient to determine the level of poverty of a household. The following approaches, presented in this chapter, each address some of the perceived defects of the monetary approach.

### 2.2.2 The Capability Approach

Amartya Sen is recognised as the pioneer of the capability approach. For Sen, development should be seen as the expansion of human capabilities, not the maximisation of utility, or its proxy, money income (Sen, 1999). The capability approach rejects monetary income as its indicator of well-being and focuses on indicators of the freedom to live a valued life. In the capability context, poverty is defined as deprivation or failure to achieve certain minimal or basic capabilities or the ability to satisfy certain crucially important functionings, up to certain minimal levels (Sen & Nussbaum, 1993).

For the capability approach, what matters is not the income; but the choices that people are able to make with the income available to realise the desired living standard. This approach emphasises the quality of life, for which monetary resources is considered as a means to enhancing well-being only (Stewart et al 2005). One could also associate Townsend's definition of poverty with the capability approach,

> ... People can be said to be in poverty when they are deprived of income and other resources needed to obtain the conditions of life (the diets, material goods, amenities, standards and services) that enables them to play the roles, meets the obligations and participate in the relationships and customs of their society (Townsend, 2006:5).

Cahyat, Gonner & Haug (2007:2) also concur with the capability approach in the sense that,

> ... Poverty is a situation in which an individual or a household has difficulty fulfilling its basic needs, lacks opportunities provided by an enabling environment to sustainably improve its wellbeing or is vulnerable to losing its current standard of living.

Within the context of this study, the capability approach implies that households should be in a position to decide freely the level of consumption of electricity that is necessary to meet their basic needs. In a way, the capability approach brings back the concept of "basic needs", against which poverty should be defined and measured. While Sen does not provide a list of minimally essential capabilities, some researchers have argued that the lack of specification allows room for choice across societies and ensure the relevance of the approach to different individuals and cultures (Alkire, 2002). However, the list of "basic needs" recommended by the International Labour Organisation (ILO) since the inception of the concept in the early 1970s consider,

> ... Firstly, minimum consumption needs of a family: adequate food, shelter and clothing, as well as certain household furniture and equipment. Secondly, essential services provided by and for the community at large, such as safe water, sanitation, public transport and health care, education and cultural facilities. In rural areas, basic needs also include land, agricultural tools and access to farming (Townsend, 2006:6).

Other researchers, such as, Desai (1995) and Qizilbash (1998) have interpreted the list of minimal essential capabilities (basic needs) as being constituted by health, nutrition and education (Stewart, 2005). The capability approach has been practically operationalised by the Human Poverty Index (HPI) developed by the United Nations Development Programme (UNDP). Within the context of the human poverty, UNDP defines poverty as,

> ... The deprivation side of human development – the denial of basic choices and opportunities to lead a long, healthy, creative and free life; to enjoy a decent standard of living; and to participate in the life of the community including political freedom and cultural choices (Fukuda-Parr, 2006:8).

The definition above shows that the HPI is an indicator of capability deprivation; that is failure to achieve the basic capabilities needed for human functioning rather than any given level of income or consumption. The HPI's focus is on the child survival, literacy level and access to income and basic services (Fukuda-Parr, 2006).

The capability approach, through its measuring instruments like the HPI, has gained acceptance among international development organisations. The capability concept is significant in the sense that it contributes to poverty analysis, by providing a broader framework for defining poverty considering the context in which the indigent live and the level of freedom enjoyed (Stewart et al, 2005). In other words, on the basis of the capability approach, families remain poor if access to electricity does not contribute to

providing decent living standards to families, through improved education, health and nutrition. The capability approach, nevertheless, is not without limitations. Some of the limitations of the approach include:

- Firstly, like the monetary approach, the capability approach does not capture the fundamental causes or dynamics of poverty; but rather, aims to describe the situation at a given point in time (Stewart 2005).
- Secondly, the HPI does not capture certain very important aspects of human poverty, especially those related to participation in the life of the community, such as, political freedom and cultural choices (Fukuda-Parr, 2006).

### 2.2.3 Social Exclusion Approach

The social exclusion approach is an attempt to understand the root cause of poverty. "The concept of social exclusion was developed in industrialized countries to describe the processes of marginalization and deprivation that can arise even within rich countries with comprehensive welfare provisions" (Stewart et al, 2005:20). The European Union (EU) defines social exclusion as a "process through which individuals or groups are wholly or partially excluded from full participation in the society in which they live" (Stewart *et al* 2005:20). In order words, social exclusion comes due to the action of an agent creating conditions disadvantaging certain individuals or groups and many disadvantages leading to deprivation. The social exclusion approach analyses the process of becoming poor in a particular social group. Donnison (2001) notes that this approach has certain advantages,

> ... It provides a flexible and changing definition of poverty by locating the discussion within particular societies from whose changing resources and opportunities people are excluded, and it reminds us that we are dealing with a process, not a category of people - a process, moreover, in which we may all be involved, whether as excluded or excluders (Donnison, 2001:92).

The concept of social exclusion, as a process leading to poverty, has gradually extended to developing countries through the work of UN agencies and the Social Summit (Clert, 1999). Despite the fact that social exclusion is society-specific, some of the indicators used include, unemployment, access to housing, minimal income, citizenship, democratic rights and social contacts (Stewart, *et al* 2005). However, the application of the social exclusion concept to developing countries raises difficult issues, especially where the majority of the population does not enjoy democratic rights and where accepted cultural practices promote discrimination of certain social groups. For some researchers, in a context where it is difficult to get a common benchmark of what is “normal”, defining social exclusion is based on perception of local people (Bedoui & Gouia 1995).

Poverty in the context of social exclusion can be understood as a result of persistent multiple deprivation, which itself results from social exclusion of certain social groups from the mainstream of minimum accepted social benefits, such as, employment, housing, democratic rights and social protection. In the case of this study, poor families according to the social exclusion theory, are those that are excluded from the electricity network either because of their location or because they are unable to afford to pay for the cost of connection.

With the foregoing exposition to the various approaches of defining poverty, come different types of theories and strategies to reduce poverty in developing countries. In the next section, some of the strategies, elaborated on by researchers and development organisations to reduce poverty, will be presented.

## 2.3 Poverty Reduction Strategies in Developing Countries

After two or three decades of implementing development policies, focusing exclusively on economic growth in Africa, the World Bank and the IMF have since the year 2000 shifted towards pro-poor policies. This paradigm shift is largely justified by the failure of the structural adjustment programmes in Africa, which not only saw greater economic growth in some countries, but also rising poverty. With the adoption of the Millennium Development Goals (MDG) by the UN, poverty reduction has become the central objective of major development interventions by donors, Government Institutions and Non-Governmental Organisations (NGOs). However, despite this large consensus on poverty reduction, there does not seem to be an agreement among actors on more efficient approaches to tackle poverty in developing countries. The leading approaches promoted by the World Bank, the IMF, and implemented by many governments in developing countries, are summarised in three categories of interventions: promoting pro-poor growth opportunities, facilitating empowerment for the poor and enhancing income security.

### 2.3.1 Promoting Pro-poor Growth Opportunities

The World Bank has always promoted pro-growth economic policies to reduce poverty. The Structural Adjustment programmes promoted orthodox economic growth policies focused on privatisation, deregulation and trade liberation. It was then believed, "growth itself would be the vehicle for poverty reduction, achieved through 'trickle-down' mechanisms" Dagdeviren, Van der Hoeven, and Weeks (2000). Kakwani and Pernia (2000) explains the "trickle down" principle in this way,

> "... It implies a vertical flow from the rich to the poor that happens of its own accord. The benefits of economic growth go to the rich first, and then in the second round the poor begin to benefit when the rich start spending their gains. Thus, the poor benefit from economic growth only indirectly through a vertical flow from the rich. It implies that the proportional benefits of growth going to the poor will always be less. The incidence of poverty can diminish with growth even if the poor receive only a small fraction of total benefits (Kakwani & Pernia, 2000:2).

The "trickle down" theory was supported by a World Bank study conducted by Dollar and Kraay (2000). The study revealed that the income of the poor rises one-for-one with the overall growth and concluded that growth is good for the poor irrespective of the nature of growth. Furthermore, the study exposed that economic growth, over a period of four decades in the 80 countries sampled, has not changed the relative inequality; the proportional benefits of growth going to the poor are the same as those enjoyed by the non-poor (Kakwani & Pernia: 2000). However, the "trickle-down" principle based on economic growth raised many critics. The major critique was on the unpredictability nature of the economic growth to reduce poverty. The "trickle down" principle can only work when growth, in the economy, is translated into an increase in personal income and expenditure. These conditions cannot always be guaranteed and therefore

constitute the main limitations of the “trickle-down” principle. McKinley summarises Khan, A.R (1997) point of view on growth in these terms,

> ... The success of economic growth in reducing poverty cannot be taken for granted but depends on a number of factors, such as the sectoral composition of growth, the translation of growth into increases in personal income, and progressive changes in the distribution of personal income. Moreover, the interaction of macro-economic policies and the circumstances of each country vitally affect the efficacy of these factors in reducing poverty” (McKinley, 2001:7).

In response to critics of the “trickle down” principle based on pure economic growth orthodoxy, a new concept of “pro-poor growth” policy emerged. Kakwani and Pernia (2000:3) define pro-poor growth, “as that one enables the poor to actively participate in and significantly benefit from economic activity”. For this duo, pro-poor growth is a major departure from the trickle down concept, as its outcome should be that no person in society should be deprived of the minimum basic capabilities. For instance, pro-poor economic growth should allow everyone with adequate nourishment, reduce infant mortality and ensure that people live long and satisfying lives. To achieve pro-poor growth, the World Bank (2005) argues that more opportunities should be created involving complementary actions to stimulate overall growth, make markets work for poor people, and build the necessary assets, including addressing inequalities in the distribution of endowments, such as, education and health. More specifically, among the many concrete actions suggested by the World Bank to enhance pro-poor growth, the following seem more relevant to this study:

(i) Build poor people’s human capital by increasing public spending on basic social and economic services and facilitate privatisation to improve quality of service delivery;

(ii) Address asset inequalities across gender, ethnic, racial and social divides; and

(iii) Increase access to services in rural areas and city slums by facilitating access to (World Bank, 2005).

### *2.3.2 Facilitating Empowerment for the Poor*

The concept of empowerment as a poverty reduction strategy is underpinned by the capability and social exclusion approaches to poverty. Putting emphasis on empowerment is recognition of the fact that the non-representation of poor people in decision-making circles, due to social, cultural and political barriers, has limited the indigent's access to development opportunities. The World Bank (2005:145) defines empowerment as, "the expansion of assets and capabilities of poor people to participate in, negotiate with, influence, control, and hold accountable institutions that affect their lives". It is believed that social inclusion, which encompasses economic and political participation, is inherently part of the solution to poverty. The process of including the poor is likely to require the development of this sector's social capital, the "features of social organisation, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions" (World Bank, 2005:147). To ensure empowerment of the poor, the World Bank suggests policy actions that improve poor people's access to information; increase participation and inclusion through democratic mechanisms and encourage accountability of public institutions.

### *2.3.3 Enhancing Income Security*

It is known that poor people are exposed to a wide range of risks that make the indigent vulnerable to income shocks and well-being. Natural disasters, economic crises and health hazards mostly affect the productive ability of poor people. Households and communities respond to individual risk exposure through diversification of assets and sources of income as well as various types of self-insurance and networks of social support mechanisms. Such mechanisms help in a very limited scale to reduce the risk or soften the impact. As poor people are excluded from market-based insurance mechanisms, the World Bank encourages the State to play a special role in providing or regulating insurance and setting safety nets. Hence, national programmes to manage economy-wide shocks and effective mechanisms to reduce the risks faced by poor people, as well as helping the indigent to cope with adverse shocks when these occur, are essential (World Bank 2005:149).

## 2.4 The Role of Electricity in the Fight against Household Poverty

Reddy et al (2000), in an article on "*Energy and social issues"*, summarise the importance of energy in these terms,

> ... Poverty is the most fundamental reality of developing countries—and the energy consumption patterns of poor people tend to add to their misery and aggravate their poverty. A direct improvement in energy services would allow the poor to enjoy both short-term and long-term advances in living standards. Poverty alleviation and development depend on universal access to energy services that are affordable, reliable, and of good quality (Reddy *et al,* 2000:40).

This source finds a dependency relationship between energy and global issues like poverty alleviation, the position of women, population growth, urbanisation and life style.

These global issues determine that energy consumption and access to energy, by poor people, can highly influence the impact on poverty.

The UN has recognised “Universal access to electricity as a basic human right”. Participants at a colloquium held in Paris in 2005 on “*The role of electrification in alleviating poverty”* noted, “although access to electricity per se will not alleviate poverty, greatly increased quality and quantity of electricity services will be required in the developing countries as a means to meeting the Millennium Development Goals” (IEA, 2005). The role of energy and electricity, in particular, is critical in the fight against poverty at macro-economic as well as at the micro-economic (household) levels. Researchers have demonstrated that energy services are a crucial input to the primary challenge of providing adequate food, shelter, clothing, water, sanitation, medical care, schooling and access to information. For instance, for a household access to electricity facilitates timely cooking of food, provides a comfortable living temperature, lighting, and enables the use of communication appliances, which all contribute to the individual and family quality of life. Energy also fuels productive activities that contribute to improving the family income, including agriculture, commerce and other informal sector activities. Conversely, the lack or insufficient access to energy negatively affects access to the above-mentioned services and thus contributes to poverty and deprivation, which in turn leads to economic decline.

Reddy et al (2000:44), hence define energy poverty as, “the absence of sufficient choice in accessing adequate affordable, reliable high-quality, safe and environmentally benign

energy services to support economic and human development". There are striking statistics around the world on energy poverty. It is estimated that about 2 billion people are without clean, safe cooking fuels and must depend on traditional biomass sources; 1.7 billion are without electricity (Reddy *et al,* 2000). The lack of adequate energy inputs can be a severe constraint on development. These authors further affirm that the economic hardship endured by poor households is understated when the income (consumption expenditure) is evaluated in terms of its command over the basket of goods and services purchased by households with average income or consumption expenditures. With access to better energy sources, poor households in many places, especially in rural areas, could achieve the same level of energy services at a much lower daily cost, hence conferring sizable gains in personal purchasing power. It is therefore important for governments, development organisations as well as the private sector to ensure that there are cost-effective improvements in energy efficiency for poor people. In terms of poverty alleviation strategy, Reddy et al (2000) note that the orthodox World Bank policies, do not directly address the energy-poverty nexus in developing countries,

> … If patterns of energy use among the poor depress their nutrition, health, and productivity, the poor are likely to absorb the benefits of economic growth only very slowly. Education will continue to increase their earning capacity, but by less when kerosene rather than electricity is the main illuminant, when lighting is poor, and when access to knowledge through radio and television is limited. In contrast, strategies that, in addition to standard poverty alleviation strategies and rural development, include direct improvement of energy services, allow the poor to enjoy both short term and self-reinforcing long-term advances in their living standards" (Reddy, *et al* 2000:46).

There are several examples in the world to suggest a direct relationship between electricity infrastructure development and poverty alleviation. The ADB conducted a

study in 2003 in Asia to find the relationship between infrastructure investment and poverty alleviation. The study's findings in the sector of rural electrification projects are very interesting. The study found that electricity contributed significantly to the growth of the rural non-farm sector, leading to poverty reduction, an estimated elasticity of 0.42. The researchers found that in Bangladesh and India, rural electrification raised the use of irrigation, and hence significantly reduced poverty incidence. The beneficiaries also felt an improvement in their lives, a diminution in the sense of powerlessness and instability, and an increase in empowerment (ADB, 2003). In Indonesia and the Philippines, electricity through access to technology contributed directly to increasing employment and incomes of the poor, as well as to poverty reduction through growth (Balisacan & Pernia, 2002).

The Independent Evaluation Group (IEG) of the World Bank notes that household electrification in Bangladesh has had positively influenced health outcomes in rural communities. The IEG found that access to television, in particular, significantly increased women's knowledge of health and family planning practices (IEG, 2008). In addition, the IEG also revealed that, in many Asian and African countries, there is evidence of a positive impact of rural electrification on home businesses. From 1988 to 2003, the findings were reflected as, "the number of home businesses (that) grew significantly more in communities that became electrified than in either of those communities that did not. It was also found that the presence of electricity extended the work hours of home businesses, which led to an increase of the net income from these activities" (IEG, 2008:47).

In most of the countries mentioned above, electricity projects provided opportunities for poor people to start small businesses, either family-owned or cooperatives and consequently improved personal income. By implication, worldwide empirical evidence suggests that access to electricity is one of the greatest contributions to poverty alleviation and the empowerment of poor people, both financially and knowledge wise.

## 2.5 The Theoretical Framework of the Study

This study deals with issues related to people's welfare and can be classified within the theoretical framework of a social policy for development. According to Gough (2004), a social policy can be defined as a policy emanating from a political intention to achieve specific goals; with clear welfare orientation objectives; put into operation across many social sectors, with a variety of policy instruments and implemented by all actors acting within the public sector.

Generally, there are three types of social policy theories (Hall & Midgley, 2004) namely, the representational theory, the explanatory or analytical theory and the normative theory. The question of access to basic social services, as a way to alleviate poverty, which is at the centre of this study, can be well analysed within the normative theory framework.

A normative social policy theory is closely associated with ideologies and religious beliefs (Hall & Midgley, 2004). All major policy decisions taken by social actors, like political parties, governments, non-governmental organisations and international

development organisations, are influenced by normative social policy theories. A normative social policy theory often shapes institutions and organisations' mission and vision statements and as such, creates a strong commitment to common beliefs and values as well as a high sense of opposition to any social policy that appear to contradict its deeply felt views (Hall and Midgley, 2004). It is therefore important to understand the various normative theories in social policy discourse and to appreciate its role in shaping social policy decisions. There are three dominant ideological traditions in Western social and political thought, which constitute the building blocks of the normative theories, namely "collectivism", "individualism" and "populism" (Midgley, 1995). These three traditions have generated different approaches that respectively emphasise the role of the state, the market and the communities in a social policy for development. Further understanding these approaches will justify the choice of a theoretical analysis framework for this study.

### *2.5.1 The Statist Approach*

The statist approach gives a prominent role to the state in the production and distribution of welfare services. There are many theories of the state (Ginsburg, 2004). However, within the context of the statist approach, the best way of describing the state, is offered by Schwarzmantel (1994:8 in Ginsburg, 2004), "The state can be described as a set of institutions constituting a specialised apparatus of domination. Not only is the modern state in this sense distinct from the society over which it rules, but it is also a centralised apparatus of power, which possesses a monopoly of rulemaking". The statist approach is based on the idea that governments, as the manifestation of the

state, are in the role of bringing about significant improvement in social conditions by introducing a range of social services to raise the living standards of ordinary people (Ginsburg, 2004). May (2003:21), refers to the statist approach as, the “Institutional model” where state welfare is considered a “normal” function of industrial society. Statism is inspired by a collectivist ideology suggesting that the best society is one, in which people cooperate to meet common needs. The ultimate collective is the state that is not in collectivist thinking, a remote and bureaucratic organisation, but a body comprised of all citizens, which is answerable to the citizens and which serves the interests of all (Hall & Midgley, 2004). In Europe, these ideas inspired liberal reformers, social democrats and Marxists and resulted in a massive expansion of government social services’ provision, making most European countries to be described as, “welfare states” (Ginsburg, 2004; Gough, 2004; May, 2003). Bhattacharjee (2006:2) provides the following description of the welfare state,

> ... A state where organised power is deliberately used (through politics and administration) to modify the market forces in three different ways: first, by guaranteeing individuals and families a minimum income irrespective of the market value of their work or their property; second, by narrowing the extent of insecurity which lead otherwise to individual and family crisis and third, all citizens are offered the best standards available in relation to a certain agreed range of social services”.

The welfare state approach has, however, often been challenged. Marxists argued that governments were hardly motivated by altruism to care for its citizens and cynically used social services to exert social control (Gough, 1979; Offe, 1984 in Hall & Midgley, 2004). For populists, the state is not in touch with people and that social services are administered by insensitive officials, who show little interest in helping the indigent

(Kitching, 1982 in Hall & Midgley, 2004). According to neo-liberal economists, government provisions of social services are seriously damaging the economy and fostering indolence and irresponsibility (Feldstein, 1974; Friedman & Friedman, 1980; Hall & Midgley, 2004; Murray, 1984).

