

INSTITUTIONAL FRAMEWORK FOR SUSTAINABLE ELECTRICITY
SUPPLY IN KASOA IN THE AWUTU SENYA EAST MUNICIPALITY

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INTEGRI PROCEDAMUS

JULY 2014.

DECLARATION

I certify that with the exception of quoted statements and acknowledged ideas, this dissertation is the original work of Chriss Addy Boye-Doe carried out under the supervision of Dr. Simon Bawakyillenuo, Institute of Statistical Social and Economic Research (ISSER – Legon). I further affirm that this work has never been previously published at any educational institution nor has it been presented elsewhere for the award of a degree or any other certificate.

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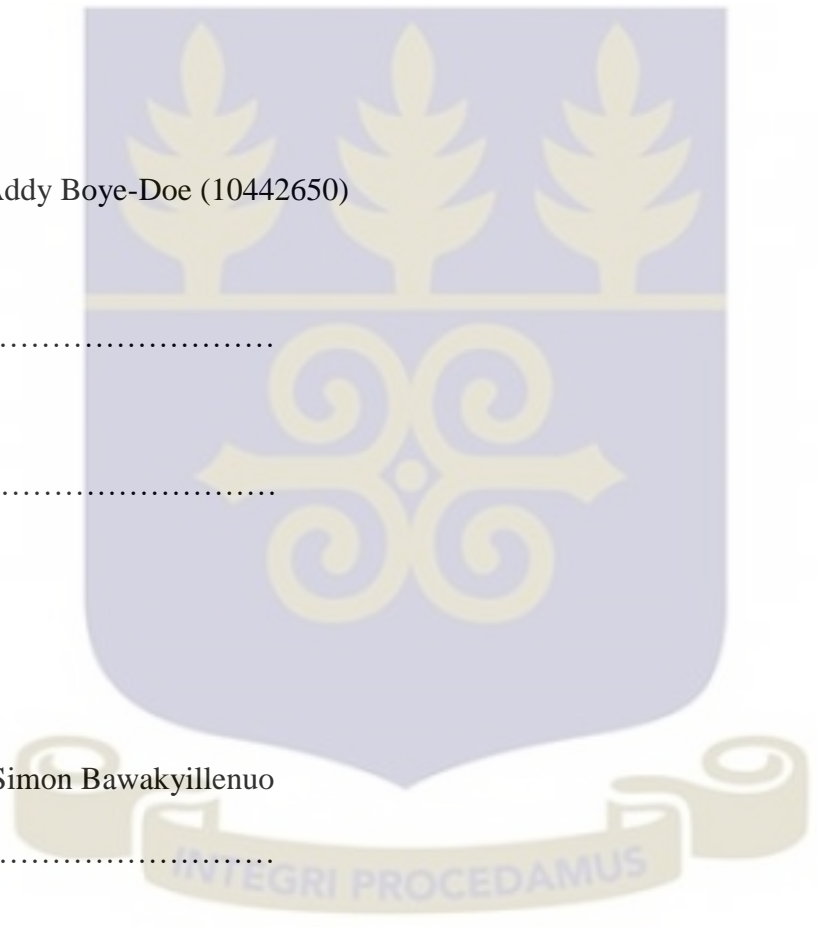
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Date:



DEDICATION

I dedicate this work to my wife Doreen S. Boye-Doe for all her sacrifices and love and to my daughter, Seana M.B. Boye-Doe who was born in the course of this study. You are such great blessings to me.



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To God be the glory for the great thing he has done for my family. I am especially grateful to Dr. Simon Bawakyillenuo of the Institute of Statistical Social and Economic Research (ISSER) University of Ghana for his relentless support and supervision throughout this work. I am also grateful to the Awutu Senya East Municipal (ASEMA) development planning officer, Mr. Isaac Adza Tettey and the entire authority of ASEMA for wholehearted providing data needed to complete this work. I appreciate your time and resourcefulness. In the same manner, I would like to express my profound gratitude to Mr. Bismark Otoo, manager of the Kasoa district ECG office for his direction and support.

Dear family, thank you for being there for me through this stage of education.

I love you all.