### *2.5.2 The Market Approach*

The market approach or "the neo-liberal perspective" (Green, 2003) is based on the individualist ideology that stresses the fundamental importance and centrality of the individual in social life (Green, 2003; Hall & Midgley, 2004). According to Green (2003:74), the neo-liberal perspective is characterised by four "core beliefs",

> ... (1) favours a competitive liberal market economy, (2) market economy is an essential bulwark of democracy because, by dispersing property ownership, it prevents the concentration of power, in the hands of few, (3) subscribes to the rule of law, as they believe that the power of the governments should be limited (4) there is a higher morality to which governments are subject and which in extreme cases may justify rebellion against tyrannical rulers.

At the centre of these core beliefs is the freedom of individual initiatives to provide to personal needs through the market. In a market approach, social policies are there to encourage individual responsibility and hard work and social needs should as far as possible be met through the market. Neo-liberals believe that the state role should be to create conditions for individuals to exercise freedom of choice and businesses to operate personal enterprises freely (Eatwell & Wright, 2003). Private commercial firms should be encouraged to provide health, education, social security and other services previously supplied by the government. Due to the influence of the market approach in social policy, governments around the world are increasingly contracting out the social

services to commercial providers. A leading advocate of this approach is Stoesz (2000), who is very critical about government programmes. This author believes that governments' social programmes marginalise poor people and keep the indigent out of the productive economy. Instead of solving the problem of poverty, institutional welfarism has created a culture of welfare dependency and other ills that perpetuate deprivation. Stoesz argues that the oppressive weight of the welfare system must be lifted and welfare recipients and the poor must be given opportunities to participate in the market economy and learn to function with it (Hall & Midgley, 2004).

### *2.5.3 The Populist Approach*

The populist approach emphasizes the involvement of "the people" and their values, beliefs and culture in social welfare. It further believes that the people, rather than individuals or collectives, form the core of the society and that the best society is one that recognises and gives expression to individual lifestyles and beliefs. Populist leaders often contrast the virtues of ordinary people with the interests of big businesses and government and hold that these role players contend and conspire to thwart the people's welfare (Hall & Midgley, 2004).

Having presented the three main approaches that underpin the social policy for development theoretical framework, this study will adopt the statist theory to analyse its subject critically. The choice of the statist approach is justified by nature of the policy being examined. The FBE policy is a state driven policy and implemented by specific government institutions, with the aim of improving the welfare of the indigent. In its

intention, the FBE policy seems to be the manifestation of a “welfare state” action as described in the statist theory.

## 2.6 Conclusion

This chapter has provided a clear understanding of the concept of poverty within the three main explanatory theories, which include the monetary, capability and social exclusion approaches. The chapter also presented the leading approaches promoted by development institutions towards formulating poverty reduction policies or strategies. Emphasis was put on understanding the role of energy and electricity in particular in the fight against poverty in developing countries. Finally, the chapter outlined the theoretical framework of the research. The next chapter specifically presents the “Free Basic Electricity” policy implemented by the South African Government as a tool for poverty alleviation.

# CHAPTER 3

# FREE BASIC SERVICES POLICY AND POVERTY ALLEVIATION IN SOUTH AFRICA

## 3.1 Introduction

Past policies of discrimination and segregation have left a legacy of high inequality and poverty in South Africa. The apartheid development trend showed a biased system in the provision of basic services, such as, health, education, housing and electricity to the white minority, to the detriment of the vast majority of blacks, who were denied the opportunity to develop individual human and physical potential (Woolard, 2002 in Malzbender, 2005). Economic sectors like mining, industrial agriculture and chemicals were prioritised by energy policies and the provision of electricity (Malzbender, 2005). In terms of domestic access to electricity, this source remarks,

> … There was a huge discrepancy between population groups and areas. The vast majority of people without electricity are black South Africans and electrification levels in rural areas generally fall short of the ones in urban areas. In both rural and urban areas, the poorest people are most likely to be the ones without access to electricity (Malzbender, 2005:2).

Since the advent of democracy in 1994, South Africa is engaged in a development process aimed at addressing the many injustices of the past. To fight poverty and inequality, the post 1994 South African Government decided to accelerate access to basic services for the majority of the population, especially those living in the rural areas. A very progressive constitution was adopted as well as many pro-poor social policies and programmes. One of the major pro-poor programmes then adopted and

currently still under implementation is the NEP. The NEP was conceived to ensure access to electricity by all South Africans, especially the poor, through the FBE policy. This chapter aims at presenting, in detail, the FBE policy, as conceived by the government as a way to alleviate poverty of the majority of the previously disadvantaged people. The first section presents the concept of poverty as defined by the South African Government. The second section presents the FBE policy and the third section some of the critiques and challenges of the FBE policy implementation as formulated by some researchers.

## 3.2 Poverty Conceptual Framework within the South African Context

As indicated in the previous chapter, there is a large consensus among policy makers, development organisations and donors on the use of the money approach to define poverty. All analyses of poverty around the world rely on the setting of a monetary poverty line. In South Africa, the historical heritage that has created a huge poverty gap among the various social groups is challenging the definition of a poverty line. There is, therefore, no officially established poverty line and researchers on poverty have assumed personal poverty lines leading to different interpretations of the poverty situation in the country (Oosthuizen, 2008).

Nevertheless, the official governmental understanding of poverty goes beyond the money-metric to focus more on social exclusion. The Framework for Municipal Indigent policy states it clearly,

> …The experience of poverty is multi-dimensional. While the inability to access income remains one of the most obvious expressions of poverty, definitions of

> poverty typically refer to the absence of capital such as land, access to natural resources, or to the importance of social and intellectual capital and even the climate of democracy and security necessary to enhance the capabilities of the poor and excluded. Further, there is an additional institutional dimension of poverty that recognises that the poorest in the nation are those who are unable to access state assistance designed to provide a social safety net because of institutional failure" (DPLG, 2005:1)

From the above statement, the South African Government views poverty as caused by injustices of the past and denial of rights to the poor. Viewed in that perspective, it becomes the duty of the state and its organs to provide to the poor and for the poor to claim personal rights to the state. The Framework for Municipal Indigent policy states further that,

> ...The experience of economic exclusion by indigent households is often linked to exclusion from access to basic services and, given the primary role which municipalities have in providing such services, they can, through rapidly increasing access to services, have a major impact on reducing the exclusion of the indigent (DPLG, 2005: 2).

One can therefore conclude, based on the government's view exposed in this section, that poverty within the South African context is defined as a product of social exclusion from the mainstream of access to social facilities, production means and mechanisms. Within this context, where poverty is understood as social exclusion, it is critical to understand further, who the poor is. This will avoid the mistake of alluding to all previously disadvantage groups as poor and will further clarify the main target of the study.

## 3.3 The Government Indigent Policy

To implement the RDP considered as the developmental road map of the new democratically elected government in 1994, several sector oriented pro-poor social policies emerged to improve poor people's access to water, education, health, electricity and social grants. A comprehensive policy document on how the government intends to improve the lives of indigents, through the provision of social services, known as "Municipal Indigent policy framework" was only adopted in 2005.

The Municipal Indigent policy defines the framework, to be considered by the various Government Departments and State Owned Enterprises (SOE), at the three layers of government for the provision of free basic services to the poor. The policy document clearly outlines the government's political intention and measurable objective in these terms,

> ... The overall objective (of the policy) is to substantially eradicate those elements of poverty over which local government has control by the year 2012 … This policy is aimed at including those currently excluded from access to basic services, through the provision of a social safety net. What poor people in South Africa have in common is the need to access affordable basic services that will facilitate their productive and healthy engagement in society (DPLG, 2005:1-2).

The expected ultimate goal for the provision of free basic services is therefore to reduce the levels of poverty and consequently the number of those, who are indigent in the country.

### *3.3.1 Making the Indigent Policy Operational*

In order to ensure that the free basic services policy creates the expected impact, the government outlined three key principles that should be verified for all service specific policies: ensuring access, maintaining access, and effectively targeting the poor.

- The first principle of ensuring access to the services or “gaining access” (DPLG, 2005), relates to the need for the indigent to firstly have physical access to the service. In other words, the policy requires municipalities or the relevant SOE to first develop the appropriate required infrastructure for the services nearest to the poor people. This principle is therefore highly subjected to the availability of funds for capital investment to increase the physical infrastructure in the communities. In this regard, the policy outlines several financial mechanisms that are meant to support infrastructure development in municipalities (DPLG, 2005).
- The second principle is about ensuring adequate service maintenance. Access to a particular service can be maintained only if the quality of the service is also maintained. In other words, the policy expects municipalities to have the capacity to maintain the infrastructure to continue to provide a high standard of services to the poor. The underlying challenges of this principle tend to address and relate to the availability of adequately trained personnel and the proper allocation of financial resources in municipalities, in order to ensure a high quality of service delivery.
- The third principle calls for municipalities and stakeholders to make sure that poor people are the main beneficiaries of the policy. In this regard, poor people are being targeted by the indigent policy and are referred to by the government

as “indigents”; that is, those people who lack the “basic necessities of life” (DPLG, 2005).

The Bill of Rights of the South African Constitution is quite clear on what goods and services are considered as necessities for every individual in South Africa. These include access to sufficient water, basic sanitation, refuse removal in denser settlements, environmental health, basic energy, health care, housing, food and clothing (RSA Constitution, no. 108, 1996, Sections 26-28). Hence, the indigent policy considered whoever does not have access to these goods and services as indigent or poor. Having the services physically in place and properly operated and maintained is therefore, not sufficient to ensure access to such services by the indigent. For indigents to access the services effectively, municipalities are expected to provide basic services to targeted poor households at a subsidised cost. This principle is also based on the assumption that municipalities are financially viable to raise revenue from those who are not indigent and who can afford to pay for the services provided. By not properly targeting the poor through a sort of blind approach, non-poor people may also benefit from government subsidies; thus creating unnecessary financial burdens on municipalities, with the risk of affecting the effectiveness of the indigent policy. Therefore, according to the government, “an indigent policy will only be fully functional once subsidies are targeted in such a way that the indigents benefit and those who are not indigent pay.” (DPLG, 2005:6).

The indigent policy adopted by the government is an umbrella framework, which is meant to set parameters for subsequent development of review of all sector specific policies. The focus of this study is on the FBE policy. The next section will present the FBE policy from its definition to its implementation approach.

## 3.4 Understanding the Free Basic Electricity (FBE) Policy[5]

In July 2003, Government adopted the electricity basic services support tariff (EBSST) or otherwise known as the free basic electricity (FBE) policy. This policy emanates from the decision taken by the government in 2001, to provide free basic services to poor households and identified these priority services as water, sanitation and energy.

### *3.4.1 Defining the Free Basic Electricity Policy*

The government policy for the provision of FBE compels municipalities and state owned enterprises, involved in the electricity sector, to provide a certain amount of electricity, free of charge, to poor households throughout the country. For grid-connected households, FBE means that these households qualify for free 50 kWh monthly; while off-grid electricity users are subsidised with R40 per month towards the R58 monthly service fee. The R40 subsidy for off-grid users is paid directly to the service providers, meaning that households only have to make a cash-payment of R18 per month (Balfour et al*,* 2005). The policy document from the DME contains the following statements,

> …Free basic electricity provision will be phased in with preference being given to the poor at all times. Grid connected households will be provided with 50 kWh of free basic electricity funded mainly through relevant inter-governmental transfers, subject

[5] Information provided in this section is extracted from the DME free basic electricity policy document, 2005.

> to the contractual obligations between the Service Provider and the consumer being met. Any consumption in excess of the set limit (50 kWh) will be payable by the consumer … The provision of free basic electricity services shall be limited to existing qualifying consumers, legally connected to both grid and non-grid electricity systems, and those electrified through the National Electrification Programme. Consumers connected to non-grid systems, installed through the National Electrification Programme will receive a subsidy of up to 80% (or R48 per month per connection in 2002) of the monthly service fee to provide access to non-grid systems, subject to the contractual obligations between the Service Provider and the consumer being met. This amount will be revised from time to time ... (DME, 2005:9&11).

The definition above, gives room to municipalities to customise the implementation of FBE based on the relevant local realities. However, it also creates double standards for the same type of services. While grid connected consumers are being fully subsidised, non-grid customers are asked to contribute a certain amount of money before getting the services. Non-grid consumers are likely to feel unfairly treated by the policy and resist paying, while claiming the services; leaving municipalities no choice but to bear the cost and fully subsidise all the consumers irrespective of the type of connection. In the case of BCM, all 38,000 consumers on poverty rates in the 2009/10 financial year had pre-paid electricity meters and were fully subsidised at a cost rate of R33.20 per household for 50 kWh of electricity per month[6].

### *3.4.2 Objectives of the FBE Policy*

While all sector specific indigent policies subscribe to the overall objective of the Indigent policy framework of the government presented, it is important to highlight the specific objectives attached to the FBE policy at political and economic levels. At the political level, the government's objective for the adoption of the FBE policy is to

[6] This information was obtained from BCM electricity Department on 29 October 2010.

alleviate the effects of poverty on poor electrified households. Former President Mbeki expressed the government's intention, in his address at the inauguration of the Executive Mayor of Tshwane on 10 February 2001, "The provision of free basic amounts of electricity and water to our people will alleviate the plight of the poorest among us…" (DWAF 2001(b):3)[7]. The President's intention was later concretised by the DME's FBE policy document, which also clearly states, "This policy seeks to address ways and means through which government interventions can bring about relief to poor electrified households and ensure optimal socio-economic benefits from the National Electrification Programme" (DME, 2003:3).

If government officials or political reasons can be considered as genuine, based on the historical context of the country, Balfour et al (2005), suggest other reasons or intended consequences for free basic services policy. Most of the reasons presented by these authors can be classified as economic, health benefits and capacity support to local government.

- Firstly, increased access to electricity by the majority of the population, including the poor, is good for the economy. Electricity and water, because of its considerable positive impact on the life of the people and the economy, can be considered "merit-goods[8]". As such, the government can make a case to

[7] Cited by Balfour *et al.* (2005:4)

[8] The concept of "merit goods" was introduced in Economics by Musgrave Richard in 1910. A "merit good" is a good which low consumption through the market, might endanger public interest and requires government's intervention in the market to get it high (e.g. Education, Water, electricity etc..); while "demerit goods" are goods which reach high consumption through the market, but have negative public impact and require government's interference to lower the consumption (e.g. Tobacco), (Ver Eecke, 2007)

intervene in these sectors to ensure larger access to these goods to the population than will be the case if the distribution was controlled by the market. In other words, by increasing access to electricity, households are likely to strengthen individual productivity and also boost the consumption of households' appliances, which by implication demonstrates that improved access to electricity, by poor people, contribute to economic growth.

- Secondly, access to electricity is generally considered as indirectly affecting the health of the population. Access to energy during winter, for example, is extremely important to maintain a warm environment at home and prevent cold related illnesses. Improving public health can therefore be considered one of the main reasons why government adopted the FBE policy.
- Thirdly, the local government's free basic service policy comes as a response to the capacity crisis in South Africa. Municipalities in particular are, with very few exceptions, incapable of fulfilling its constitutional obligation to deliver services effectively to all citizens. Municipalities are often bankrupt, staffed by inadequately trained and poorly motivated personnel, and fractured by bitter internal political conflicts. Such problems are especially acute in rural and peri-urban communities. Service delivery protests, which erupted throughout the country in 2008 and 2009, demonstrated the limited capacity of municipalities' effective service deliveries to the population. Through the free basic services policy, the national government provides substantial financial support to municipalities, hence, making the policy not only a response to the crisis in local government but also an attempt to promote equity.

### *3.4.3 Implementation Approach of the FBE*

The policy document covers several aspects under the implementation of the FBE. For the purpose of this study, the presentation of the FBE implementation strategy focuses only on three aspects: The selection of beneficiaries, the principles and restrictions as well as the funding mechanisms. Each of these aspects contributes to a more thorough examination as to what extent this policy is meeting the political intention and guidelines set in the broader Indigent policy framework. The next chapters of the study will critically analyse the question.

#### *3.4.3.1 The Selection of Beneficiaries of the FBE*

Although the main intended beneficiaries of the FBE policy are poor households, the policy document outlines two approaches for selecting the beneficiaries: the broad-based approach and the self-targeted approach.

- **The broad-based approach**

  The broad based approach, imply the provision of the agreed 50 kWh of electricity per month to all legal household connections, irrespective of social status. The study referred to this approach earlier as “blind”. The policy document is not majorly in favour of this approach, due to its high cost,

  > …If 50 kWh of free basic electricity was proposed for all grid connected households, the estimated cost to the Electricity Supply Industry (ESI) to supply a zero rated supply of 50 kWh per household per month (calculated at an average of 40 c/kWh based on 6.8 million grid-electrified households), would be R1.64 billion per annum, for the year 2001. This amount excludes infrastructure, vending systems and upgrading costs. These costs should be capitalised and be recovered from other non-targeted customers. It needs to be noted that these costs will also increase with the increase in the level of electrification through the

National Electrification Programme, which is estimated at additional 330 000 connections (mainly in poor rural areas) per annum over the next 10 years, resulting in additional costs of R80-90 million per annum (DME, 2003:15-16).

- **The Self-targeted Approach**

The self-targeted approach is the one recommended by government in its policy document. This approach implies two ways of benefiting from the free basic electricity. The first way is for the poor households to apply for a current limited energy supply and then become eligible for the FBE allocation. Alternatively, the second way is that the responsible Electricity Service Provider identifies households consuming, on average, less than a pre-determined amount of electricity 50 kWh per month and then automatically apply the FBE allocation to such households. The government's position is based on the assumption that poor households have low demands for electricity consumption. These households are therefore likely to apply for a current limited energy supply. Malzbender (2005:15), however, notes that government's assumption is very contested by consumer and social activists groups, "who claim that the 50 kWh is by far not sufficient to serve even the most basic needs of poor households". According to a study in Soweto by Fill-Flynn and SEC (2001), poor households consume far more, up to 10 times the amount of electricity being provided by the government free of charge (Malzbender, 2005). Despite the protests, this approach, according to the policy document, is the one that accurately targets poor households. However, the government allows municipalities to make individual decisions on who should benefit from the policy and amount of electricity to be provided based on the respective realities and financial capacity,

> "...The recipients of free basic electricity allocation shall be those households that either apply to their Service Providers for a current-limited electricity supply of 10A, or who apply to be charged a special non-current-limiting tariff that provides the free basic electricity allocation. The choice of method used for self-targeting is left to the Service Authorities and the respective Service Providers (DME, 2003:14).

### *3.4.3.2 Application of Principles and Restrictions of Providing FBE*

In order to facilitate the implementation of the FBE policy, the government outlined 10 principles to be followed by service providers and service authorities. These principles are outlined in the FBE policy document (DME, 2003:20-21):

- The free basic allocation of electricity units is to be made available to all qualifying households that meet the requirements of self-targeting. Where more than one dwelling is bulk metered, the Service Providers will need to consider this in allocating the free basic service.
- Normal municipal connection fees levied by the distributor will be applied to all new electricity services;
- Basic charges/fixed charges, if applicable, will only become effective when monthly consumption exceeds the free allocation.
- No carry-over of the free basic electricity allocation or any portion thereof from one month to the next is to be permitted for credit-metered customers. This will particularly address cases of unoccupied households claiming cumulative EBSST.
- Free EBSST allocations not claimed by prepaid metered customers in any calendar month will be forfeited, subject to proper billing by the Service Provider

to the Service Authority in respect of the claim arising from such provision of free basic electricity to all qualifying households.

- In respect of the credit-metered households, the free allocation should be applied to the account if electricity is consumed in any billing period. If the consumption is less than the free quota, only the amount of the consumption is issued free, subject to the proper billing of the Service Provider to the Service Authority in respect of the claim for providing free basic electricity to all qualifying households.
- The distribution/allocation of the free basic electricity allocation must be as simple as possible to obviate the need for high levels of capital/upgrading and administration expenditure.
- Consumer discipline must be upheld. No free basic electricity allocation is to be made available following disconnection from the electricity supply for reasons normally applicable in the distributor's environment such as meter/system tampering or non-payment, until the consumer has met all the distributor's/authority's requirements to have the supply restored.
- No cash/voucher/service will be payable in lieu of the free basic electricity allocation or non-grid operational subsidy for household connected to the non-grid systems.
- The free basic electricity allocation/subsidy will only be affected when a qualifying consumer has been officially connected to the electricity supply system of a Service Provider.

While the study's aim was not to investigate the adherence to the principles above, by the municipality, it is however possible to observe that the application thereof, lead to a very rigid system to the dislike of poor people. Some households interviewed indicated a decision to access illegal connections, because the relevant municipality was not willing to connect their shack. While it is necessary to keep rules, the municipalities' implementation should be for the interest of the poor.

### *3.4.3 Funding Mechanisms for the FBE Policy*

The government envisaged two main mechanisms to fund the provision of FBE to poor households by municipalities. The first one is paying the FBE provision from nationally collected revenue (fiscus) through transfers to local governments. According to the government policy document, national funding of the FBE presents a lot advantages. For example, national funding enables the national government to manage the costs of the programme (particularly decisions on increases of allocations) in the light of macro-economic conditions and national fiscal considerations; it also enables the government to manage directly any fiscal risk associated with the policy. Municipalities are therefore expected to fund the provision of FBE to poor households through the "equitable share" allocation received from the Department of Local Government.

The other approach is paying for the FBE by means of a cross-subsidy from high electricity consumers. This approach is recommended to municipalities with high consumers and revenue bases such as category "A" municipalities (Large Municipalities like Ekurhuleni, Nelson Mandela Bay, City of Cape Town and Tshwane).

## 3.5 Conclusion

This chapter has elaborated the on the FBE policy. It has shown that for the South African government, poverty is essentially defined as a result of social exclusion from access to basic services. On that basis, the government adopted several social policies like indigent policy and FBE aiming at increasing access to basic services by poor people with the ultimate goal to reduce poverty. The FBE policy was presented and commented from its objective to its implementation strategy as conceived by the government. This chapter also marks the end of the literature review; the next chapter presents the research methodology including a detailed presentation of the study area.

# CHAPTER 4

# RESEARCH METHODOLOGY

## 4.1 Introduction

This chapter presents details of the methodology used to collect and analyse the research data, in line with research guidelines in social sciences. The study has applied the mixed research methodology to investigate the problem, by collecting both quantitative and qualitative data. Information has been gathered through field surveys, interviews with key informants and review of policy documents, books, journals, newspapers and articles.

The chapter begins with a detailed presentation of the study area, including the research population; then follows the research design, the research method, the sampling method used, the sampling size, and the data collection tools. The chapter ends with the presentation of the data analysis method.

## 4.2 The Study Area: Buffalo City Municipality

This study was carried out within the Buffalo City Municipality (BCM), located within the Amathole District Area, one of the six district areas that comprise the Eastern Province. Buffalo City is situated centrally in the Eastern Cape Province, and is bounded to the southeast by the long Indian Ocean coastline (Figure 4.1 on the following page).


Source: BCM GIS Department

**Figure 4.1: BCM boundaries and key urban centres**

The municipal land area is approximately 2,528 square kilometres (BCM, 2007) containing three urban areas, East London, King Williams Town and Bisho as well as many large rural areas. East London is considered the main commercial centre, while King Williams Town and Bisho are hosts to the Municipal Regional Service Centre and the Provincial Administrative Headquarters.

### *4.2.1 The Population*

The population of BCM is estimated at 724,306 inhabitants (Statistics SA, 2007). It is estimated that Blacks constitute 80% of the total population, White and Coloured

representing 17% and Indians and other Asians 3% (BCM, 2007). Between 1996 and 2001, this population has shown a 2.7% growth rate, a 0.6% average per annum. Within the same period, households have, in contrast grown at a much faster rate, as extended households 'disaggregate'. The household growth, over the five years, was 19.82%, an average annual growth rate of 3.68%. For the municipality, this growth in the number of households translates into an increased demand for municipal services (BCM, 2010).

### *4.2.2 Economic Profile and Employment*

Buffalo City is qualified by the municipal authorities as "one of the key economic hubs of the Eastern Cape Province" (BCM, 2010:13). This statement, however, seems to reflect more a glorious past than the current reality. The latest statistics show that in 2004, the "BCM was the 3rd worst performing city with a compounded annual growth in the GDP of 2.5% compared to 3.5% for the nine cities"[9] (BCM, 2010:13). Despite the presence of major companies like Daimler Chrysler, Johnson & Johnson and Nestle, the economy of the city is predominantly supported by the tertiary sector. The primary and secondary sectors of the economy have suffered from the closure of many factories especially in the textile and clothing industries, with great consequences on the local economic growth and unemployment.

Unemployment is very high among the active population in BCM. A study conducted by the University of Fort Hare for the City on the QoL shows an average unemployment

[9] These statistics is from the South African City Network (SACN) skill report 2004 and the nine cities include: City of Cape Town, Nelson Mandela Bay, EThekwini, Tshwane, Ekurhuleni, Johannesburg, Mangaung, Msundunzi and Buffalo City.

rate of 56% among the interviewed active people, aged 15 – 65 (BCM, 2007). The QoL survey conducted by the University of Fort Hare shows that the income of African households increased by almost 50% to R2200 in 2007 (BCM, 2007:8). The study also observes that despite the increase, “there are still huge disparities in income between the various population groups, with African households still earning markedly less than other population groups, on average” (BCM, 2007:8).

One of the major concerns with regard to unemployment and consequently the economic development of the city is the low level of education and skills among the population. The municipal authorities estimate that about 60% of the unemployed have lower skills and have not progressed beyond Grade 9 (BCM, 2010). In addition, the State of City report, 2006, shows that only 1.2% of the BCM population possesses a university degree, whilst 16.2% has no schooling at all (BCM, 2010).

### *4.2.3 Buffalo City Municipality Political Structure*

The political system of BCM is the executive mayoral system combined with ward participatory system. This system is defined in terms of Section 9 (d) of the Municipal Structures Act of 1998. BCM, based on its political system, has an Executive Mayor, a ten-member Executive Mayoral Committee, a Speaker and eighty-nine elected councillors. Following the last local government elections in March 2006, forty-four councillors were elected in terms of the system of proportional representation and forty-five are direct representatives of the forty-five wards that make up the entire municipality.

Wards are geographically demarcated community areas, which can be referred to as constituencies for political parties or planning units for development purposes. To facilitate community participation and involvement in municipal activities, BCM has established ward committees in all the forty-five wards. Each ward comprises ten elected members, chaired by a ward councillor.

### *4.2.4 The Study Population*

The study population is “that aggregation of elements from which the sample is actually selected” (Babbie, 1995:194). Elements in the context of this study are households and the study population is constituted by households from three wards benefiting from the FBE services. The three wards are Ward 7, Ward 10 and Ward 29. These wards are all located on the outskirts of East London, which is the capital city of the BCM and are populated at 90% by indigent population. The selection of these wards was justified by practical and budgetary constraints reasons.

#### *4.2.4.1 Definition of the Household*

According to Haviland (2003), the household is the basic residential unit, in which economic production, consumption, inheritance, child rearing and shelter are organised and carried out; a household may therefore not be synonymous with family. O’Sullivan and Sheffrin (2003) also consider that in economic terms, a household is a person or a group of people living in the same residence.

Based on the definitions above, a household, in the context of this study, is understood as a person or group of people living in a residential unit and currently or potentially benefiting from the FBE services through one municipal account owner. The municipal account owner or his/her delegate is therefore referred to as the household head. The study definition is justified by the fact that there are many families living within the same residential unit, but benefiting from the same electricity connection. Additionally, included in the research population, were officials of the municipality dealing with the free basic services programmes.

## 4.3 The Research Design

According to Trochim (2006), research design, is the structure of research; a sort of "glue" that holds all of the elements in a research project together. In a way, the research design is the blueprint that guides the research and its logical framework.

This study has been exploratory, descriptive and analytical in its research design. The exploratory approach was necessary to gain insight and familiarity with the main concept of FBE. Neuman (2003) notes that an exploratory approach is necessary when the subject under research is new, or when minimal research has been done on it. In the case of this particular study, no previous study of this nature has been conducted in the Eastern Cape.

The exploratory phase was justified by the necessity to respond to the question, “What is free basic electricity all about?” Discussions were held with field workers (community

development workers) and officials from the BCM and the Department of Local Government and Traditional Affairs dealing with “Free Basic Services”. In addition, key policy documents, relating to the subject, were consulted. Information collected during this phase was presented in the Chapter 3 of the study; it also assisted in the design of the research questions and the design of the research questionnaires, necessary for the descriptive research design.

The descriptive research approach was used to describe how the target population concretely accesses and utilises FBE. As noted by Babbie (1995), the intention of the research was not just to observe, but also to describe what was observed. Hence, using descriptive statistical approaches, the study was able to describe the profile of interviewed households, the electricity consumption per household, the common ways of using electricity and the economic benefit of electricity per household.

The explanatory or analytical approach was finally employed to find the type of relationships that could be established between the various variables of the research. Using statistical methods, not only established correlations among certain variables, but in addition qualitative data proved very useful to shed a better light on the perceived relationships. Descriptive and analytical data are presented in the Chapter 5 of the study.

## 4.4 The Research Method

The study has applied the mixed methods approach to collect data. According to Creswell (2003:18), “mixed methods approach is one in which the researcher tends to base knowledge claims on pragmatic grounds. It employs strategies of inquiry that involve collecting data either simultaneously or sequentially to best understand research problems”. As mentioned by Townsend (2006), poverty is a multi-dimensional concept; likewise researches about any poverty related phenomenon, should embrace multi-disciplinary techniques. Hence, mixed method design was considered the best research method for the study to facilitate ultimate investigation of the problem. The main advantage of mixed method is that it allows concurrent procedures by converging both quantitative and qualitative data to analyse the research problem (Creswell, 2003).

## 4.5 The Sampling Method

According to Babbie (1995:188), “sampling is the process of selecting observations”. Sampling should also be considered as the process of selecting “a portion, piece, or segment that is representative of a whole” (Onwuegbuzie and Collins 2007:281). As a mixed methods research, the study applied both probability and non-probability sampling methods to collect quantitative and qualitative data.

The study applied systematic sampling to select the units of analysis, which are households. Systematic sampling is a probability sampling that consists of selecting elements of observation from a list in such a way that “every $k^{th}$ element in the total list is chosen systematically for inclusion in the sample” Babbie (2003:207). Originally, the

lists of indigent households from the three wards were to be obtained from the municipality. This expectation could not be met, as the lists presented by the BCM officials were not specific to the research area; it contained all the indigents from the entire municipal area and therefore could not be used for the sampling. The lists of house addresses per street were then used as alternative to select households. In each street, initially a house number was randomly selected, followed by every fifth house in the street until the entire sample size was obtained. In case of none, cooperation or non-availability of the household head, the next or sixth house, was selected. The method is referred to as “systematic sampling with a random start” (Babbie 2003:208).

The study also used a non-probability sampling method, known as purposive or judgmental sampling to collect qualitative data from some individuals. According to Grimm and Wozniak (1990:204), “in judgmental sampling, a researcher makes sample selections based on informed guesses about the most representative cases”. In the case of this study, individuals sampled for focus discussions, were selected based on each person’s role and influence in the community. In the same way, officials interviewed, were selected by the relevant supervisors based on each person’s knowledge of the subject.

## 4.6 The Sample Size

Determining the sample size is about deciding on the number of elements to be sampled for observation. Generally, small samples are always associated with qualitative research, while large samples are associated with quantitative research.

However, that view may be misleading as, “there are times when it is appropriate to use small samples in quantitative research, while there are occasions when it is justified to use large samples in qualitative research” (Onwuegbuzie and Collins 2007:282). Determining the sample size is therefore flexible as it depends on the research objective, research question(s), and the research design (Onewugbuzie and Collins, 2007).

As a mixed method research, this study has used a sample size of 150 households to collect quantitative and qualitative data. This sample size was mainly justified by time and budgetary constraints. In addition, the study conducted two focus group discussions of ten participants each and interviewed two senior officials from BCM.

## 4.7 Data Collection Tools

Data collection was done using three types of questionnaires, namely the household survey questionnaire, the focus group discussion guide and the interview guide with municipal officials. All the questionnaires were designed for a face-to-face interview with the respondents. The household survey questionnaires included both open- and closed-ended questions, while the other questionnaires were interview guides, meant to generate discussions, through open-ended questions. The household survey questionnaire was structured in three sections:

- Section 1 - Identification of the household and the household’s head. This section identified the respondent in terms of gender, age, occupation, level of education and family size.

- Section 2 - Access to electricity and usage. This section focused on information like type of connection, monthly consumption of electricity, ways of using electricity and the respondent's perception of the FBE policy.
- Section 3 - Effect of electricity on family health and children's education. This section focused on the respondent's opinion of the impact of access to electricity on the health of family members, the recurrence of illnesses in the family over the past nine months (January to September 2009). In addition, the impact of access to electricity on the learning pattern of learners in the family and the school results during the last school year was also observed.

The household survey questionnaires were administered to household heads by research assistants in their local language.

Each focus group was facilitated by the main researcher assisted by two assistants. Discussions with participants were guided by a structured semi-directive interview questionnaire. Permission to record the conversations, using a mobile phone and MP4 recorder, was requested and granted by participants. The recordings helped to accurately transcribe transcript participants' opinions in the research note books and later used during data analysis. Samples of these questionnaires are included in this study as annexure one.

## 4.8 Training of Research Assistants

Prior to going to the field, the principal researcher conducted a two-day training session, for the three research assistants. Training research assistants was very important in order to introduce and familiarise the assistants with the research ethics and interview techniques. The assistants needed to know the objectives of the research, the problem statement, the research questions, the hypotheses, the focus, and individually assigned responsibilities. Assistants were also informed about the ethics of the research and taught how to complete the questionnaires. Throughout the data collection period, the principal researcher monitored the progress and provided guidance when it was necessary.

## 4.9 Data Analysis Method

The data collected were analysed in three phases as mentioned by Trochim (2006): data preparation, data description and testing of the research hypotheses. Data preparation involved checking the validity and reliability of the data collected, coding of data and data entering in a computer database. To check data validity and reliability, questionnaires were screened to ensure these were properly completed and the triangulation strategy as explained by Creswell (2003:217) was applied, whereby quantitative and qualitative data were compared, “in an attempt to confirm, cross validate or corroborate findings”. In case verifications, were necessary, electricity experts from the municipality were contacted on several occasions to check the accuracy of the information in question. Data coding was also very important during this

phase and was processed as described by De Vaus (2002:1), as “representing categories and values of a variable so that responses are converted to a form suitable to statistical analysis and that data become more manageable by grouping similar responses”. A data codebook was designed and maintained to facilitate easy reference and interpretation of findings.

Data description involved using descriptive statistics to produce simple summaries about the characteristics of the sample population (Trochim, 2006). Coded data were captured in a MS Excel spreadsheet and later transferred to specialised statistical computer software for Social Sciences (SPSS) to produce frequency distribution tables, and graphs to describe the study results.

Research hypotheses were finally tested using inferential statistics models. The study used two tests of significance, the Chi-square and p value to determine the relationships between variables and that helped in the study to respond to the main research questions. Qualitative and quantitative data collected were concurrently interpreted to strengthen the findings of the study or explain gaps observed (Creswell, 2003).

## 4.10 Conclusion

This chapter exposed the methodology that was used throughout the study to collect and analyse the research data. In a context where poverty is rampant like in BCM and with almost the entire population being indigent, like in the wards where the research was conducted, every household wanted to be interviewed, thinking the study would

bring direct family benefits. The researcher always had to explain the purpose of the study and the sampling methods and procedures. In the end, the field data collection phase was a successful experience. Quantitative and qualitative data were collected and analysed in line with social research scientific approaches and ethics. The next chapter presents the findings and interprets these in line with the research objectives and hypotheses.

# CHAPTER 5

# STUDY RESULTS AND DISCUSSIONS

## 5.1 Introduction

This chapter presents the results of the field survey. Both quantitative and qualitative data collected are presented and interpreted following the mixed research method of data analysis (Creswell, 2003; De Vaus, 2002). The chapter is organised in five main sections:

- Firstly, the description of the households through the characteristics of the household heads, such as, gender, age, occupation, family size, number of learners at home and the level of education.
- Secondly, the description of households' access to FBE through variables, such as, type of connection, amount of monthly kWh units, level of awareness on FBE, ways of consuming electricity, level of satisfaction with the quality of electricity services and types of household appliances.
- Thirdly, the description of households' quality of life through variables, such as, number of electricity dependent business activities, monthly income from business activities, family health and children's education.
- Fourthly, the description of the FBE social impact in the indigent communities.
- Fifthly, the description and analysis of relationships between variables. These are: the level of electricity consumption and the household head employment's status; the level of electricity consumption and the size of the household; the

domestic usage pattern of electricity and the monthly level of electricity consumption; the level of monthly consumption of electricity and the number of business activities; the domestic usage pattern of electricity and the family health. Lastly, the monthly level of electricity consumption and the children's study time at home.

## 5.2 Main Characteristics of the Participating Households

The household is described through the characteristics of its head, that is, in the vast majority of cases, the account holder in the municipality indigent register list. The household head was the principal respondent during the interview.

### *5.2.1 Gender of the Household Heads*

According to the result of the study shown in the Table 5.1 below, 53.3% of household heads interviewed, were headed by females and 46.7% were male.

**Table 5.1: Gender of household heads**

| | | Frequency | Percentage | Cumulative Percent |
|---|---|---|---|---|
| Valid | Female | 80 | 53.3 | 53.3 |
| | Male | 70 | 46.7 | 100.0 |
| | Total | 150 | 100.0 | |

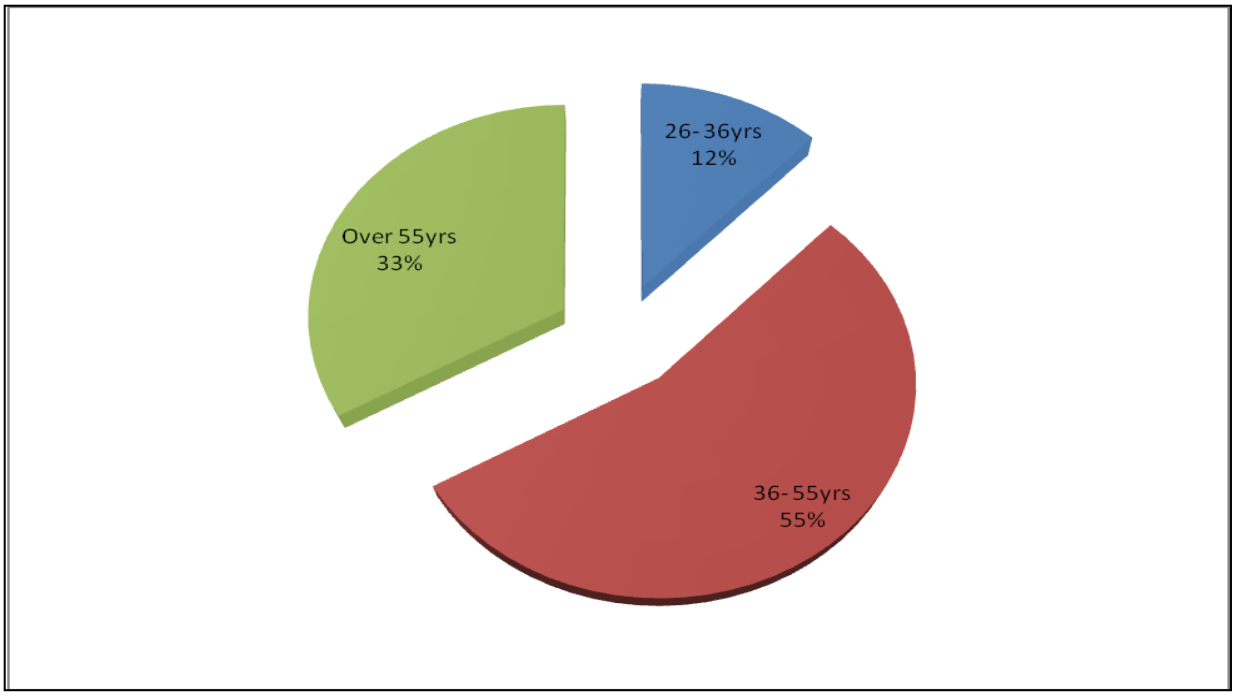
Source: Household Survey, September 2010

The gender distribution of the research population reflects the general gender distribution of the population within the entire municipality very well, which is 51% females against 49% males (Statistics SA, 2007).