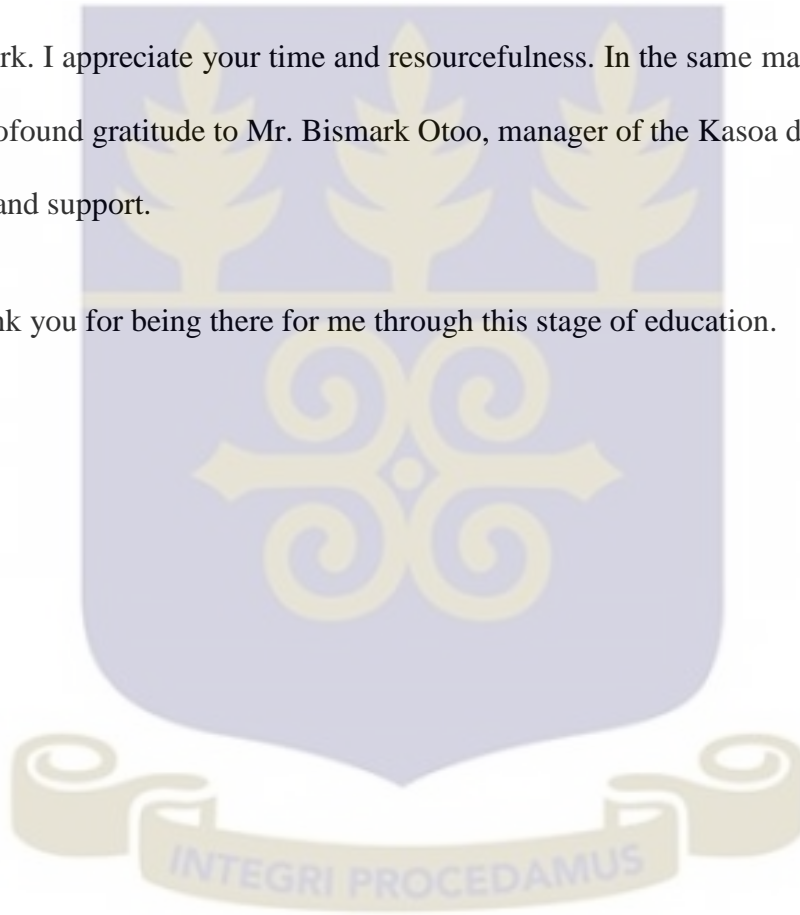


TABLE OF CONTENT

DECLARATION	i
DEDICATION	ii
ACKNOWLEDGEMENT	iii
TABLE OF CONTENT	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF ACRONYMS	ix
ABSTRACT	xi
CHAPTER ONE	1
INTRODUCTION	1
1.1. Background	1
1.2. Problem Statement	5
1.3. Aim and Objectives	7
1.4. Research Questions	8
1.5. Significance and Justification of the Study	8
1.6. Organisation of the Study	9
CHAPTER TWO	10
LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK	10
2.1. Introduction	10
2.2. Population growth and demand for electricity in Ghana	10
2.3. The power system	13
2.3.1. Generation	13
2.3.2. Distribution	14
2.4. Institutions and Institutional frameworks:	15
2.5. Policies and strategies of electrification in Ghana	17
2.6. History and trends of electricity in Ghana, structures and reform evolution	17
2.7. The current state of electricity sector in Ghana	18
2.8. Systemic Losses in the Electricity Sector	21

2.9. Development planning in Ghana.....	22
2.10. Summary of gaps identified	23
2.11. Conceptual Framework underlying the study	24
2.12. Conclusion.....	26
CHAPTER THREE	28
METHODOLOGY AND PROFILE OF STUDY AREA	28
3.1. Introduction	28
3.2. Research Design.....	28
3.3. Data Requirements and Sources.....	28
3.3.1. Primary Data Needs and Sources	29
3.3.2. Secondary Data Needs and Sources	29
3.4 Data Gathering Tool and Procedure.....	30
3.5 Target Population and Sample Size	34
3.6. Sampling Technique.....	36
3.7. Executing the interview.....	37
3.8. Method of Data Analysis.....	38
3.9. Ethical Considerations.....	38
3.9.1. Respondent selection and conduct of interviews.....	38
3.9.2. Anonymity of respondents.....	40
3.10. Profiles of the study areas	40
3.10.1. Background of the municipality	40
3.10.2. Topography / Drainage and nature of the soil	41
3.10.3. Demographic Characteristics.....	42
3.10.4. Economy of ASEM.....	43
3.10.5. Health.....	43
3.10.6. Security	44
3.10.7. Electricity.....	44
3.11. Limitations of the Study.....	45
3.12. Conclusion.....	45
CHAPTER FOUR.....	46
DATA ANALYSIS AND DISCUSSION	46

4.1. Introduction	46
4.2. Background characteristics of respondents.....	46
4.3. Supply side analysis	49
4.3.1. Development planning in ASEMA.....	49
4.3.2. Stakeholders involved in development planning.....	51
4.3.3. How electricity service provision is linked to development.....	52
4.3.4. The ideal situation	54
4.3.5. Infrastructural growth and electricity extension in ASEMA.....	56
4.3.6. Challenges	56
4.3.7. Coping Strategies.....	61
4.4. Demand Side Analysis	62
4.4.1. Development planning in ASEMA.....	62
4.4.2. Stakeholder involvement in development planning	63
4.4.3. How electricity service provision is linked to development.....	64
4.3.4. Challenges	66
4.5. The place of Institutions in the electricity service market	69
4.6 Conclusion.....	69
CHAPTER FIVE	71
SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSIONS	71
5.1. Introduction.....	71
5.2. Summary of Key Findings	71
5.2.1. Development Planning in ASEMA	71
5.2.2. Stakeholder Involvement.....	72
5.2.3. Electricity service provision and development in ASEMA.....	72
5.2.4. Challenges	73
5.3. Recommendations	73
5.4 Conclusion.....	74
REFERENCES	76

LIST OF TABLES

Table 1: Main sources of lighting for households in Ghana..... 3

Table 2: Urban to rural populations and ratios of the ten regions of Ghana..... 11

Table 3: Chain of losses (%) in sale of electricity by ECG; 22

Table 4: Linkage between objectives data needs, sampling data collection method (I)..... 32

Table 5; Linkage between objectives data needs, sampling data collection method (II) 33

Table 6: Summary of sample size 36

Table 7: Statistical data on Ewutu Senya East Municipal Assembly 41

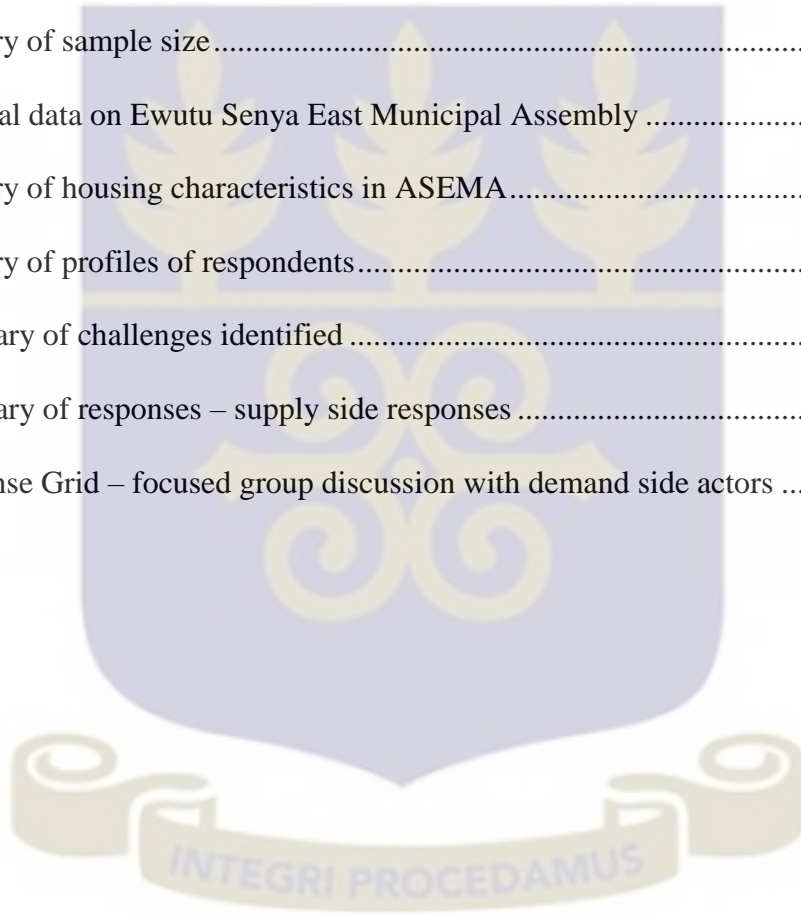
Table 8: Summary of housing characteristics in ASEMA..... 43