### *5.2.2 Age Distribution of the Households' Head*

The study results indicate a distribution of ages of the heads of households interviewed ranging between 26 and 88 years. The average age of the household head was 50.2 years. As represented in the Figure 5.1 below, 12% of the respondents were aged between 26 and 36 years, 55% between 36 to 55 years, giving a cumulative figure of about 67% of household heads interviewed, aged between 26 and 55 years. Within the South African context, this age group 26 to 55 years represent the "active population". Household heads within this age group are expected to be the breadwinners of the family, the work force of the community as well as the municipality's economic activities. The ability of the family to fight poverty and improve its welfare depends highly on how economically active people within this group are.

**Figure 5.1: Age distribution of heads of households**



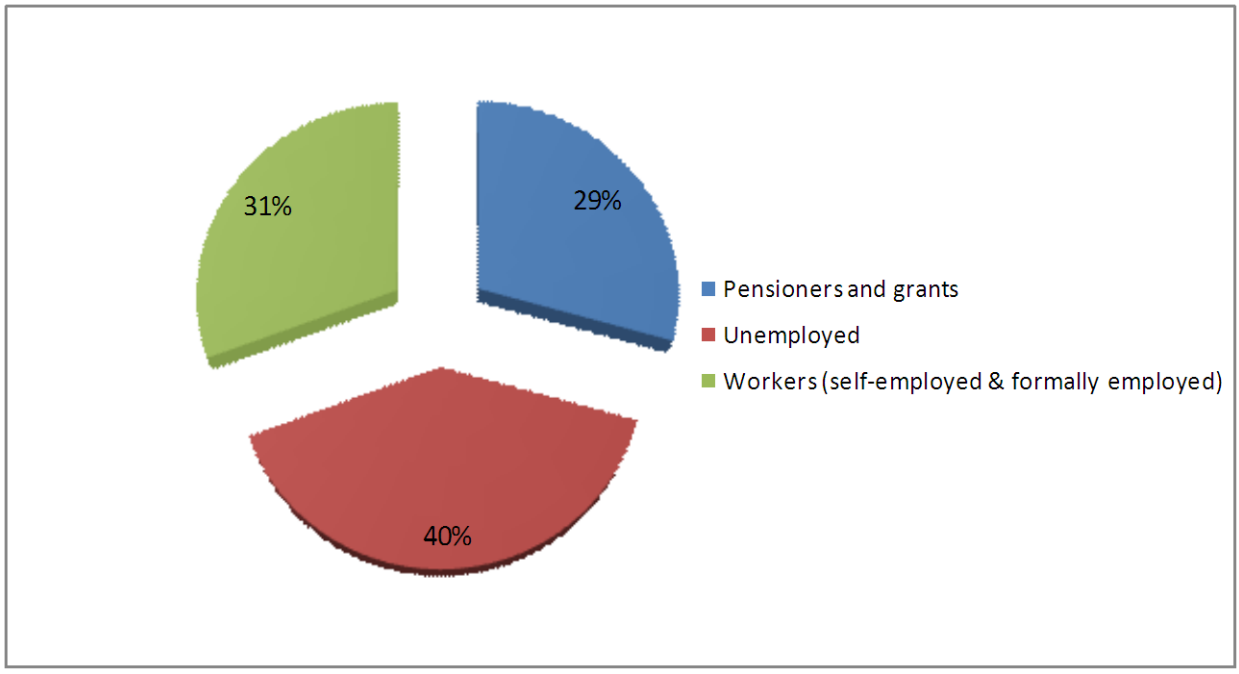

Source: Household Survey, September 2010

### *5.2.3 Household Head's main Occupation*

Household heads interviewed were asked to indicate their occupation. The occupation refers to the main income generating activity a person is doing on a permanent basis to earn a living for the family.

According to the survey results, heads of households interviewed belong to three groups namely pensioners and grants, unemployed and workers. Figure 5.2 below shows the distribution of respondents, according to the main occupation:

**Figure 5.2 Distribution of households' head by occupation category**




**Source: Household Survey, September 2010**

Pensioners and social grants' recipients represent 31% of the respondents. About 91% of the participants are over 55 years of age, retired civil servants or disabled and rely on monthly government pension, old age or disability grants.

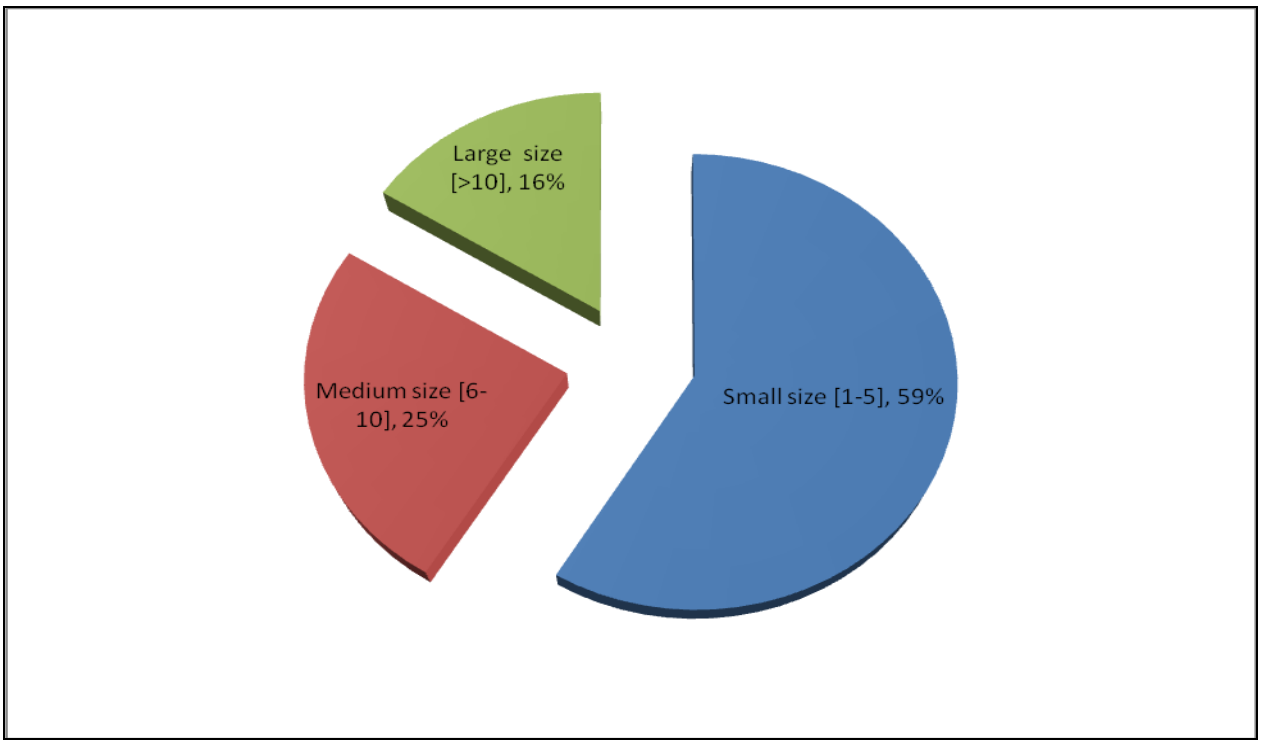
Household heads without any specific paid employment represent 39% of the total number of respondents. The average age is 42 and these individuals live from temporal jobs and social support from family members.

Only 31% of respondents declared having employment. This category includes all those who are either formally employed by a third party or self-employed. Contract workers indicated types of jobs, such as, domestic work, security guard agents, shop workers in East London and municipal workers. Self-employed household heads indicated owning small businesses such as "shebeens", spaza shops, and hair dressing saloons or rendering services on specialised skills, such as, auto mechanic and welding.

### *5.2.4 Household Size*

Within the context of the study, the size of the household is made up of the total number of people, who live in the house or depend on the electricity connection of the main house for electricity. The households were classified according to the following sizes, small-sized families (1-5); medium-sized families (6-10) and large families with over 10 members. Figure 5.3 on the next page, represents the distribution of the respondents within the various household sized categories:

**Figure 5.3: Distribution of households by size**



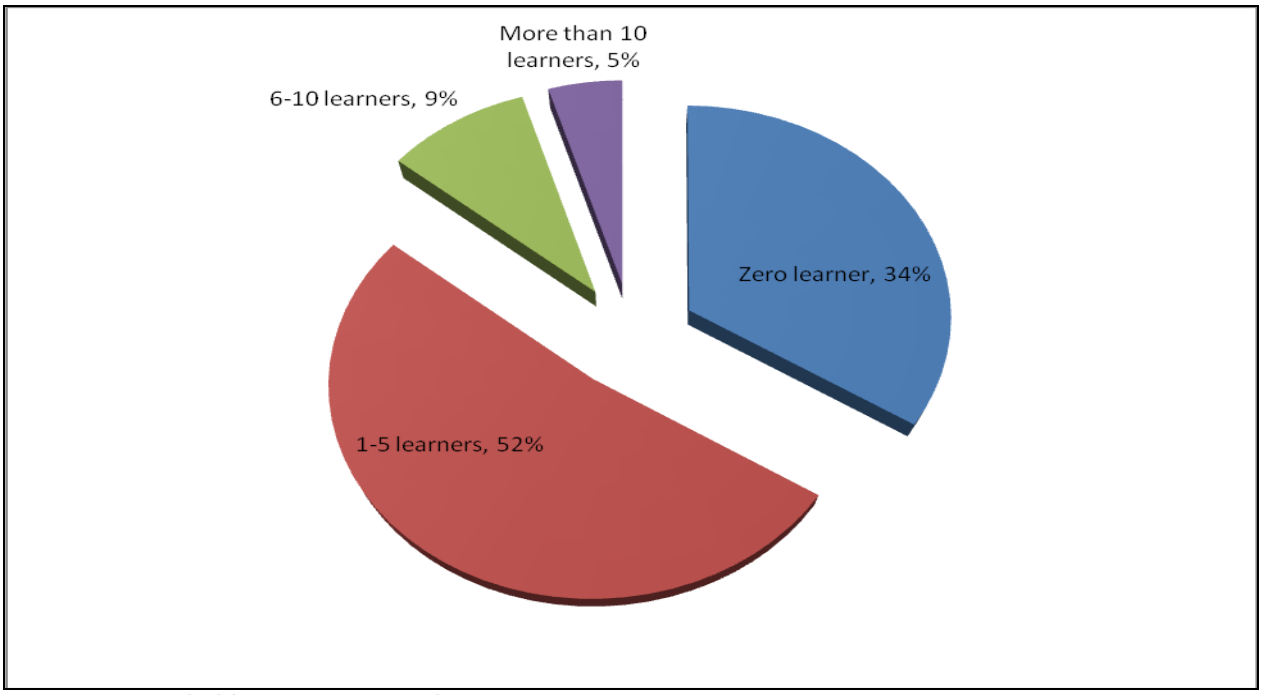

Source: Household Survey, September 2010

The study results show that 59% of the households that participated in the research are small. Most of these small-sized households are composed of members of the nuclear family. About 25% of the households were of medium size. Many family members of these medium-sized households come from the extended family, which include grandchildren, uncles, grandparents and sons- or daughters-in-laws. Large households represent 16% of the total number of households interviewed. These households largely comprise extended family members; thus individuals renting temporary built houses (shacks) with electricity, provided by the house owners. In many cases, the study established that house owners were not legally connected to the electricity grids (this is further discussed in section 5.5.1).

### *5.2.5 Number of Learners per Household*

Similar to the number of people per household that has just been described above, the study also considered the number of learners per household as a variable that characterises the indigent families benefiting from free basic services. The number of learners per household follows more or less the same pattern as the family size. Figure 5.4 below shows the distribution of learners per household.

**Figure 5.4: Distribution of household per number of learners**




Source: Household Survey, September 2010

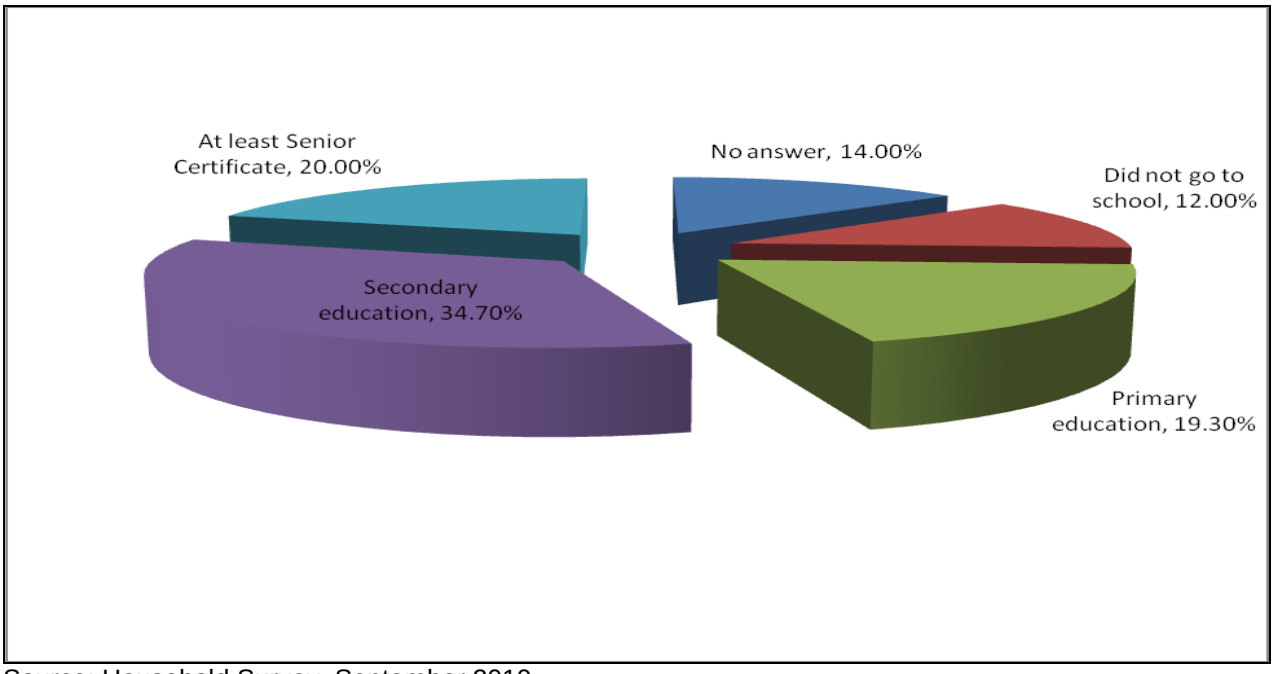
The study results reveal that there is on average three learners per household among the total of 150 households interviewed. However, Figure 5.4 above shows that 34% of the households do not have any child going to school. These households are all small-sized families as described above (Section 5.2.4), with the household head aged on average at 46 years, a little bit above the average household head's age of the total

surveyed population. About 52% of households have one to five learners in the family, 9% have six to ten and 5% of households have more than ten learners in the family.

### *5.2.6 The Level of Education of the Household Head*

The distribution of household heads, within the different levels of education, is presented in the Figure 5.5 below.

**Figure 5.5: Distribution of head of households per level of education**




Source: Household Survey, September 2010

The educational level of the head of households was grouped into four main groups, namely, illiterates, primary education, secondary education and at least senior certificate. About 12% of the household heads interviewed did not go to school. The average age of these household heads is 62 and the average size of these families is five people, including two learners. Household heads with primary education level

represent about 19% of the total number of household heads interviewed, while those with a secondary level of education represent about 35% and 20% of the household heads had at least a senior certificate.

## *5.3 Study Results with Regard to Access to FBE*

Access to FBE by households is described below, based on the following elements: type of electricity connection, electricity monthly expenditure, and level of awareness about FBE, ways of consuming electricity, and level of satisfaction with the quality of electricity services and types of appliances used in the households.

### *5.3.1 Types of Electricity Connections*

All the household heads were asked to indicate the type of electricity connection that supplies the house. The study results presented in the Table 5.2 below, show that out of the 150 households that participated in the research, 16% accessed electric energy through illegal connections, while 84% was legally connected to the Eskom electricity grid, using pre-paid meters.

**Table 5.2: Types of electricity connection**

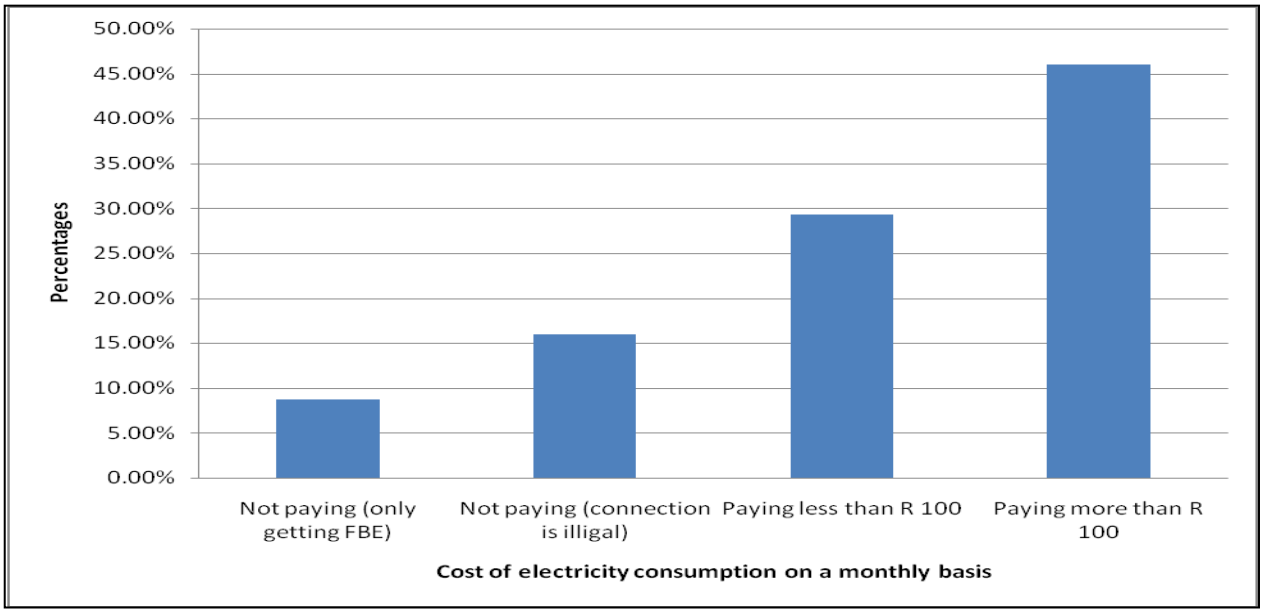
| Type of connection | Frequency | Percentage | Cumulative Percent |
|---|---|---|---|
| Illegal | 24 | 16.0 | 16.0 |
| Legal | 126 | 84.0 | 100.0 |
| Total | 150 | 100.0 | |

Source: Household Survey, September 2010

### *5.3.2 Electricity Expenditure per Household*

At a tariff rate of 98 cents per kWh, the monthly expenditure for electricity per family is an indication of the amount of kWh units consumed. All respondents were asked the following question: *How much do you pay for electricity consumption on a monthly basis?* Figure 5.6 reflects the answers to the question above, classified into five categories.