Table 9: Summary of profiles of respondents..... 47

Table 10: Summary of challenges identified 58

Table 11: Summary of responses – supply side responses 61

Table 12: Response Grid – focused group discussion with demand side actors 68



LIST OF FIGURES

Figure 1: Year on year net financial losses at VRA..... 22

Figure 2: Conceptual framework. 26

Figure 3: Map of ASEMA. 42



LIST OF ACRONYMS



WSSD	World Summit on Sustainable Development
ASEMA	Awutu Senya East Municipal Assembly
VRA	Volta River Authority
GRIDCo	Ghana Grid Company Limited
HDI	Human Development Index
UN	United Nations
ECOWAS	Economic Community of West African States
ERERA	ECOWAS Regional Electricity Regulatory Authority
ISSER	Institute of Statistical, Social and Economic Research
GPRSI	Ghana Poverty Reduction Strategy I
NDPC	National Development Planning Commission
GSS	Ghana Statistical Service
GSGDA	Ghana Shared Growth and Development Agenda
GPRS II	Growth and Poverty Reduction Strategy
NES	National Electrification Scheme
SHEP	Self-Help Electrification Scheme
MoE	Ministry of Energy

MDGs	Millennium Development Goals
NED	Northern Electricity Division
NEDCO	Northern Electricity Distribution Company Limited
NLCD	National Liberation Counsel Degree
EC	Energy Commission
PURC	Public Utilities Regulatory Commission
IAEA	International Atomic Energy Agency
MMDAs	Metropolitan Municipal and District Assemblies
VALCO	Volta Aluminum Company Limited
ToR	Tema Oil Refinery
GDP	Gross Domestic Product
KR1	Key Respondent 1
KR2	Key Respondent 2
KR3	Key Respondent 3
FG1	Focus Group 1
FG2	Focus Group 2
FG3	Focus Group 3



ABSTRACT

Electricity plays an integral role in the socio-economic development of people around the world. Its access has immense impact in reducing poverty and increasing the Human Development Index (HDI) of beneficiaries. Enhanced access to electricity also reduces the dependence on fossil energy sources such as fuel wood and charcoal, whose consumption depletes the natural forests. With adequate access to electricity, deforestation tendencies that are associated with the use of fossil energy in homes are cut down to appreciable levels. Electricity service has a normal market with both demand side actors and supply side actors. Demand side actors include consumers while the supply includes a combination of generation, transmission, and distribution. The market is however, created, governed and regulated by institutions. Institutions therefore play a central role in the efficiency of electricity service market.

The focus of study was therefore to assess the institutional framework supporting electricity supply in the Awutu Senya East Municipality (ASEMA). ASEMA is one of the 45 new districts and municipalities that were created under LI (2045) 2012 but has unique features. It is a municipality serving as a major peri-urban settlement for the capital city, Accra. It records high population growth rates and is bustling with active economic activity. It is also about 95% urban. The study therefore sought to find out how the institutions are being organized to provide efficient service to the growing population of the Municipality with concentration on development planning of the District. This was undertaken through qualitative research using key informants and focused group discussions.

The study established that development planning is mainly the responsibility of the municipal assembly but is required to be participatory and all-inclusive as much as possible. It also found out

that Electricity Company of Ghana is the main electricity service provider in the municipality with a designated district office managing its activities. However, there was weak collaboration between the assembly and ECG in the district in the development process. Furthermore, plans of the different agencies are not coordinated and hence development implementation is as well uncoordinated. In relation to electricity service provision, consumers face rampant power outages and low current levels because of the failure on the part of the institutions to work in synergy to address demands of consumers. The research therefore, suggests the initiation and establishment of strategies to foster strong collaboration among institutions and further coordinate plans into a holistic composite activity plan for the municipality.



CHAPTER ONE

INTRODUCTION

1.1. Background

Electricity plays an integral role in the socio-economic development of a large majority of the global human population. Access to electricity for the fundamental purpose of lighting for example, has immense impact in reducing poverty and increasing the Human Development Index (HDI) of beneficiaries (Azoumah *et al*, 2010). Enhanced access to electricity also reduces the dependence on fossil energy sources such as fuel wood and charcoal, whose consumption depletes the natural forests. With adequate access to electricity, deforestation tendencies that are associated with the use of fossil energy in homes are cut down to appreciable levels. This increases a nation's chances of meeting the targets of the Millennium Development Goal 7 (MDG 7). Evidence abounds alluding to the great influence electricity has had in boosting the world's industrialization especially, in the developed world. All the modern social and economic systems are powered and resourced by utilities such as electricity, gas, water and telecommunications (Graham, 1994). Many activities that were undertaken manually in the past are now easy to accomplish through the application of implements that are being powered by electricity. Electricity powered equipment such as machines for sewing, joinery, embroidery, molding, cutting, stretching, lifting, packaging and packing have largely replaced human labor, and have brought with it added values of increased speed, producing stronger power, removing human inefficiencies such as delays, tiredness, injuries, and other limitations (Cowan, 1976).

For electricity to be beneficial to the targeted populace, it should be accessible. Globally, access to electricity is estimated to range from 8.5% to 100% according to the World Bank statistics

(World Bank, 2014). Majority of the countries included in access to electricity survey by the World Bank (2014), recorded above 50% of access to electricity. The United Nations (UN) in support of the World Summit on Sustainable Development (WSSD) formed the UN-Energy with the purpose of supporting coherence in the UN system's multi-disciplinary response to WSSD and to collectively engage non-UN stakeholders (UN-Energy, 2006) to propel a global support for use of efficient energy sources. The top six countries with the lowest access to electricity according to the World Bank (2010) data are all found in Africa. Villar (2012) reported that member states of the Economic Community of West African States (ECOWAS) were among states with the lowest percentage of their populations covered by electricity in the world. To improve its energy prospects, ECOWAS has made efforts to support a sustainable supply of energy, specifically electricity to member states (ECOWAS, 2012). For example, ECOWAS is coordinating a power pooling mechanism to promote the sub-region's increased accessibility, availability and affordability to electricity. This includes the construction of a 330kV transmission line across West African states and the West African gas pipeline that supplies natural gas from Nigeria to sister countries such as Ghana to fuel thermal generation facilities (Volta River Authority (VRA), 2011). In addition, ECOWAS aims at adopting appropriate measures to liberalise investment and trade in energy within the sub region. To fulfill this aim, ECOWAS has adopted an energy protocol, which serves as the framework of co-operation in the energy field among member states (ECOWAS, 2007). Based on the provisions of the protocol a regulatory body was also set up, the ECOWAS Regional Electricity Regulatory Authority (ERERA), to regulate interstate electricity exchanges and to give appropriate support to national regulatory bodies or entities of members states (ERERA, 2014).

According to the Institute of Statistical, Social and Economic Research (ISSER, 2013) energy consumed in Ghana are mainly sourced from fuel wood, charcoal, petroleum and electricity. Of these, electricity forms 11% of total energy consumed. ISSER (2013) also estimated that about 50% of electricity generated in Ghana is consumed by industry including, producers of aluminium, gold, oil and gas. Therefore, access to electricity is crucial to industrial productivity. For instance in 2011, the reported drop in gold production from 84 tonnes in 2010 to 83 tonnes in 2011 was attributed to power shortages, which resulted in increasing production cost (ISSER, 2013). According to the 2010 population and housing census report, access to electricity in Ghana is estimated at an average of 64.2% in 2010 (GSS, 2012). A summary of sources of lighting for households is shown in Table 1.

Table 1: Main sources of lighting for households in Ghana

Source of lighting	Electricity	Kerosene	Flashlight	Other sources
% Households	64.2%	17.8%	15.7%	2.6%

Source: GSS, 2012

As a country, Ghana recognizes the importance of energy provision including, electricity in adequate and reliable quantities in reducing poverty, creating wealth and bridging the existing widening inequality gap between the ‘haves’ and the ‘have nots’ (Abavana, 2004). This is expressed in the Ghana Poverty Reduction Strategy I (GPRSI) which was developed by the National Development Planning Commission (NDPC) in 2005. In this policy document, the major aim of the government in the energy sector is to “ensure increased access to modern forms of energy to the poor and vulnerable; modernize and expand power infrastructure; improve the

regulatory environment in the power sector, ensure full cost recovery for power supply and delivery while protecting the poor; and ensure productive and efficient use of energy and minimize the environmental impacts of energy supply and consumption through increased energy efficient technologies” (GPRS I 2003; GPRS II 2005, pp.36).

GPRS I&II were planned and implemented between 2003 and 2009. The just ended medium term development policy of the nation, Ghana Shared Growth and Development Agenda (GSGDA) also sought to “ensure secure and reliable supply of high quality energy products and services for all sectors of the economy as Ghana regains her position as a regional exporter of power...” (NDPC, 2010 pp. 60). An energy policy developed by the Ministry of Energy (2010) outlined two overarching goals for the power sub-sector: increasing installed power generation capacity from about 2000MW today to 5000MW by 2015 as well as increase electricity access from current level of 66% to universal access by 2020; and become a major exporter of power in the sub-region by 2015 (MoE, 2010).

Ghana has embarked on various programmes to enhance electrification with the aim of achieving universal coverage by 2020. These include the Rural Electrification Programme (1970) (Abavana, 2004) and the National Electrification Scheme (NES) (1989) (Barfour, 2013). Under the NES, the country developed the Self-Help Electrification Scheme (SHEP) to accelerate the rate of electrifying towns and villages which secured the necessary materials ahead of schedule. The nation has also set up institutions to support electricity generation, distribution and regulation at all levels. These include the Ministry of Energy, the VRA in charge of power generation, the Ghana Grid Company Limited (GRIDCo) in charge of distribution to the market. The Electricity

Company of Ghana is a major customer of GRIDCo and VRA and, deals with the distribution of power to the large part of southern Ghana.

1.2. Problem Statement

A visit to the capital of the Awutu Senya East Municipality, one of the new municipal assemblies established under L.I (2045), 2012 (ASEMA, 2013) gives the impression that the municipality is highly populated. The peripheries of the only major street spanning through the township of the capital of the municipality, Kasoa, is full with people showing an active informal market. In addition to this, the highway from Accra to Kasoa is persistently busy with numerous private and public vehicles transporting people to and from the municipality. The Assembly has on record that an average of 80,000 people travel from the municipality to work in Accra in the morning and an almost same number return after work (ASEMA, 2013).

With a national population growth rate of between 2.5% and 3.1% for the Central Region, the Awutu Senya East Municipal Assembly records an annual growth rate of 3.0% (GSS, 2012). The capital of the municipality is a peri-urban town serving as the boundary between the Central Region and the Greater Accra Region. Infrastructural growth in the municipality is high due to a number of reasons, prominent among which is its closeness to the capital city of Ghana. As a result the municipality has largely been turned into a dormitory town for a significant number of families that work in Accra.