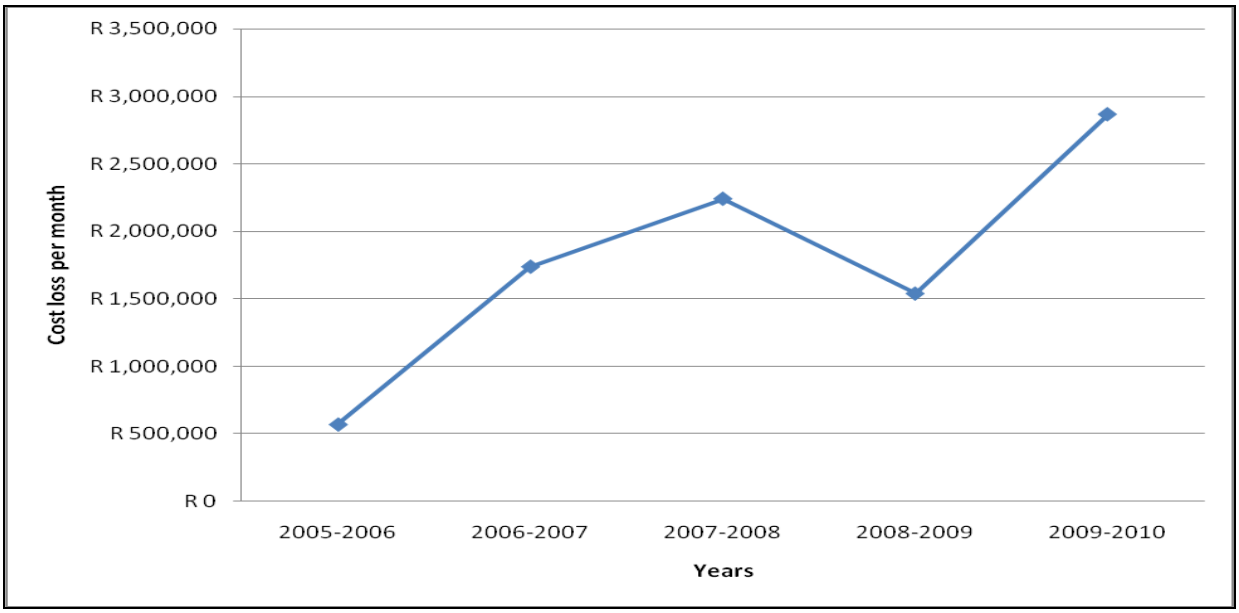
**Figure 5.6: Distribution of households by monthly electricity expenditure**




Source: Household Survey, September 2010

As already indicated in the previous section, 16% of households are illegally connected to the electricity network and as such obviously do not pay for electricity consumption. The electricity consumption of the illegally connected households in terms of unit of kWh cannot be estimated. However, based on the domestic usage pattern of electricity related to illegal consumers discussed in Section 5.3.4, municipal experts interviewed estimated that this type of consumption goes beyond the amount consumed by the legally connected households and results in a huge financial loss to the municipality. The BCM estimates a non-technical loss at around R2 million per month. Non-technical losses are mainly caused by non-payment of electricity consumption; in the vast majority of cases, it is due to illegal connections to the electricity network.

**Figure 5.7: Trend in monthly non-technical loss on electricity consumption in BCM**




Source: Buffalo City Electricity Department, October 2010

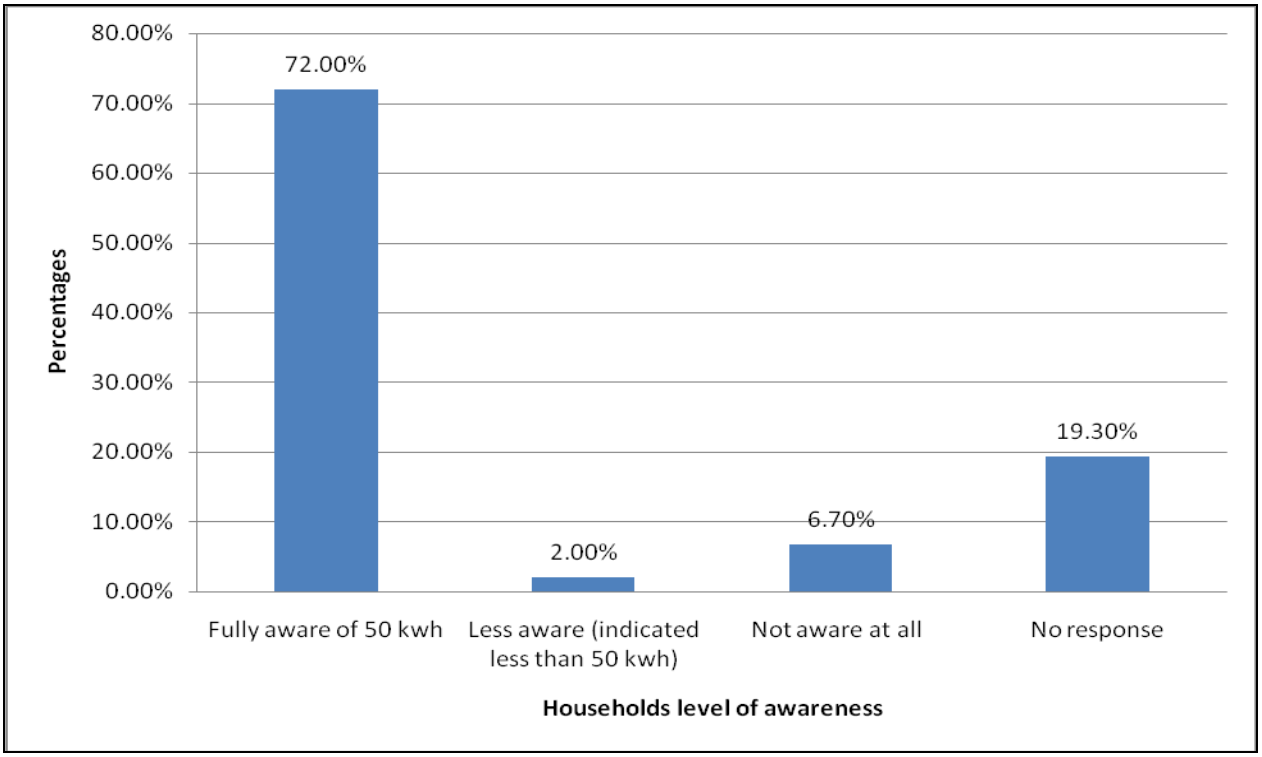
As presented in Figure 5.7 above, the cost of loss per month has been increasing over the past 5 years. This demonstrates how serious this problem is for the resources of the municipality and this issue needs to be addressed urgently.

Apart from the illegally connected households, the study results reflect that only 9% of the people interviewed indicated that the ability to live within the limit of the 50 kWh per month provided by the municipality through the FBE policy and hence not paying for electricity consumption. The study found that among households who consume more than 50 kWh free electricity per month, 29% pay less than R100 per month. In terms of the number of kWh units, these families consume a maximum of 150 kWh of electricity on a monthly basis. Another 46% pay more than R100 per month and consume more than 150 kWh units of electricity per month, including the 50 kWh per month provided free of charge by the municipality. The above information revealed that in terms of the FBE policy, the BCM provided more than 50 kWh of free electricity to 91% of the 150 households interviewed.

### *5.3.3 Level of Awareness of FBE*

To measure the level of awareness of FBE, respondents were asked to indicate the amount of electricity the municipality is providing free of charge to indigent households. Figure 5.8 below indicates the various answers provided.

**Figure 5.8: Awareness on the amount of FBE**



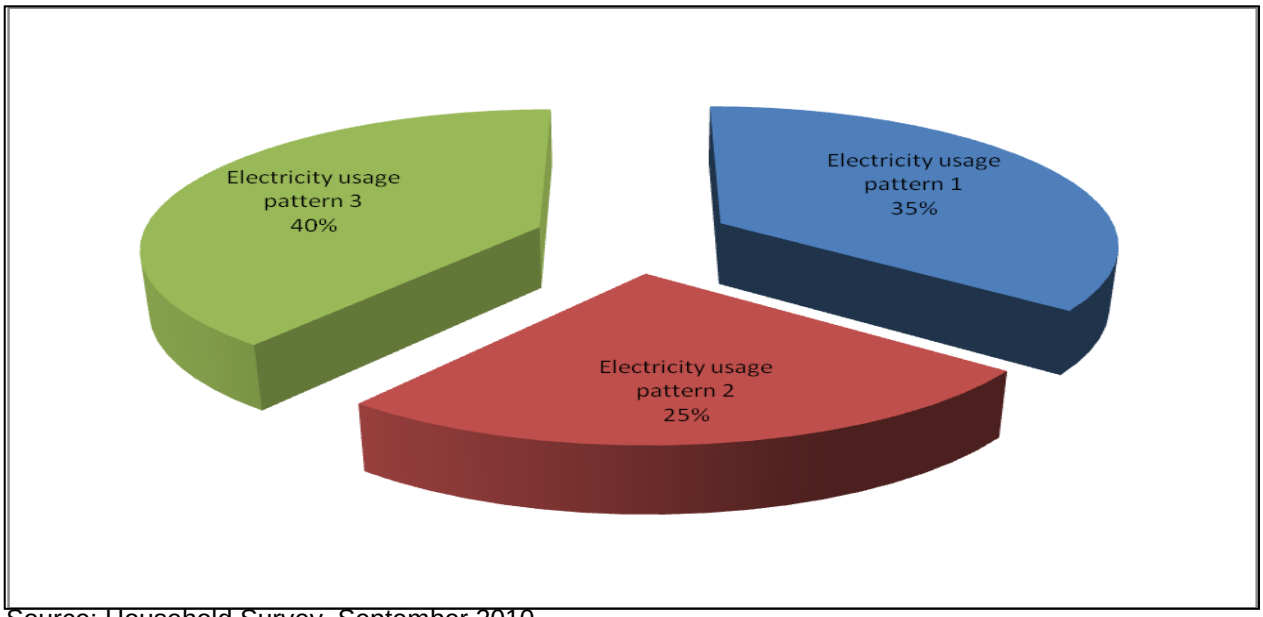

Source: Household Survey, September 2010

The study results show that 72% of households are fully aware of the amount of FBE provided by the municipality by correctly indicating 50 kWh per month. Only 2% indicated less than 50 kWh and 7% did not have any knowledge of the amount of free electricity provided by the municipality to households, and 19% could not provide any answer to the question. All the 28% of families across all three categories indicated, in one way or another, an insufficient level of awareness of the FBE. However, the study found that a large majority of households are well aware of the amount of electricity that is provided by the municipality in implementation of the FBE policy.

### *5.3.4 Domestic use of Electricity*

Respondents were asked this question: *What do you use electricity for in your household?* All participants were expected to select from a list of activities the options that best describe the use of electricity in the respective homes. Based on the respondents' answers, as represented in the Figure 5.9 below, three patterns of domestic use of electricity were identified among the indigent population, who participated in the research. A municipal expert on electricity consumption was interviewed and this official estimated the approximate cost of electricity per fully utilised pattern.

**Figure 5.9: Ways of using electricity in indigent households**




Source: Household Survey, September 2010

- **Pattern 1**

  This pattern includes activities like, cooking every day, using electrical stoves, heating the house at any time using electricity, lighting the house, ironing, preserving food and beverages fresh in the fridge, watching television and

listening to the radio. According to municipal technical estimates, when fully used, this consumption pattern approximately costs a household R685 per month. The study results show that only 35% of the interviewed households indicated using electricity in this way. By using electricity in this manner, these indigent households are getting a high welfare benefit in terms of better health, great economy of time in the execution of household chores, improved nutrition and access to information. On the other hand, this domestic usage pattern is also the most expensive.

- **Pattern 2**

  This pattern includes activities like, cooking, using electrical stoves two or three days per week, heating the house occasionally especially in winter, lighting the house, ironing, preserving food and beverages fresh in the fridge, watching television and listening to the radio. According to municipal technical estimates, when fully used, this consumption pattern approximately costs a household R500 per month. The study results reveal that 25% of the households indicated using electricity following this pattern. By using electricity in this manner, these indigent households are getting less welfare benefits in terms of better health, great economy of time and improved nutrition. The irregular use of heaters and cooking stoves, in some ways, might affect house dwellers' health, especially during the winter, when these incumbents use other sources of energy like paraffin and firewood.

- **Pattern 3**

  This pattern includes activities like, cooking using electrical stoves twice a week, lighting the house, ironing, preserving food and beverages fresh in the fridge, watching television and listening to the radio. According to municipal technical estimates, when fully used, this consumption pattern approximately costs a household R448 per month. The study results display that 40% of the households interviewed use electricity following this pattern. By using electricity in this manner, these indigent households are getting low welfare benefits in terms of better health, great economy of time and improved nutrition. The irregular use of cooking stoves and the non-existence of heating appliances, might in some ways affect house dwellers' health, especially during winter, when these incumbents use other sources of energy like paraffin and firewood.

Overall, the study results confirm that the majority of the interviewed households use electricity for activities described as in Pattern 3. However, despite the differences, all the surveyed families use electricity for lighting, ironing, preserving food and beverages fresh in the fridge and watching television and listening to the radio.

## 5.4 Description of Electricity Benefits within the Household

According to the capability approach to poverty, income is not the only indicator of human well-being, all aspects of life affecting the ability of individuals to satisfy important functionings should be considered while assessing poverty. Access to electricity contributes to fighting poverty in several ways. It procures several types of

benefits for a household, like business opportunities, improved health and better learning facilities at home. This section describes the benefits that respondents' households get from the use of electricity through the FBE policy, with a special focus on the family income, health, children's education and general appreciation of the quality of life.

### *5.4.1 Families' Economic Benefits of FBE*

The study wanted to establish if people in indigent households are using electricity for income generating purposes. Respondents were asked to indicate the number of electricity dependent small business activities that are run in the house and the amount of money generated.

#### *5.4.1.1 Number and types of small business activities*

Table 5.3 below, shows the number of small business activities declared by families.

**Table 5.3: Number of business activities per household**

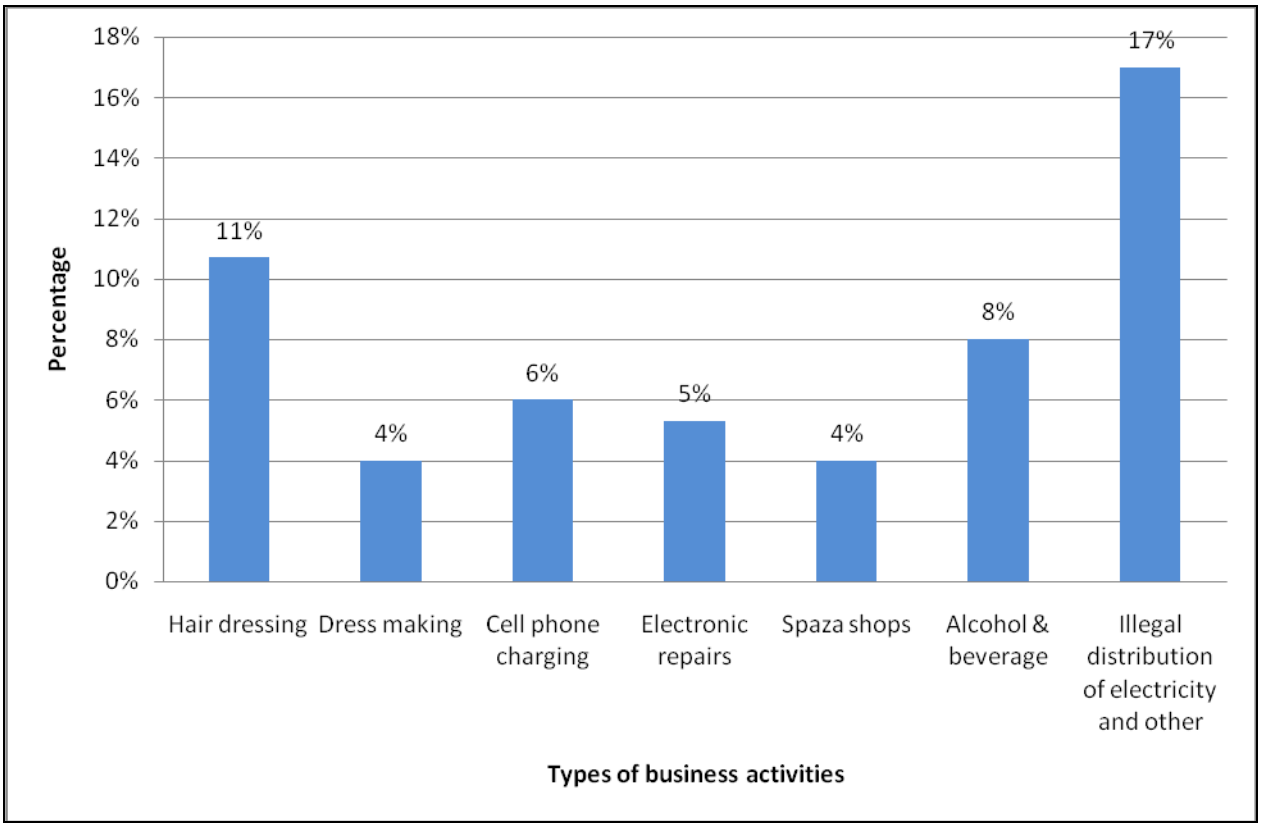
| Number of business activities | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| 0 | 99 | 66.00 | 66.00 |
| 1 | 24 | 16.00 | 82.00 |
| 2 and more | 27 | 18.00 | 100.00 |
| Total | 150 | 100.00 | |

Source: Household Survey, September 2010

According to Table 5.3, 66% of the respondents do not run any business activity acquiring electricity from the respective homes, while 34% run at least one business

activity from home. Among those that declared having a small business activity, 47% (16% of the total population) declared, only one small business activity and 53% declared having more than one business activity. The various small business activities, in which indigent families are involved, are presented in Figure 5.10.

**Figure 5.10: Distribution of households by small business activities**




Source: Household Survey, September 2010

As shown in the Figure 5.10, about 17% of households are generating income through illegal distribution of electricity to others. This activity is mostly practised by house owners that are illegally connected to the Eskom Network. During group discussions with community members, it was established that illegal connections are common practice among house owners, who have built temporary houses (shacks) within the yard and renting these out to other people.

Despite the fact that the majority of households, making money out of electricity, are doing it fraudulently, there are many other conventional small businesses that people do, using electricity. These business activities include hair dressing, using electrical equipment in 11% of households, alcohol and beverage business in 8% of households, cell phone charging in 6% of households, electronic appliance repairs in 5% of households and dress making as well as in “spaza” shop businesses in 4% of households.

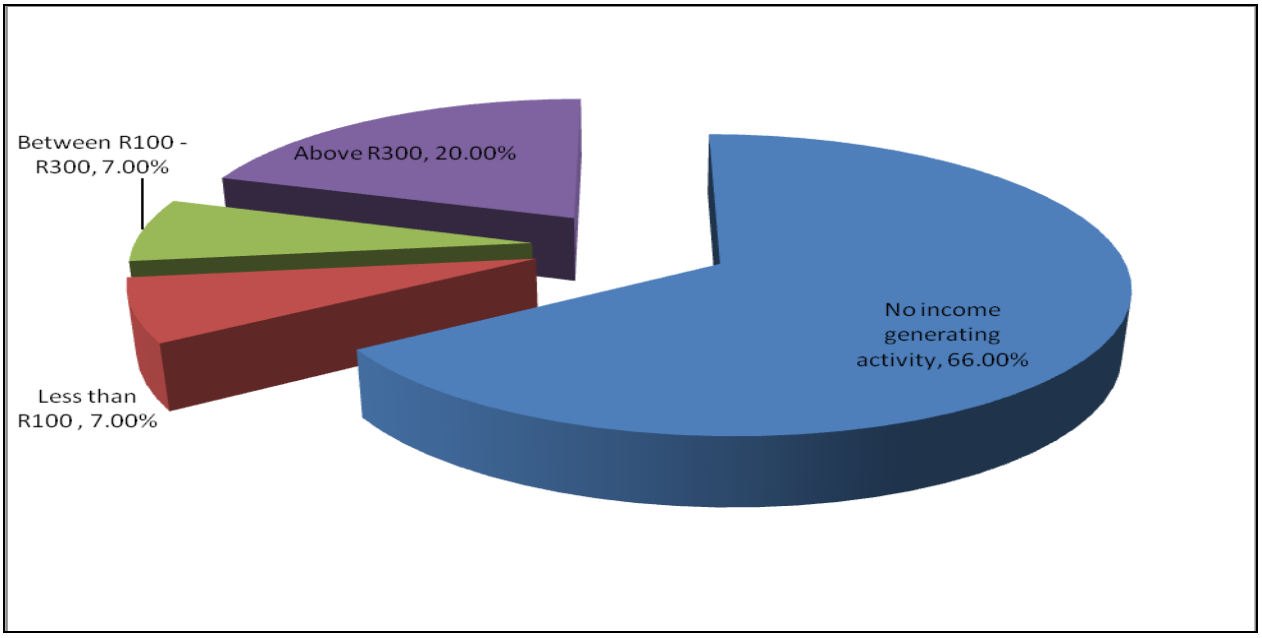
### *5.4.1.2 Amount of Income Generated from the Small Business*

To understand the profitability of the above-mentioned activities better, each household was asked how much money is made on a daily basis from these small businesses. The results show three income groups that are represented in Figure 5.11 on the following page.

As indicated in Section 5.4.1 above, Figure 5.11 reveals that 66% of families indicated not making any additional income from the use of electricity. Out of the 150 households interviewed, only 32% gave an indication of the amount of money made on a daily basis from the small business activities. About 20% of the households earn more than R300 from these small businesses daily. On a monthly basis (30 days), this amount represents about R9,000. Only 7% of the households earn between R100 and R300 daily from these small businesses. This amount represents a monthly income between R3,000 and R9,000. Another 7% of households earn less than R100 daily from these small businesses. This amount represents a monthly income of less than R3,000 per

month. Despite the small amount of households involved in small business activities, the study found that 58% earn about R9,000 monthly as additional income from these small businesses, while 20% earn a maximum of R3,000 monthly. For these families, access to electricity is really having a positive economic productivity impact.

**Figure 5.11: Distribution of households by daily income generated from small business**




Source: Household Survey, September 2010

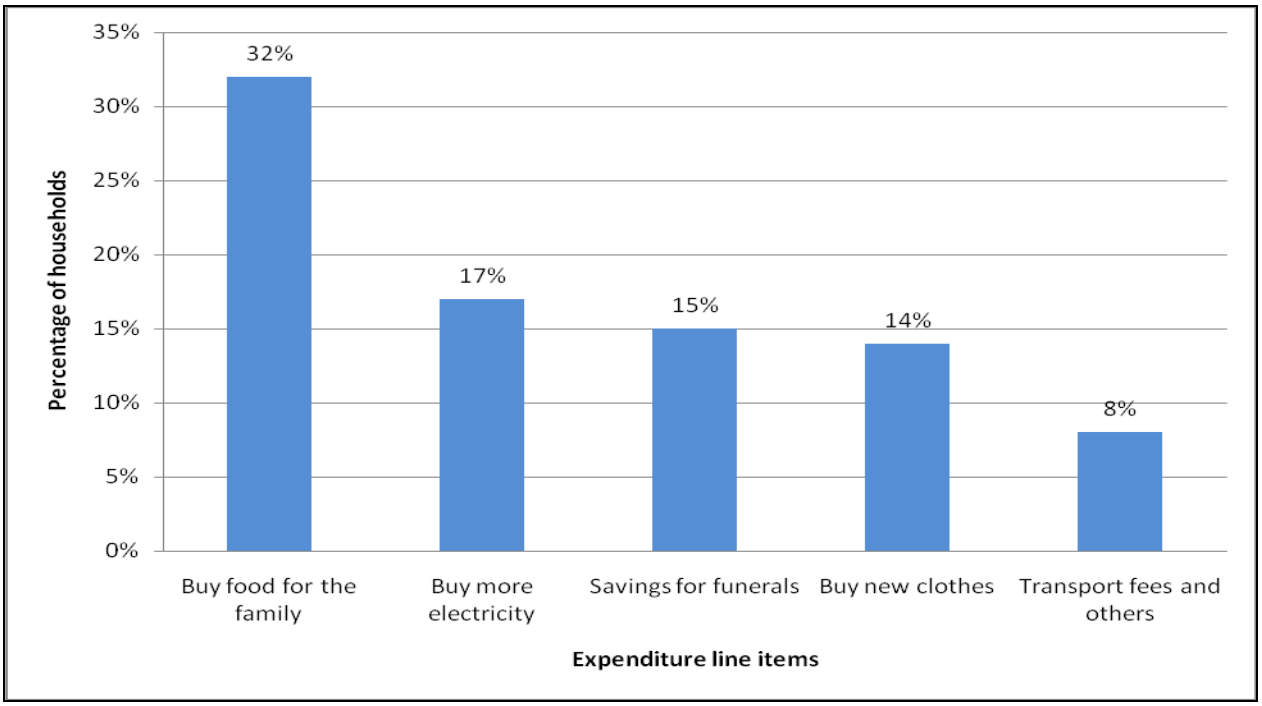
### *5.4.1.3 Use of Family Income*

Households having a small business activity were asked to indicate how the income earned is utilised, by listing three priority expenditure lines. Based on the respondent answers as presented in Figure 5.12, the study found five priority expenditure items:

- Buying food for the family as primary expenditure item – 32%. Family nutrition is the most important welfare aspect of these indigents' households.

- Buying electricity – 17%. As people, who depend on the availability of electricity, buying electricity means ensuring the sustainability of the small business and consequently the continuous improvement of the welfare of the family.
- Savings for funerals – 15%. Households indicated saving a portion of the monthly income monthly in anticipation of funeral events in case of the passing away of loved ones.
- Buying clothes - 14%. The constant change of the weather and seasons, justifies the need for indigent families, despite a limited income to buy new clothing and survive weather hazards.
- Transport costs, household furniture, health matters and leisure, - 10%.

**Figure 5.12: Household income expenditure line items**




Source: Household Survey, September 2010

### *5.4.2 Family Health Benefits of Electricity*

With no purpose to establish scientific evidence relating access to electricity to family health, the study used respondents' perceptions to suggest a possible relationship between access to electricity and the health condition of the family. The following questions were asked:

- *Do you think that access to electricity is contributing to improving the health of your family members?*
- *Did any member of the family fall ill over the past nine months (January –September 2010) in your house?*

On the first question, about 69% of respondents indicated that access to electricity is indeed improving the health condition of the family members, against 46% who were not sure of the impact of electricity on the general health of the family. On the second question, about 50% of respondents indicated no illness case in the family over the past nine months, against 30% of respondents who indicated at least one case of a family member falling ill within the same period. A cross tabulation of the two variables indicates that 67% of respondents, who feel that electricity is improving the health of the family did not experience any case of illness within the past nine months. Moreover, 92% of those who did not experience any case of illness are of the opinion that electricity is improving the health condition of family members. By implication, the findings suggest a strong perception among respondents that access to electricity is contributing to better health. While this does not suggest that electricity is directly responsible for the apparent good health of the people, it implies that electricity might have greatly contributed.

These results are in line with a recent study conducted by the Independent Evaluation Group (IEG) of the World Bank in Africa (2008), where it was found that rural electrification programmes have significant health benefits for families. Among the contributing factors, the study mentions two very important aspects namely, improved health knowledge through increased access to television and better nutrition from improved knowledge and storage facilities from refrigeration (IEG, 2008:43-44). Similarly, this study also found that 89% of families, who have a refrigerator, 97% have a television set and that in each household, there are on average of two mobile phones. These appliances are great contributors of life improvement to families by way of facilitating access to information through media and better conservation of foodstuff.

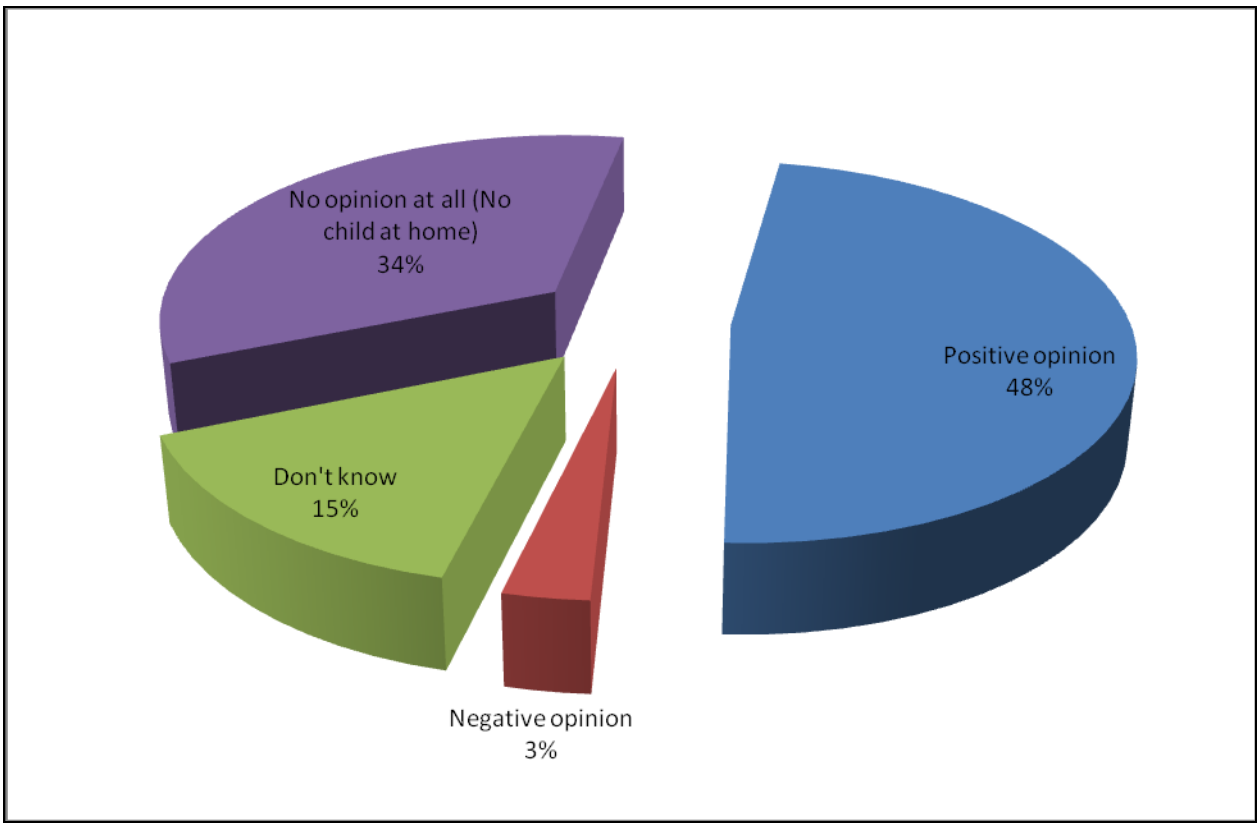
### *5.4.3 FBE Benefits on Children's Education*

The following questions were asked to establish the benefit of FBE on children's education:

- *Do you think access to electricity is contributing to improving the education of your children?*
- *How many hours of study do children spend at home when there is electricity and when the electricity supply is cut?*
- *How many children passed the end of year exam last year?*

The respondents' answers to the first question are represented in the Figure 5.13 on the next page:

**Figure 5.13: Parents opinion on the impact of electricity on children's education**




Source: Household Survey, September 2010

About 34% of households interviewed could not give any opinion on the question, since there were no learners residing in these houses. About 48% of households were of the opinion that access to electricity has had a positive impact on the education of their children. To support this point of view, these respondents thought that access to education programmes has made the children more intelligent and happier than before, when there was no access to electricity. These participants specifically referred to children being able to access information for school projects through television or radio.

About 3% of the respondents were of the opinion that access to electricity was not contributing to the improvement of the education of the children. For this group of parents, electricity has caused children to negate on the time to read books or do homework, because the children preferred to watch television programmes; these

parents also voiced concern, saying that children are becoming stubborn and lazy, because of what is learnt from television programmes. During focus group discussions, parents gave the impression of being clueless as how to deal with the negative impact of electricity on children's education, citing child rights and peer pressure. About 15% of respondents did not really know if access to electricity was actually contributing to improving the children's education. These respondents indicated that children's education depends on many things, but did not have enough evidence to support either side of the argument.

On the second question, the study time of children, as indicated by parents, is presented in the Table 5.4 below:

**Table 5.4: Study time in indigents' households**

| Children study time at home (N=150) | Study time when there is electricity | | | Study time when there is no electricity | | |
|---|---|---|---|---|---|---|
| | Frequency | Percentage | Cumulative percentage | Frequency | Percentage | Cumulative percentage |
| No opinion (Do not live with learners) | 51 | 34% | 34% | 51 | 34% | 34% |
| Less than 2 hours | 45 | 30% | 64% | 65 | 43.33% | 77.33% |
| 2-3 hours | 23 | 15.33% | 79.33% | 17 | 11.33% | 88.67% |
| More than 3 hours | 31 | 20.67% | 100% | 17 | 11.33% | 100% |
| Total | 150 | 100% | | 150 | 100% | |

Source: Household Survey, September 2010

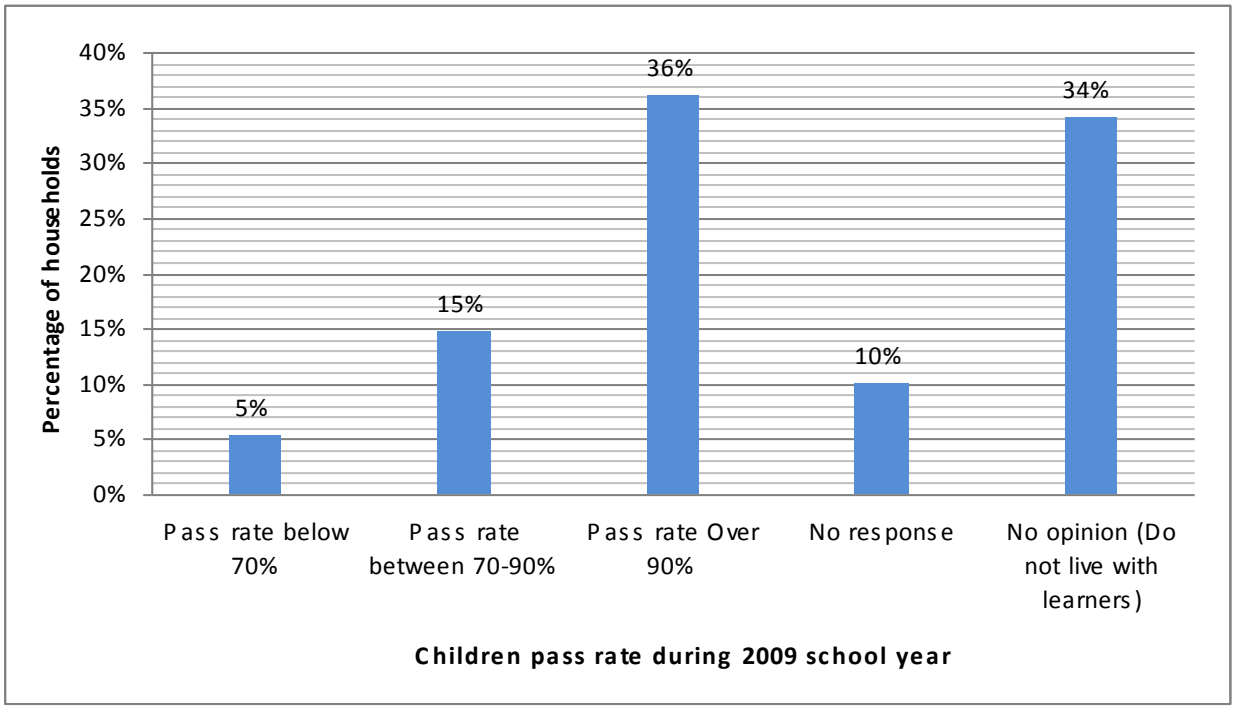
The study results presented in Table 5.4 depicts that in 20.67% of the households, children spent more than three hours of study when there is electric light at home against 11.33% when there is no light due to electric outages or cut-offs. Furthermore, children spent less than two hours of study when there is electric light at home in 30%

of the households, against 43.33% when there is no electricity at home. The study results therefore indicate that the availability of electricity highly affects the study time of children in indigent households. Despite the existence of alternative sources of energy like paraffin and gas lamps in most of the families, children's study time seems to depend on electric lights considerably. In the majority of households, children spent more time studying when there is electricity, than in households where there is no electricity.

On the third question about the children's pass rate, the answers are represented in Figure 5.14 on the following page. As shown in the Figure 5.14, about 36% of the households interviewed, indicated a pass rate of more than 90% in their family during the school year 2009; about 15% of the households indicated a pass rate between 70 and 90% and only 5% of the households indicated a pass rate below 70%. In 10% of households, no response was given to the question of the pass rate of children.

Overall, the study found that the majority of parents were of the opinion that electricity is contributing towards improving the educational level of their children. Children's study time proved to be highly affected by the availability of electricity and in the majority of households, where participants were living with learners, the pass rate during the school year 2009, was relatively high, that is, over 90%.

**Figure 5.14: 2009 school year children pass rates per household**




Source: Household Survey, September 2010

## 5.5 FBE Social Impact

This section describes the social impact of the FBE by presenting certain behaviours, which families raised as serious risks and potentially jeopardising the benefits of electricity to the community. The question that was asked to survey participants was: *What are some of the things that are happening in your community that you will consider as risks to your families or community as a whole relating to access to electricity?* The following issues were raised by the respondents:

### *5.5.1 Illegal Connection to Eskom Electricity Network*

The issue of illegal connections was raised by the respondents as one of the major threats to access to electricity. This study found that 17% of households interviewed are illegally connected to the electricity network. From the study sample size, this 17% of households does not suggest a serious phenomenon among indigents. However, during focus group interviews with community members and even municipal officials, the issue of illegal connections seem to be a much wider practice among indigents. Some reasons given by community members to justify illegal connections are that:

- the 50 kWh of FBE per month are not sufficient for their needs; and
- the municipality does not want to connect shacks with electricity; and
- in addition to reasons given by community members, the study also discovered that illegal connections have become a moneymaking business for many families, who will want to defend it by all costs.

Electrocution is a dire consequence for people illegally connecting directly to the electricity network. Many families interviewed, reported having lost loved ones due to electrocution or having been shocked by electricity, while trying to connect electricity illegally. While the study was not able to get reliable statistics on the death toll due to electrocution caused by illegal connections, municipal officials indicated about 29 deaths in the research area recorded over the past four years. A local newspaper [10] reported in April 2009 that 24 deaths in BCM were due to electrocution.

[10] Sourced from http://blogs.dispatch.co.za/civic/2010/08/27/illegal-electricity-connections-causing-friction/

### *5.5.2 Regular Power Cuts*

Many families also complained about regular electricity power cuts. From one area to the other, the power cut can happen two or three times per week and last from two hours to sometimes a week, depending on the cause of the problem. Municipal officials interviewed were aware of the problem and attributed it to the overloading of the network by indigent households. According to the municipality, the electricity demand in indigent households is beyond the current power capacity being supplied and the problem is exacerbated by the high number of families, who connect to the network illegally. Irrespective of the reasons for regular power cuts, these incidences cause a lot of despair to families, by damaging household equipment and destroying foodstuff stored in fridges, negatively affecting learners' study time and more importantly jeopardising the efforts of families to improve living conditions.

### *5.5.3 Unhealthy Neighbourhood*

Respondents also complained about living in an unhealthy neighbourhood. In this regard, reference was made to the loud music played either by children in the houses or by "shebeen"[11] owners throughout the day and sometimes the whole night making it difficult to rest or sleep. Some respondents, especially elderly people indicated that it was necessary to go to the clinic several times for insomnia and ear related problems. According to these participants, the municipality is not enforcing the bylaws.

[11] "Shebeen" is the local name of a drinking spot

### *5.5.4 High Rate of Crime*

Respondents reported that with the availability of electricity, the rate of crime in the community has increased. The crimes referred to by most families are robbery, rapes, physical assaults and abusive language. According to the families interviewed, criminals are mostly young people, who watch television and DVDs all the time, and then go out, to practise what is seen in the movies. However, official figures do not indicate this perception of high crime rate. Buffalo City ranks as having a very low non-residential reported crime rate: 2,617 cases were reported during 2002/3 and 816 cases during 2004/5 in Buffalo City (BCM, 2008).

This section has provided qualitative data to demonstrate that access to electricity does have a huge social impact on the research population. There are many families, who are concerned about the rampant phenomenon of illegal connections, regular power cuts, and living in the unhealthy environment with its high crime rate. If not addressed these problems will endanger the benefits brought by access to electricity to families.

## 5.6 Verification of Study Hypotheses

The study hypotheses were formulated in the form of inferential questions. These inferential questions assumed the non-existence of a relationship between two variables. This section presents the study results for each of the questions through cross tabulation of variables. According to De Vaus (2002:237) “cross tabulation are one of a number of ways of showing whether two variables are linked to each other.

They can provide a great deal of detail about a relationship between two variables and are widely used in research reporting".

### *5.6.1 To What Extent are the Types of Household Characteristics Linked to the Amount of Monthly Consumption of Electricity?*

As presented in Section 5.2, several variables were used to describe the characteristics of households that participated in the research. The answer to the question above is focusing on the relationship between electricity consumption and the following characteristic variables of the household: (1) household head occupation and (2) family size. The underlining assumption that was verified is that there is no association between the occupation of the household head and the monthly level of consumption of electricity and between the family size and the monthly level of consumption of electricity.