Kasoa, which is the capital of the municipality started as a market center and, thus attracted a large population of petty traders, transport operators, different kinds of small to medium scale enterprises and their associated service providers. The aforementioned factors are major contributors to the rapid population growth in the municipality under study. Just like the rest of

the country, the populace of the municipality relies heavily on electricity (as a source of energy) for domestic and commercial activities. Electricity is needed to light homes, offices, shops and the streets. It is also used to power domestic gadgets such as sound systems, refrigerators, heaters, information gadgets such as television sets, radio sets, telephone sets. In addition, electricity is used to power commercial equipment such as grinding mills, public address systems (mostly in churches and mosques), industrial plants, and the like. Inevitably, energy especially, electricity is the hub around which both domestic and commercial activities revolve around. This therefore implies that failure to make electricity available and accessible to any Ghanaian, could amount to a deprivation from a fundamental need, necessary to propel his or her economic and social life.

As already stated, one of the crucial development goals of Ghana as expressed in the GPRS I and II, GSGDA and Ghana's energy policy, is to provide access to electricity to the populace at increasing rates until universal access is achieved. As population grows and communities expand it would be expected that demand for access to electricity would also increase. It would therefore be ideal that electrification plans for growing communities such as Kasoa in the Awutu Senya East Municipality are drawn and implemented in tandem with the development plans of the municipality. It is therefore crucial for an assessment of the institutional frameworks needed to support the processes that facilitate electricity supply and accessibility to the growing population. Failure to meet this challenge would leave a huge gap that could negatively affect the nation's ability to meet its medium and long term development goals.

As a new municipality, ASEMA is still developing its administrative structures as is required for proper planning and management of its affairs. However, while that is not settled yet, the municipality continues to grow and expand. In the words of the Municipal Development Planning

Officer “development has gone ahead of planning”¹ -. This presents a unique challenge of how to match infrastructural growth with the provision of essential utilities such as water and electricity. This research therefore seeks to investigate the institutional framework that supports the distribution of electricity to households in the Awutu Senya East Municipality. It will also seek to determine if existing framework for electricity distribution for the municipality is sustainable. It would further identify lessons that would inform electricity planning and distribution for other municipalities, the nation and other countries where applicable.

1.3. Aim and Objectives

The main aim of this study is to examine the institutional framework within which electricity is being distributed in the Awutu Senya East Municipality of Ghana. Specific objectives include the following:

1. To identify the linkage between infrastructural development and electricity supply planning in the municipality.
2. To compare the current rate of infrastructural growth and reach of electricity supply in the municipality.
3. Examine the challenges in the institutional framework supporting infrastructural development and electricity supply in the municipality.

¹ Statement by the Municipal Development Planning Officer of ASEMA during a briefing of visiting students of ISSER on 30th August 2013

1.4. Research Questions

1. Is there a link between development planning and electricity supply planning in the municipality?
2. At what rate is electricity supply being expanded in the municipality as compared to infrastructural expansion?
3. What are the challenges confronting electricity supply and development planning strategies in the municipality?

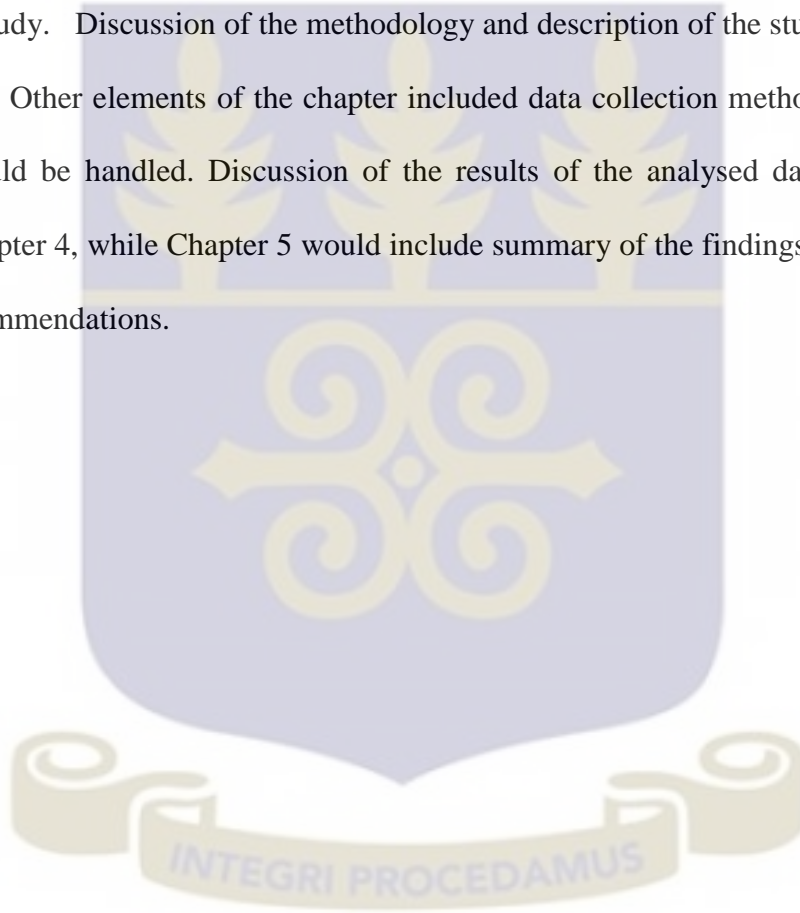
1.5. Significance and Justification of the Study

A country-by-country survey by the World Bank in 2012 indicates that electricity coverage ranges from 9% to 100%, with majority of the countries having above 70% coverage (World Bank, 2014). In that survey, Ghana is estimated to have 64.2% of electricity coverage to its population (GSS, 2012). One of the main objectives of government is to extend the coverage of electricity to all parts of the country that are not reached within the shortest possible time in order to bring them at par with areas of the country with electricity coverage. However, there are concerns regarding whether the nation or even the decentralized municipalities have developed plans for electricity distribution alongside development planning and expansion. This study looks at the framework within which electricity is distributed in the Awutu Senya East Municipality and how it relates to their development planning. Findings from this study will therefore give clarity on the kind of institutional frameworks the nation needs within various municipalities to enhance electricity supply issues in the midst of growing populations. In addition, the findings will add to existing knowledge on this subject.