### *5.6.1.1 Relationship between the Types of Occupation of the Household Head and the Monthly Consumption of Electricity*

**Table 5.5: Relationship between the occupation of the household head and monthly consumption of electricity**

| Monthly consumption of electricity | Household head occupation status | | | Total |
|---|---|---|---|---|
| | Unemployed | Pension & grants | Employed (self-employed and workers) | |
| 50 kWh | (5)<br>8.30% | (2)<br>4.50% | (6)<br>13% | 13 |
| Up to 150 kWh | (20)<br>33.30% | (16)<br>36.40% | (8)<br>17.40% | 44 |
| Above 150 kWh | (27)<br>45% | (22)<br>50% | (20)<br>43.50% | 69 |
| Unlimited consumption | (8)<br>13.30% | (4)<br>9.10% | (12)<br>26.10% | 24 |
| Total | 60 | 44 | 46 | 150 |

Source: Household Survey, September 2010

The study reveals no significant difference in the level of consumption across all household heads' occupational status. There is no statistical evidence to suggest a relationship between these two variables (Chi square=9.92; p=0.13). However, from the cross tabulation in Table 5.5 the following can be observed. Cumulatively, 41.6% of unemployed heads of households indicated low consumption of electricity that is, within 50 kWh (4.5%) and 150 kWh (36.4%) per month; against 41% of those receiving pension and grants, and 30.4% of those, who are employed, either self-employed or

working for a third party. About 43.5% of employed heads of households indicated consuming above 150 kWh, by paying more than R100 monthly, against 50% of pensioners and grant receivers and 45% of unemployed heads of households. Only 26% of employed household heads received unlimited electricity consumption due to illegal connections against 13.30% of unemployed and 9% of those receiving pensions and grants.

### *5.6.1.2 Relationship between the Household Size and the Monthly Consumption of Electricity*

**Table 5.6: Relationship between the household size and monthly consumption of electricity**

| Monthly consumption of electricity | Household size | | | Total |
|---|---|---|---|---|
| | Small family size (1-5 persons) | Medium family size (6-10 pers.) | Large family size (more than 10 pers.) | |
| 50 kWh | (10)<br>11% | (2)<br>5% | (1)<br>4% | 13 |
| Up to 150 kWh | (35)<br>40% | (9)<br>24% | (0)<br>0% | 44 |
| Above 150 kWh | (38)<br>43% | (25)<br>66% | (6)<br>25% | 69 |
| Unlimited consumption | (5)<br>6% | (2)<br>5% | (17)<br>71% | 24 |
| Total | 88 | 38 | 24 | 150 |

Source: Household Survey, September 2010

The study revealed a significant difference in the level of consumption of electricity across all household sizes. There is statistical evidence to suggest a strong relationship between these two variables (Chi square=91.7; $p<0.0001$). Therefore, there is sufficient evidence to reject the hypothesis of no relationship between the size of the household and the level of consumption of electricity on a monthly basis. Based on the study results it can be concluded that small-sized households are highly associated with low consumption of electricity (Not more than 150 kWh per month), medium-sized households are highly associated with medium legal consumption of electricity (more than 150 kWh per month) and large households are highly associated with high illegal consumption of electricity.

The direction of the association can be described as follows: About 51% of small-sized households indicated low consumption of electricity that is, within 50 kWh and 150 kWh per month; against 29% of medium-sized households and only 4% of large households. Similarly, 43 % of small-sized households indicated consuming more than 150 kWh of electricity by paying more than R100 monthly, against 66% of medium-sized families and only 25% of large-sized families. In addition, only 6% of small-sized households indicated consuming unlimited electricity due to illegal connections, against 5% of medium-sized families and 71% of large-sized families.

### *5.6.2 To What Extent is the Domestic Usage Pattern of Electricity Linked to the Amount of Electricity Consumed Monthly?*

In section 5.3.4, the study presented three patterns describing the way households utilise electricity for domestic purposes. Through the question above, it is inferred that domestic usage patterns of electricity in indigent households are not linked to the quantity of electricity consumed by households on a monthly basis. Table 5.7 below presents a cross tabulation of the two variables:

**Table 5.7: Relationship between quantities of electricity consumed monthly and domestic usage pattern**

| Domestic electricity usage pattern | Quantity of electricity consumed per month | | | | Total |
|---|---|---|---|---|---|
| | 50 kWh/month | Up to 150 kWh/month | More than 150 kWh/month | Unlimited consumption of electricity | |
| Electricity usage with high welfare benefit | (0)<br>0% | (5)<br>11% | (26)<br>38% | (22)<br>92% | 53 |
| Electricity usage with less welfare benefit | (3)<br>23% | (23)<br>52% | (12)<br>17% | (0)<br>0% | 38 |
| Electricity usage with low welfare benefit | (10)<br>77% | (16)<br>36% | (31)<br>45% | (2)<br>8% | 59 |
| Total | 13 | 44 | 69 | 24 | 150 |

Source: Household Survey, September 2010

Table 5.7 shows significant differences in the domestic usage pattern of electricity across all categories of monthly consumption of electricity. These differences provide statistical evidence to suggest a strong relationship (Chi-square=65, $p<0.0001$) between

monthly consumption of electricity and the domestic usage pattern. Consequently, the assumption of no relationship between the monthly consumption of electricity and the domestic usage pattern of electricity is rejected. The relationship between these variables is such that households consuming 50 kWh of electricity per month are highly associated with electricity usage patterns procuring low welfare benefits, while those consuming up to 150 kWh are highly associated with usage patterns procuring less welfare benefits. Households consuming more than 150 kWh per month are more likely to be associated with usage patterns procuring either high welfare benefits or low welfare benefits, while households getting unlimited amounts of electricity, are highly associated with usage patterns procuring high welfare benefits.

More details on the relationships are presented in Table 5.7. The study found that no (0%) household consuming 50 kWh per month indicated using electricity in a way that procures high welfare benefits to family members, against 11% of those consuming up to 150 kWh per month and against 92% of households getting unlimited amounts of electricity per month due to illegal connection to the network. Similarly, 23% of households consuming 50 kWh per month indicated using electricity in a way that procure less welfare benefits to family members, against 52% of those consuming up to 150 kWh per month and against 0% of households illegally connected to the network. Moreover, about 77% of households consuming 50 kWh per month indicated using electricity in a way that procures low welfare benefits family members, against 36% of those consuming up to 150 kWh per month and against 8% of households illegally connected to the network.

### *5.6.3 To What Extent is the Level of Electricity Consumption Linked to Entrepreneurship of the Household?*

To respond to this question the study tested the assumption that the number of electricity driven business activities of the household is not linked to the level of consumption of electricity. In other words to reject the study's hypothesis, the study results should demonstrate that the greater the consumption of electricity the more business activities the families have. The cross tabulation in Table 5.8 below, provides data to respond to that question.

**Table 5.8: Relationship between quantities of electricity consumed monthly and number of small businesses**

| Number of business activities per household | Quantity of electricity consumed per month | | | | Total |
|---|---|---|---|---|---|
| | 50 kWh/month | Up to 150 kWh/month | More than 150 kWh/month | Unlimited consumption of electricity | |
| 0 business activity | (13)<br>100% | (44)<br>100% | (42)<br>61% | (0)<br>0% | 99 |
| Only 1 business activity | (0)<br>0% | (0)<br>0% | (17)<br>25% | (7)<br>29% | 24 |
| More than 1 business activity | (0)<br>0% | (0)<br>0% | (10)<br>14% | (17)<br>71% | 27 |
| Total | 13 | 44 | 69 | 24 | 150 |

Source: Household Survey, September 2010

Table 5.8 shows significant differences in the quantity of small businesses across all categories of monthly consumption of electricity. These differences provide statistical evidence to establish a strong relationship (Chi-square= 88.99 and $p<0.0001$) between

the number of electricity dependent small business activities and the level of monthly consumption of electricity. There is therefore sufficient statistical evidence to reject the study hypothesis of no relationship between the numbers of electricity dependent business activities in the houses and the level of consumption of electricity. The relationship between these variables is such that households consuming between 50 and 150 kWh of electricity per month are highly associated with zero business activity in the household, while those consuming more 150 kWh are highly associated with usage patterns procuring less welfare benefits. Among households operating small businesses from home, those consuming more than 150 kWh per month highly associated with only one business, while households getting unlimited amounts of electricity are highly associated with running more than one business activity from home.

More details on the relationships are presented in Table 5.8. All households (100%) consuming between 50 and 150 kWh of electricity per month, indicated not having any electric business activities, against 61% of those consuming more than 150 kWh per month and 0% households getting unlimited amounts of electricity per month as a result of these households being illegally connected to the network. In addition, about 25 % of households consuming more than 150 kWh per month indicated having only one business activity, against 29% of those households illegally connected to the network. Only 14% of households consuming 50 kWh per month indicated having more than one business activity, against 71% of those households illegally connected to the network.

### *5.6.4 To What Extent is the Domestic Usage Pattern of Electricity Linked to Family Health?*

Like in all the inferential questions above, the underlining assumption is that of no relationship between the domestic electricity usage pattern in the households and the family health status expressed through the number of illness cases reported in nine months. The cross tabulation in Table 5.9 below provides data to respond to the question above.

**Table 5.9 Relationship between domestic usage pattern of electricity and the number of illness cases reported**

| Number of illness cases reported | Electricity domestic usage pattern | | | Total |
|---|---|---|---|---|
| | Electricity usage with lower welfare benefit | Electricity usage with the lowest welfare benefit | Electricity usage with higher welfare benefit | |
| No response | (5)<br>8.5% | (12)<br>32% | (13)<br>25% | 30 |
| 0 illness cases reported | (31)<br>52.5% | (19)<br>50% | (25)<br>47% | 75 |
| At least 1 illness case reported | (23)<br>39% | (7)<br>18% | (15)<br>28% | 45 |
| Total | 59 | 38 | 53 | 150 |

Source: Household Survey, September 2010

Table 5.9 shows slight percentage differences in the number of family illness cases reported across all categories of electricity usage. These differences provide statistical evidence to suggest a weak relationship (Chi-square=10.51; p=0.03) between the categories of domestic usage of electricity and the number of illness cases reported by households. The implication of this weak relationship suggests that irrespective of the

usage pattern of electricity at home, all seem to be associated with no illness. In other words, the way indigents use electricity at home is not strongly influencing the health of household members.

More information on the nature of the relationship between these two variables can be obtained from Table 5.9. About 52.5% of households that use electricity in a way that procures lower welfare benefits reported zero illness cases among family members over the past nine months, against 50% of those, who use electricity in a way that procures the lowest welfare benefits and 47% of households, who use electricity in a way that procures higher welfare benefits. Furthermore, 39% of households, who use electricity in a way that procures lower welfare benefits, reported at least one illness case among family members over the past nine months, against 18% of those, who use electricity in a way that procures the lowest welfare benefits and 28% of households, who use electricity in a way that procures higher welfare benefits.

### *5.6.5 To what extent is the Monthly Consumption of Electricity Linked to Children's Study time at Home?*

In this question, the study tested the assumption that the monthly consumption of electricity in the households is not linked to the children's study time. The cross tabulation in Table 5.10 below provides data to respond to the question above.

**Table 5.10: Relationship between the monthly consumption of electricity and the children's study time at home**

| Children's study time at home | Number of kWh consumed per month | | | | Total |
|---|---|---|---|---|---|
| | 50 kWh/month | Up to 150 kWh/month | More than 150 kWh/month | Unlimited consumption of electricity | |
| 1-2 hours | (8) 80% | (8) 50% | (22) 41.5% | (7) 35% | 45 |
| 2-3 hours | (0) 0% | (6) 37.5% | (13) 24.5% | (4) 20% | 23 |
| More than 3 hours | (2) 20% | (2) 12.5% | (18) 34% | (9) 45% | 31 |
| Total | 10 | 16 | 53 | 20 | 99 |

Source: Household Survey, September 2010

Table 5.10 reveals great percentage differences in study times at homes across all categories of levels of monthly electricity consumption. These differences indicate significant statistical evidence (Chi-square =35.40; $p<0.0001$) to suggest a strong relationship between the monthly consumption of electricity and the children's study time at home. Consequently, the study hypothesis of no association between the level of monthly consumption and the study time at home cannot be accepted. The relationship between these two variables as observed in Table 5.10 is such that households, who consume less 150 kWh of electricity monthly or less, are highly associated with one to two hours of children's study at home. On the other hand, those who consume more than 150 kWh of electricity are less likely associated with one to two hours and more than three hours of children's study time. Households, who are illegally connected, are the only ones, who are more than likely associated with more than three hours of children's study time.

The details of the relationships between these variables are reflected in Table 5.10. About 80% of households, who consume just 50 kWh of electricity monthly, indicated one to two hours of study time for children at home, against 50% of those consuming up to 150 kWh per month and 41.5% of households, who consume more than 150 kWh per month. Conversely, within the same study time there are only 35% of households, who are illegally connected and getting unlimited consumption of electricity on a monthly basis.

Additionally, no households (0%), who consume just 50 kWh of electricity monthly indicated two to three hours of study time for children at home, against 37.5% of those consuming up to 150 kWh per month and 24.5% of households who consume more than 150 kWh per month. In contrast, only 20% of households that are illegally connected and getting unlimited consumption of electricity on a monthly basis indicated the same study time for the children at home. Additionally, only 20% of households that consume just 50 kWh of electricity monthly indicated more than three hours of study time for children at home. On the other hand, there are 12.5% of those consuming up to 150 kWh per month, 34.5% of households, who consume more than 150 kWh per month and up to 45% of households, who are illegally connected to the electricity network.

### *5.6.6 To What Extent is the Monthly Consumption of Electricity Linked to the Perception on the Quality of Family life?*

In this question, the study tested the assumption that the monthly consumption of electricity in the households is not linked to respondents' perception on the quality of life. The cross tabulation in Table 5.11 below, provides data to respond to that question.

**Table 5.11: Relationship between the monthly consumption of electricity and the perception on the quality of life**

| Perception on the quality of life with electricity | Quantity of electricity consumed per month | | | | Total |
|---|---|---|---|---|---|
| | 50 kWh/month | Up to 150 kWh/month | More than 150 kWh/month | Unlimited consumption of electricity | |
| Nothing has changed | (1)<br>8% | (3)<br>7% | (10)<br>15% | (3)<br>13% | 17 |
| A little bit better | (8)<br>61% | (19)<br>43% | (34)<br>49% | (2)<br>8% | 63 |
| Life now is far better | (4)<br>31% | (22)<br>50% | (25)<br>36% | (19)<br>79% | 70 |
| Total | 13 | 44 | 69 | 24 | 150 |

Source: Household Survey, September 2010

There are no great percentage differences that can be observed in Table 5.11 on respondents' perception of the quality of family life with electricity across all the categories of monthly consumption of electricity. These differences however provide statistical evidence (Chi-square=17.97; $p<0.01$) to reject the hypothesis and suggests a relationship between the monthly consumption of electricity and the perception that people have of the quality of family life with electricity. From Table 5.11, it is observed that households, who consume 50 kWh of electricity monthly are highly associated with

the feeling that nothing much has changed in life despite having electricity, while those who consume up to 150 kWh of electricity monthly are more likely associated with the feeling that life is slightly better now than before. Moreover, households, who are illegally connected, are highly associated with the feeling that life is now far better than before.

According to the detail, the two variables are linked as follows: Only 8% of households, who consume just 50 kWh of electricity monthly, feel that life has not changed much despite access to FBE, against 7% of those consuming up to 150 kWh per month and 15% of households, who consume more than 150 kWh per month. The same opinion is shared by 13% of households, who are illegally connected and getting unlimited consumption of electricity on a monthly basis. Furthermore, 61% of households, who consume just 50 kWh of electricity per month, feel that life is a little bit better than before. Conversely 43% of those consuming up to 150 kWh per month and 49% of households, who consume more than 150 kWh per month, do not share that view. This opinion is also shared by only 8% of households, who are illegally connected to the electricity network. About 31% of households, who consume just 50 kWh of electricity monthly, feel life is far better than before, against 50% of those consuming up to 150 kWh per month, and 36% of households, who consume more than 150 kWh per month. This opinion is also shared by up to 79% of households, who are illegally connected to the electricity network.

## 5.7 Conclusion

In conclusion, the chapter has presented and analysed the study results. At this stage, the study has provided enough information to understand the living realities of indigent households within the context of access to FBE better. While there is an overall good impression of the FBE policy intention from beneficiaries, the field survey results also indicated that the overwhelming majority think that 50 kWh of electricity per month are too little to support indigent households' current electricity needs. Consequently, most families use electricity in a pattern that provides the lowest welfare benefits, with less possibility to overcome poverty within the households. In the next chapter, the findings of the study will be summarised and discussed in terms of the implication and significance, not only for the indigents' households, but also for policy makers and implementers.

# CHAPTER 6

# SUMMARY, RECOMMENDATIONS AND CONCLUSION

## 6.1 Summary

Improving access to basic services for the most disadvantaged population is considered by many Aid Organisations and policy makers as a critical step towards poverty alleviation in developing countries. In the name of fighting poverty, theories and strategies are competing against each other. In this arena of fighting poverty through provision of basic services, South Africa is no exception. This study has provided an insight into the implementation of the FBE policy considered as one of the cornerstone of the South African government strategy to alleviate poverty for the millions of poor households in the country.

If national statistical figures show an increase in the number of people with access to electricity in the country, this study has interrogated the living experiences of indigents regarding access to electricity under the FBE policy in BCM. While the majority of households expressed an impression of a better life with electricity, statistical evidence collected in various aspects of this study, does not always seem to support this impression.

This chapter presents the study's summary, recommendations and conclusion. A brief reminder of the study objective is followed by the summary of the findings, policy recommendations and conclusion.

### *6.1.1. Restatement of the Study Objective*

The present study was designed to determine the impact of access to FBE on household poverty in BCM. The main purpose was to discover how beneficiaries of FBE are using electricity to improve living conditions. The study also expected to generate knowledge that could contribute towards the reformulation of the FBE policy in South Africa, the implementation, of which should have a holistic positive impact on the indigent.

### *6.1.2 The Study's Main Findings*

The central question posed at the beginning of the study has to be revisited, that is, what *are the living conditions of people in households that benefit from FBE in BCM?* It is now possible to state that access to electricity through the FBE policy has had a limited impact on the poverty conditions of indigent households in BCM. If the study results suggest positive impact on the health of family members as well as on the learning conditions of children at home, there is almost no impact on the level of income in the vast majority of these families. Within the capability context of poverty (Sen, 1999, Stewart *et al*. 2005, Townsend, 2006 and Fukuda-Paar, 2006), indigents households that participated in the study in BCM remain deprived of the ability to choose the living conditions they would like especially in relation to electricity consumption. For almost all

the respondents, the 50 kwh of FBE are insufficient compared to their needs, hence limiting the optimum use of electricity to improve their welfare. The study main finding is based on the detailed study findings below.

In addition, indigents are of the opinion that the 50 kWh of electricity per month to be totally insufficient to meet individual needs, hence limiting the optimum use of electricity to improve personal welfare. The statement above is based on the detailed study findings presented below, in the following sub-sections.

### *6.1.2.1. Access to FBE*

One of the major findings, which emerged from this study, is that 91% of indigent households interviewed consume more than 50 kWh of electricity per month. In other words, only 9% of indigent households live within the limit of the FBE and hence do not legally pay for electricity consumption. The rest either pay for additional consumption or are illegally connected to the electricity network. Indigent households consuming more than the FBE provision, pay on average R150 monthly for about 200 kWh. This finding confirms what previous researchers (Fiil-Flynn, M. & Soweto Electricity Crisis Committee (SECC) (2001), Prasad G. and Visagie E. (2006) and Howells, M. *et al* (2005)) have already demonstrated. That is, the FBE as a pro-poor energy policy has significantly increased electricity consumption among previously disadvantaged population in the country, making the amount of 50 kwh insufficient.

While the study found no significant relationship between the occupational status of the household head and the level of monthly consumption of electricity, there was enough statistical evidence to suggest that the level of electricity consumption is highly related to the size of the household. The relationship is such that small families are highly related to low consumption, medium-sized families are highly related to legal high consumption and large households are highly related to illegal consumption.

### *6.1.2.2. Domestic Electricity Usage Patterns*

In terms of domestic usage patterns, the study found that all the surveyed families use electricity for lighting, ironing, preserving food and beverages fresh in the fridge, watching television and listening to the radio. However, on top of this basic usage, 35% of the households also cook and heat the house, regularly using electrical appliances. Compared to others, these households are getting high welfare benefits from electricity. Similarly, about 25% of households indicated cooking, using electrical appliances two or three days per week and occasionally use heaters, especially during winter. Compared to the first group, these households are getting less welfare benefits from electricity. Lastly, 40% of households indicated only cooking using electrical appliance twice a week and do not use electrical heaters at all. This last group still highly depends on alternative energy sources like paraffin and firewood and consequently, compared to others, obtains low welfare benefits from electricity. In their 2008 evaluation report, the Independent Evaluation Group (IEG) of the World Bank, found that lighting and TV account for at least 80% of electricity consumption in rural areas in Asia and Africa where the World Bank supported rural electrification projects (IEG, 2008).