1.6. Organisation of the Study

The study has five chapters. Chapter one presents the background to the study, and the problem definition. It also outlines the objectives of the study, related research questions, justification for the study and the organisation of the dissertation.

Chapter Two covers a review of related literature on the subject and the conceptual framework supporting the study. Discussion of the methodology and description of the study area was done under Chapter 3. Other elements of the chapter included data collection methods, sampling and how results would be handled. Discussion of the results of the analysed data would also be presented in Chapter 4, while Chapter 5 would include summary of the findings, conclusions and appropriate recommendations.



CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1. Introduction

In this chapter, a review of relevant literature related to the topic under study is undertaken. Some areas discussed in the review include examining the relationship between population growth and demand for electricity in Ghana and the general power system that supports electricity supply and distribution in Ghana. Other areas such as policies and strategies of electrification in Ghana, systemic losses in the electricity sector, and development planning in Ghana are reviewed to get abreast with work done in the sector in order to link the gaps that still exist to this present study. The chapter also provides a conceptual framework to support the study.

2.2. Population growth and demand for electricity in Ghana

The most compelling factor that propels the demand for electricity connection services is its usefulness in enhancing life and activities. A research by Stephen Graham (1994), shows that investing in renewable energy (electricity) has the potential to catalyse developing countries effort to achieve the MDGs by adding significant health, employment, and economic benefits. Estimations are that developing countries in the next few years are likely to increase electricity generation by at least 15% per year in order to propel a faster achievement of the millennium development agenda in their countries (McMicheal et al, 1994).

With a total population of 24,658,823 according to GSS (2010), it is estimated that Ghana's population is growing at a steady rate of 2.5% per annum. This figure is accompanied by a corresponding increase of housing from 1,463,735 in 2000 to 3,392,745 in 2010 (GSS, 2012). The year on year increase in housing is estimated at an average of 12.7% per annum (GSS, 2012).

Furthermore the census data also reveals that urban population in the Greater Accra Region was highest (3,630,955) with an urban to rural population ratio of 12:1. This is followed by the Ashanti region (2,897,290) with an urban to rural population of 2:1. Urban to rural ratios for the other regions are shown in Table 2.

Table 2: Urban to rural populations and ratios of the ten regions of Ghana

Region	Urban - Rural Populations	Urban to Rural Urban Populations Ratios
Greater Accra	3,630,955 - 379,099	12:1
Ashanti	2,897,290 - 1,883,090	2:1
Western	1,007,969 - 1,368,052	1:1.3
Central	1,037,878 - 1,163,985	1:1.1
Volta	713,735 - 1,404,517	1:2
Eastern	1,143,918 - 1,489,236	1:1.3
Brong Ahafo	1,028,473 - 1,282,510	1:1.2
Northern	750,712 - 1,728,749	1:2.4
Upper East	219,646 - 826,899	1:4
Upper West	114,653 - 587,457	1:5

Source: (GSS, 2012)

Based on these statistics, it is possible that the growing urban population in Ghana could also be as a result of a constant migration from the rural to urban centres in order to access better services and explore opportunities such as access to fairly reliable electricity. In a report on the development of cities in Ghana, the World Bank identifies increasing rural urban migration as one of the reasons underlying endemic poverty in the rural areas and large populations of poor in urban slums (Farvacque-Vitkovic *et al*, 2008).

In 2005 it was estimated that approximately 47% of Ghanaians were connected to grid electricity (ISSER, 2005). However by 2012 this figure had increased to 72% (World Bank, 2012). Meanwhile comparison of urban to rural access to electricity shows urban connection to electricity increased from 11.4% in 1989 to 81% in 2010, while rural connection to grid electricity increased from 5% in 1989 to 24.9% in 2010 (Bawakyilenuo, 2012). There still is a growing demand for connection to grid electricity by the unreached population due to the immense benefits of power to the socio-economic wellbeing of citizens. Review of a report by the Energy Commission, (2009) indicates that the electricity sector has a customer base of 2 million households and 1,150 industrial customers. Besides, the rate of increase in customer base as revealed in a review of the Volta River Authority's reports show an increase from 6% per annum to 10% per annum between 2006 and 2010 (VRA, 2014). In addition, Alternative Energy Africa (2014) estimates Ghana's rate of increase in demand for electricity at 10% to 15% per annum over the last two decades. This is evidence that demand for electricity would continue to grow until an average total population of the country is connected to electricity. The growing demand for electricity services requires that an active system is developed to adequately supply power to citizens. Issues of generation and distribution to citizenry in adequate and reliable quantities need to be properly addressed.

2.3. The power system

The power system in simple terms includes all activities and institutions with related infrastructure developed to generate, transmit and distribute power to the end user. It is the power system that supports the supply of grid electricity to the growing population to be used for domestic and commercial purposes. The review would therefore attempt to identify the ideal power system as it relates to Ghana. The major sections of the chain are discussed below.

2.3.1. Generation

Power generation is the process of producing electrical power using fuels such as coal, gas, oil, hydro, nuclear and other forms of fuels to power generators that convert mechanical energy into electrical energy. The type of fuel used to produce the energy depends on availability of the resource and technology to make use of it. In addition different the kind of fuel used has also got implications on the dynamics of cost, supply efficiency and management (ISSER, 2005). It is estimated that the world consumed 12539TWh as at 1996 (Eberhard, *et al* 2000). This quantum of electricity used worldwide is generated from different fuels prominent among which are oil, gas, hydro, coal and nuclear sources.

The Energy Outlook for Ghana 2012, (Energy Commission of Ghana, 2012) revealed two major sources of electricity generation in Ghana. These are the hydro-electricity and thermal generation plants. Hydro generation is the most prominent source of electricity in Ghana, and it is estimated to constitute 19% of electricity generated worldwide with a huge potential especially in the developing world still unexploited. There are two hydro power plants in Ghana: Akosombo with a capacity of 1020MW, and Kpong also with a capacity of 620MW. The third hydro power generation plant constructed at Bui between Brong Ahafo and Northern Regions has a total

capacity of 400MW. Besides these hydro power sources, there are seven thermal plants with a combined generation capacity of 1115.5MW. This gives a total generation capacity of 2,296MW as at 2013. Total power transmitted in 2011 and 2012 were estimated at 11,200 GWh and 12,164 GWh respectively (Energy Commission of Ghana, 2012), an increase of 8.61%. In the Energy Sector Strategy and Development Plan published in 2010 by the Energy Ministry, the objective for the power sub-sector is to increase generation capacity to 5,000 MW by 2015 and increase access up to 82% in the same year. Meanwhile the country still has an appreciable potential to generate more power for internal use and export with strategic planning and conscious investment.

2.3.2. Distribution

As stated earlier, the usefulness of electricity lies in its ability to provide energy services for cooling, heating, powering motors and lighting. This implies that electricity generated can only be useful when it is accessible to the final consumer. Differences in access to energy (electricity) by different people at differing levels of social and geographic classifications could contribute to inequality. Therefore for a country to ensure adequate and equitable distribution of electricity to her citizenry, a robust system with reliable technical, managerial, infrastructure and resources needs to be set to support this service provision.

A basic principle underlying electricity generation and use is that electricity cannot be stored, once the energy in the fuel is converted, power must be used or lost (ISSER, 2005). This underlying principle influences the system of electricity distribution. The distribution of power involves transporting electrical currents from the generation station through cables to switch station and further to the final consumer. It has an interconnected system of lines, distribution centers, and control systems (ISSER, 2005). The 2012 annual report of the Ghana Grid Company Limited

indicates that the existing transmission facilities for distributing electrical power in Ghana include 4,000 km of transmission lines operating at various voltages, including 330 kilovolts (kV), 225kV and 161kV across the country. These lines carry power from various generating stations to fifty one (51) operational transformer substations with eleven new substations in various stages of construction. At these substations, the power is stepped down to lower voltages including 34.5 kV, and 11kV for the major bulk customers including ECG and NED (Ghana Grid Company Limited, 2012).

The country has a defined structure linking generation to consumption through distribution. The VRA is the institution mandated to manage power generation in Ghana (VRA, 2011). Power generated is then transmitted in bulk by the Ghana Grid Company Limited (GRIDCo). Retail agencies such as the Electricity Company of Ghana (ECG) and the VRA Northern Electricity Division (VRA/NED) are the main end side distribution agents.

2.4. Institutions and Institutional frameworks:

According to Aristotle, man is a social animal who achieves his/her needs by engaging in interactions with society at large. To John Locke (1689), in the absence of rules governing how those needs are met, society would be chaotic as all possible means may be employed irrespective of how injurious it may be to the individual and other members of society. To maintain order in society, institutions are established to control human conducts.

Institutions are man-made constraints which guide human interactions (North, 1990). They are seen as systems of established rules which guide social interactions (Jütting, 2003; Hodgson, 2006). These systems are mostly established to address concerns identified through human interactions. To do this, institutions determine the nature of incentives that exist in human relations

relative to political, social and economic interactions (North, 1990). By doing this, institutions structure everyday life and this reduces uncertainties in what one has to do (North, 1990). Even though they may be established over time or on the spur to address human concerns, institutions are subject to modifications over time in response to the changing nature of human expectations.

According to Hodgson (2006), institutions are described under two main ideas: the system (rules) that guides human interactions, and as an agency that oversees human interactions. As an agency of control, institutions find expression in the activities of an organization (North, 1990). The purpose of institutions here is to work towards the achievement of particular objectives. Institutions, as an agency, can differ because they may be established under different circumstances and to also perform different tasks (Acemoglu & Robinson, 2008).

To achieve the purposes identified through human interactions, institutional frameworks are developed. An institutional framework is a system of formal laws, regulations and procedures that moulds behaviour (Donnellan, Hanrahan, & Hennessy, 2012). An institutional framework can be the product of government policy, though the agency that is to implement the policy can modify or generate their framework.

As a regulatory agency, ECG falls under the political aspect of human interactions (North, 1990). It regulates human interactions relative to access to and supply of electricity. Specifically, its institutional framework in place to address concerns of consumers is considered for this study.

2.5. Policies and strategies of electrification in Ghana

A policy is defined as “a principle or guideline that governs an activity and which employees or members of an institution or organization are expected to follow” (Mosby, 1994 pp.1240). Kupers in their discussion identifies policy with three different senses – “the purpose of association, review of information and determination of appropriate action, and the securing and commitment of resources to support the running of an organisation” (Kupper, 1996, pp 621). The general idea of policy relates to a set of guideline principles that serve as a framework within which an organization is managed or a service is provided. For an essential service such as electricity which serves as a basic source of energy or a better substitute for energy both for commercial and domestic purposes, a well developed institutional system is required to manage the generation, transmission and distribution. Over the years a number of policies have been enacted by international authorities to overcome obstacles that prevent consumers from deriving maximum utility for energy services. And Ghana has had her own line of policies to regulate the energy sector and maximize electricity access and utility. These policies and institutional arrangements are discussed in a document entitled ‘Guide to Electricity in Ghana’ authored by ISSER (2005).

2.6. History and trends of electricity in Ghana, structures and reform evolution

A review of the “Guide to Electricity in Ghana” by ISSER (2005), shows that, electricity was first used in the Gold Coast in 1914 by the railways’ administration. This was mainly thermal power and was distributed publicly first in Takoradi. In 1924 the Public Works Department also generated electricity and supplied to major cities such as Accra, Koforidua, Winneba, Takoradi, Agona Swedru and Cape Coast. These two were however merged under one umbrella in 1947 under the Electricity Department which under the administration of the ministry in charge of public works. In 1961 however, the Volta River Development Act (Act 46) was enacted to support the

establishment of the Volta River Authority (VRA) which was mandated to develop and establish hydro power generation stations on the Volta River. An electricity Act was also enacted in the same year which authorized the ministry in charge of public work to regulate and license electricity distribution in Ghana.