Comparatively, one may deduce from the study finding indicate that the domestic use of electricity by poor households in South Africa has grater welfare benefit than in order pro-poor electricity projects in the world. Additionally, the study finding has proven that the government's assumption used to determine the amount of FBE (DME, (2003), Davidson and Mwakasonda, (2004) and Malzbender, (2005)) that electricity consumption by poor household is limited to lighting and access to media, no longer hold.

The study also found that there is enough statistical evidence to suggest a relationship between monthly consumption of electricity and domestic usage patterns. Households consuming 50 kWh of electricity per month are highly associated with electricity usage patterns procuring low welfare benefits, while those consuming up to 150 kWh are highly associated with usage patterns procuring less welfare benefits. Those consuming more than 150 kWh per month are more likely to be associated with usage patterns procuring high welfare, while households getting unlimited amounts of electricity are highly associated with usage patterns procuring high welfare benefits.

### *6.1.2.3 Health Benefits of Electricity*

With regard to the health, capability benefits of electricity, the study found that about 92% of households, who indicated no illness cases in the family over the past nine months, are of the opinion that access to electricity is contributing to improving the health condition of the family members. In addition, 67% of those who share the same opinion did not record any illness cases in families during the same period. The study

also established that all domestic usage patterns of electricity are related to better health situations within the family. Despite the fact the study finding is based on respondent perceptions, it is in line with many other findings notably by the IEG (2008) and Malzbender, (2005). It was found in both researches, that access to electricity has improved the health of poor people in many ways. Access to electricity reduced fire incidents generally caused by the use of candles, improved the quality of indoor air through the reduction of indoor air pollution caused firewood and paraffin (Malzbender, 2005), improved health knowledge through increased access to specialised television program and favoured better nutrition through improved food storage facilities from refrigeration (IEG, 2008).

### *6.1.2.3. Educational Benefits of Electricity*

In the area of educational capability, the study found that the availability of electricity positively affected the study time of children in the vast majority of indigent households. The majority of the households confirmed that when there is electricity, children spent more time studying, however, when there is no electricity, more children spent very little time studying. Despite this positive opinion by parents on the education benefits of electricity, some viewed TV programs as negatively influencing children's study time. Although the finding on the educational benefits was limited to the study time at home, the IEG evaluation report found more factors showing the impact of electricity on children education. According to the report, access to electricity in poor communities improved the quality of learning by using electricity-dependent equipment in schools and by attracting teachers in electrified schools. The report also indicates that "children

in electrified households have higher education levels than those without electricity" (IEG, 2008: 46).

The study found a strong relationship between the monthly consumption of electricity and the children's study time at home. Households, who consumed 150 kWh of electricity monthly or less, were highly associated with one to two hours of children's study time at home, while those who consumed more than 150 kWh of electricity were more likely to be associated with more than three hours of children's study time. Households, who were illegally connected were the only ones highly associated with more than three hours of children's study time.

### *6.1.2.4. Income Generating Benefits*

The study also found that the productive use of electricity, as source of income, was very limited among the indigent population. Only 34% of households indicated running at least one electricity dependent business activity. Among these, 59% made more than R 9,000 monthly, 21% made between R 3,000 and R 9,000 monthly and 20% did not make more than R 3,000 per month. Previous researches by Howells, M., Victor, D. G. and Gaunt, T. (2005) and IEG (2008) have already shown that access to electricity has improved the livelihood of poor households in many countries in Africa and Asia.

The number of electricity-dependent businesses per household was strongly related to the level of monthly consumption of electricity. Households consuming between 50 and 150 kWh of electricity per month were highly associated with zero business activity in

the household. Among households engaged in electricity driven business activities, those consuming more than 150 kWh per month, highly associated with only one business, while households getting unlimited amounts of electricity were highly associated with more than one business activity from home.

#### *6.1.2.5. FBE Social Impact*

The study has also found that access to electricity did have a huge social impact on the indigent population in BCM. Families were concerned about the rampant phenomenon of illegal connections with its death causalities due to electrocution, regular power cuts, which damage household appliances and ruin families' investments, as well as the unhealthy environment in which the indigent live, caused by loud music and crime. If not addressed, these problems will jeopardize the benefits brought by access to electricity to families.

## 6.2. Policy Recommendations

In light of the findings above, the following recommendations are made:

- First, the FBE policy should be reviewed to allow substantial increase of the amount of free electricity currently provided to indigents on a monthly basis. The study has demonstrated that with higher consumption of electricity, households are more likely to engage into income generating activities; these households use electricity in a way that procure higher welfare benefits, leading to better health, with children spending more time studying at home. During community

meetings, the suggestion to increase the level of FBE was viewed by many as the solution to fight the illegal connection phenomenon.

- Second, social education programmes to curb the negative social effects of people's access to electricity should accompany the implementation of the FBE. Many respondents complained about the unhealthy environment in the community marked by loud music, too many drinking spots (shebeens) and youth violence. The authorities within BCM should therefore ensure that bylaws are enforced; but also that indigents are well educated on how to live in an electricity friendly environment.
- Lastly, BCM should create more job opportunities to reduce the number of indigent households, who depend on government subsidies like the FBE. The study results demonstrate that employed household heads are likely to consume more electricity than those who are unemployed. Some respondents even indicated that what was required from the government was "jobs not free electricity". By creating more jobs, it is anticipated that the municipality will be in a position to stabilise the number of people on the indigent list against the current trend of constant increase every year. The municipality may therefore redirect resources to operate and maintain existing infrastructures to improve the quality of electricity services to indigent communities. However, access to electricity for the poor should be done in a sustainable manner and poor people should be empowered to use electricity more productively.

## 6.3. Conclusion

### *6.3.1. Findings and Implications*

The study's main findings suggest the following implications:

- Firstly, the need for electric energy in indigent households in BCM far exceeds the 50 kWh of FBE provided per month. Two main factors were raised by families to justify this situation. The first factor is the ever-present increased migration of jobseekers, from rural areas to East London[12]; this has increased the size of households. The second factor is that household appliances' prices are much more affordable now than two or three years ago, making it easier for indigent families to acquire and use these articles.
- Secondly, the current low consumption of electricity in the vast majority of indigent households legally connected is not providing the expected level of welfare benefits to families. Only those who are illegally connected use electricity in a pattern that provides high welfare benefits. To get high welfare benefits, indigent households require a substantial monthly increase in electricity supply.
- Thirdly, the low consumption of electricity has a lesser negative impact on the health of the families, but negatively affects the study time of children at home as well as the number of families who could use electric energy as a source for income generating activities.

[12] East London is the capital city of Buffalo City Municipality.

### *6.3.2 Significance of the Findings*

The current findings enhance the understanding of the impact of electricity on the lives of indigents in BCM. The study precisely confirms previous research findings on FBE in the country (Fill-Flynn and SECC 2001, Malzbender, 2005 and Davidson and Mwakasonda, 2004) and contributes additional evidence that suggests the review of the FBE policy to facilitate increased consumption of electricity by indigent households. The study has demonstrated, on a limited scale that access to electricity contributes substantially to alleviate the income of indigent families in the BCM, through the business opportunities that it provides. This has also been the case in Asia and elsewhere in Africa.

By showing that indigents are not satisfied with the amount of FBE and the extent at which it does not satisfy their needs, the study has also made some inroads in exposing the limitations of the State's social policy of subsidy to meet people's expectations. Some of the fundamental questions that can be raised are:

- To what extent can the State subsidise the consumption of electricity in a context where electric needs for households are constantly increasing?
- How can growing demands for gratis electricity and the need to maintain existing infrastructure for better quality of services within the current limits, be realised?

While the study did not intend to find answers to these complex questions, empirical evidence, however, suggests the need for a review of the government's policy aimed at ensuring access to electricity by poor people, in a way that will provide high welfare

benefits. Finally, the study may serve as a base for future studies in order to expand further the understanding of the social impact of access to electricity in communities.

### *6.3.3. Recommendations for Further Research*

This research has brought to the surface many issues that warrant further study.

- There is need to increase the understanding of the social impact of electricity on communities' and families' lives;
- In addition, assessing institutional arrangements in BCM will in addition lead to better comprehension of the effectiveness of the FBE policy implementation and consequently the root causes of its low impact on the lives of indigents.
- Lastly, a broader reflection on the impact of the government's "safety net package" might be necessary, to recognise the relationships among the various programmes and its effectiveness into moving people out of poverty.

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# ANNEXURE 1

# QUESTIONNAIRE FOR HOUSEHOLD HEADS

**A- Identification of the respondent:**

1. Sex: _____ 2. Age: _____
3. Occupation: _____
4. Number of people living in the household:_____
5. Number of learners in the household:_____
6. Level of education: _____

**B- Access to electricity**

1. What type of electricity connection supplies the household? (Circle the respondent answer)
    a. Illegal connection;
    b. Legally connected to the Eskom grid
    c. Don't know

2. For how long has the household been having access to electricity? (Circle the respondent answer)

    a. Less or equal to 12 months
    b. Between 13 and 24 months
    c. More than 24 months

3. How much do you pay for electricity consumption on a monthly basis? (Circle the respondent answer)

    a. Less than R 100
    b. R100 and more
    c. More than R 200
    d. Don't pay for electricity consumption as connection is illegal
    e. Don't pay for electricity consumption because benefiting from free basic electricity

4. If you don't pay for electricity; what are the reasons for you getting electricity for free or having illegal connection? (Circle the respondent answer: can circle more than one answer)

    a. I am not employed;
    b. I don't earn enough money in my job;
    c. The municipality refuses to connect our shack/house;
    d. It is our rights to have electricity
    e. Other reasons
    (specify)_____

5. If you pay for electricity consumption; are you aware that indigents deserve a certain amount of electricity for free?

    a. Yes; b. No (go to question 7)

6. If yes, how much is the amount that is provided to you for free by the Municipality on a monthly basis?
    a. Don't know b. less than 50 Kwh c. 50 kwh
    d.more than 50 kwh

7. How sufficient is this amount for your electricity needs?

    a. Not sufficient b. Just sufficient; c. More than sufficient d. I don't know

8. What do you use electricity for in your household?

    a. Cooking all the time
    b. Cooking sometimes (specify how often)_____
    c. Lightening the house
    d. Heating the house all the times using electricity
    e. Heating the house sometime (specify how often)_____
    f. Ironing;
    g. Keep food and drink fresh in the fridge;
    h. Watch TV and radio
    i. To run a small family business
    j. Others (specify)

9. Does anyone in your household run a small business in the house using electricity?

   a. Yes  b. No

10. If yes, what types of small businesses? (circle as many as it applies)

    a. Hair saloon
    b. Hair cut for men;
    c. Charging phone;
    d. Tailoring;
    e. TV/Radio repairer;
    f. Shop owner;
    g. Drinking spot (shebeen) owner;
    h. Other activity (specify)_____

11. How much money do you make on a daily basis from the activities mentioned above?
    a. Less than R 100
    b. Between R 100 – R 200
    c. Between R 200 – R 300
    d. More than R 300

12. What are the first 3 things that you use your money for (circle only 3 things)?

    a. Buy food for the house
    b. Buying electricity;
    c. Transport fees;
    d. Saving;
    e. Buying clothes;
    f. Buying household furniture;
    g. Buying airtime;
    h. Pay for hospital costs
    i. Other (specify)_____

13. What are the good things that access to electricity has brought to your family life?

14. What are some of things that are not very good that are happening or have happened in the past in your households because of access to electricity?

15. Are you satisfied by the quality of electricity services provided by Eskom/municipality:
    a. Very satisfied;
    b. Not very satisfied;
    c. Not satisfied at all;
    d. Don't know (Specify why?) _____

16. How will you compare your family life today with free electricity and before when there was no free basic electricity?

    a. Far better;
    b. A little bit better
    c. Nothing has changed apart from having electricity;
    d. Worse than before
    e. Please explain your choice:

17. What are the other alternative sources of energy that you use in your household (e.g. firewood, paraffin):

18. What do you think of the government/municipality way of assisting the poor by given them free electricity?

19. Type of household appliances (circle as many as available);
    a. TV/DVD set;
    b. Radio set;
    c. Fridge;
    d. Washing machines;
    e. Mobile phones (number_____)

**C- Relationship access to electricity and family health**

1. Do you think that access to electricity is contributing in improving the health of your family members? a. Yes b. No c. Don't know

2. Since January 2010, how many family members felt sick?

**D-Relationship electricity and household education**

1. Do you think that access to electricity is contributing in improving the education of your children? a. Yes b. No c. Don't know

2. How many hours do children spend doing their assignment per day (when there is electricity light)?

a. Less than 1 hour; b. 1 -2 hours; c. 2-3 hours d. more than 3 hours

3. How many hours do children spend doing their assignment per day (when there is no electricity)?

a. Less than 1 hour; b. 1 -2 hours; c. 2-3 hours d. more than 3 hours

4. How many children passed their end of year exam last year? (1/x)

# Annexure 2

# Questionnaire for Focus Group Discussions

Location: Ward#_____ Venue: _____

- Introduction of the interviewing panel
- Introduction of the research topic
- Explain the process

1. What do you think of the Government/municipality's policy to provide 50 kWh of electricity to indigents' household per month for free? Some say it is a good policy others think that it is not.

2. The government policy says only very poor people should be given free basic electricity. Is that the case is this ward? If that is not the case what are the reasons?

3. How is electricity helping the people in this community to come out of poverty?

4. What are some the things that are not good but are happening in this ward as a consequence of people having access to electricity?

5. What do you think should be done by the municipality to ensure that access to electricity really help people?

# ANNEXURE 3

# QUESTIONNAIRE FOR OFFICIALS OF BUFFALO CITY MUNICIPALITY

Date of the interview: _____

Name of the interviewee: _____

Function of the interview: _____

1. What are the reasons for the municipality to provide free basic electricity to households per month? Is there any evidence of positive results on the life of beneficiaries?

2. What is the amount of electricity being provided for free to households? What justified that amount? And how much does that cost the municipality on a monthly basis?

3. What actions is the municipality taking to ensure that access to electricity is productively beneficial to indigent?

4. Is the municipality aware of some side effects (social or individual) related to access to electricity by indigent household? If yes what is being done to reduce the negative their impact on the community?

5. How serious is the problem of “illegal connection” among indigent within the municipality? (Any figures? Any estimate of the loss?)

6. How does the municipality envisage provision of free basic electricity to indigent in the near future considering that there seems to be a high level of dissatisfaction among the population regarding the quality of electricity services? Any increase of the allocation? Any improvement of services?

# Annexure 4: ETHICAL CLEARANCE LETTER

OFFICE OF THE DEPUTY VICE-CHANCELLOR:
ACADEMIC AFFAIRS AND RESEARCH
Private Bag X1314, Alice 5700
Tel: 04060 22403
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University of Fort Hare
*Together in Excellence*

**Application for clearance from the University of Fort Hare's Ethics Committee**

| | |
|---|---|
| **Project Title:** | **Impact of access to free basic electricity on households' poverty in Buffalo City Municipality in the Eastern Cape** |
| Chief Researcher: | Mr Jephthe Mve Mvondo |
| Supervisor/co-supervisor: | Stephen Mago |
| Date of application: | 21 September 2010 |

Having consulted the Dean of Research, I hereby grant permission to conduct the research.

**Professor J R Midgley**
**Deputy Vice-Chancellor**
**Chairperson of the interim Ethics Committee**

28 September 2010

# Annexure 5:

# EDITOR CONFIRMATION LETTER

**SOLI DEO GLORIA**
**EDITOR CONFIRMATION LETTER**
**TO WHOM IT MAY CONCERN**

I hereby state that I have edited the document:

## IMPACT OF ACCESS TO FREE BASIC ELECTRICITY ON HOUSEHOLDS' POVERTY IN BUFFALO CITY MUNICIPALITY IN THE EASTERN CAPE

By Jephthe M. Mvondo

Faculty of Management and Commerce
School of Public Management and Development
Department of Development Studies
UNIVERSITY OF FORT HARE
Supervisor
Mr Stephen Mago

*Disclaimer*
*At time of submission to student, language editing and technical care was attended to as requested by student and supervisor. Any corrections and technical care required after submission to student is the sole responsibility of the student.*

Kind Regards

Hani Sammons
D.Litt. et Phil (University of Johannesburg)

SOLI DEO GLORIA
Language Editing

Cell: 073 778 1801
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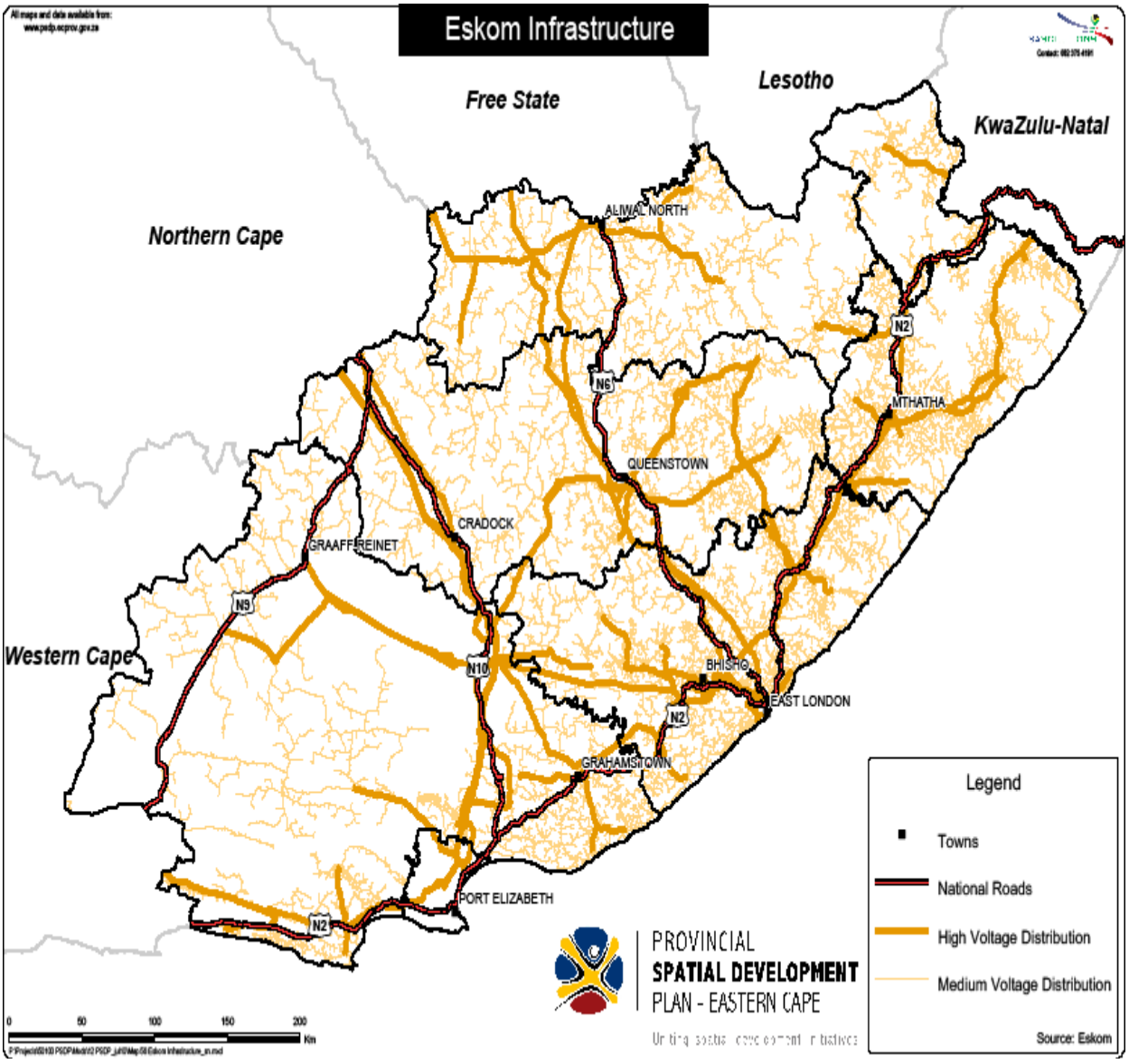
06 JANUARY 2011

# Annexure 6: Map of Eskom Infrastructure



# Annexure 6: Map of the Eastern Cape