The electricity Act (1961) (Act 48) was repealed and replaced in 1967 with the Electricity Corporation Decree established the Electricity Corporation of Ghana and mandated it to supply and be responsible for all distribution networks in the country. In 1987, however ECGs powers were limited with to southern and the Northern Electricity Division (NED) was set up as the distribution arm of VRA to distribute electricity to the three northern regions.

2.7. The current state of electricity sector in Ghana

The major institutional players in the electricity sector can be effectively divided into two, the technical institutions and administrative regulatory institutions. The technical institutions include the Volta River Authority (VRA) the Electricity Company of Ghana (ECG) and the Ghana Grid Company Limited. The administrative regulatory institutions include the Ministry of Energy, the Energy Commission and the Public Utilities Regulatory Commission. These institutions play complementary roles to support an efficient, reliable and profitable electricity service provision to consumers. The various roles are summarized below.

2.7.1 Volta River Authority (VRA)

Established under Act 46 (1961) the VRA was responsible for power generation, transmission and distribution utility power generation, transmission and distribution utility. However after the amendment of the VRA act in 2005, its mandate is restricted to generation with an added responsibility of creating a conducive environment to attract Independent Power Producers (IPPs).

The VRA also owns a full-fledged distribution Agency, the Northern Electricity Distribution Company Limited (NEDCO). NEDCO is responsible for the distribution of grid power to the three northern regions and the Middle belt. Power generated by VRA is sold internally and also exported to neighboring countries to foreign exchange earnings.

2.7.2. Electricity Company of Ghana (ECG)

The electricity company of Ghana is an off-shoot of the Electricity Cooperation of Ghana, which was set up as a distribution agency under the Electricity Corporation decree, 1967 (NLCD 25). It was however converted to the status of a company to allow for private sector participation in the electricity generation and distribution market.

The main responsibilities of the EGC are outlined below:

- “To buy, take over or otherwise acquire the undertaking and business previously carried on by the Electricity Corporation of Ghana, as well as its goodwill, assets, properties rights, liabilities and obligations.
- To transmit, supply and distribute electricity
- To purchase electricity in bulk from the VRA or any other supplier for distribution
- To construct, reconstruct, install, assemble, repair, maintain, operate or remove sub-transmission lines, distribution lines, transformer stations, electrical appliances, fittings and installations.
- To carry out any other activities incidental or conducive to the attainment of the objectives outlined” (ECG, 2010)

2.7.3. Ghana Grid Company Limited (GRIDCo)

GRIDCo was formed in 2006 as a part of a reform process initiated in 1994 to curtail the problem of poor quality service in the electricity sector and low tariffs that generated debts that government continuously serviced with state funds. It is an “electric transmission utility with the responsibility of dispatch and transmission operations to provide fair and open access to the interconnected power system to all market participants” (Power Systems Energy Consulting, 2010; pp. 1). The company purchases bulk power from the generation stations and transmit to the bulk transmission centers where agencies such as EGC and Takoradi thermal power plant purchase and further redistribute. The core role of GRIDCo is to allow access to bulk purchase of electricity by private investors for distribution and industrial purposes (Power Systems Energy Consulting, 2010).

2.7.4. Ministry of Energy

This is the main body responsible for the development and implementation of the energy policies in Ghana. It provides directives, supervision and support to agencies responsible for the development of energy in Ghana.

2.7.5. Energy Commission (EC)

The energy commission is one of the agencies mandated with regulatory responsibility in the energy sector. It was established under the Energy Commission Act, 1997 (Act 541) as an autonomous body that provide accepted license for both public and private utilities. They collect data and contribute to the development of energy policies in the country (Energy Commission of Ghana, 2012).

2.7.6. Public Utilities Regulatory Commission (PURC)

The PURC was set up as the regulatory agency working in favor of the public good. It was established under the Public Utilities Regulatory Act, 1997 and was charged to provide guidelines on rates chargeable for electricity services. They further monitor standard of performance of electricity utilities and also collect and addresses complaints from consumers (Ahene, *et al* 2007).

2.8. Systemic Losses in the Electricity Sector

As a service commodity, electricity is generated at a cost and it is intended to be supplied to the consumer at a fee with the aim of either making profit or breaking even. It plays a major role in the quality of life and economic performance of the country. The electricity sub-sector has contributed between 0.6%-0.8% of GDP between 2006 and 2011 (Osei *et al*, 2012). The highest contribution (0.8%) was achieved in 2006 but reduced to 0.5% in 2008-2009 and increased marginally again to 0.6% in 2010 and 2011. It provides energy for running small, medium and large-scale businesses that provide employment to a large percentage of citizens and contributes over 75% of GDP. The electricity generation, transmission, distribution and regulation system is an attractive employment hub for some citizens. Therefore, cost recovery to support the sustainable generation, transmission, distribution and regulation of the service is a formidable issue to consider. A chain of substantial losses attributed to systemic inefficiencies in the sale of electricity in some previous years in Ghana have been reported (ECG, 2010). Illustrated is in Table 3. Such chronic losses existing in the system threatens the ability of Ghana to generate and distribute electricity in adequate and sustainable volumes.

Table 3: Chain of losses (%) in sale of electricity by ECG;

Year	2008	2009	2010
% loss	23.7%	26.0%	26.6%

Source: Adopted from (ECG, 2010)

Figure 1: Year on year net financial losses at VRA



Source: Adopted from (ECG, 2010)

2.9. Development planning in Ghana

Development planning is defined as the process of articulating and putting into practice identified sets of measures with the basic aim of improving the existing socio-economic condition of a region or country within a timeframe. This implies that development planning as a practice is aimed at assessing the current status of development coupled with its challenges such as population growth and infrastructural expansion to articulate relevant measures of improving the development of the region or country.

In Ghana, the basic unit of planning is the municipal or district assembly. The process is however coordinated by the National Development Planning Commission (NDPC) in collaboration with the ministry of finance and economic planning. A guideline for planning development developed by NDPC has outlined major stakeholders involved in the drafting of Medium Term Development Plans both at the central and decentralized levels of governance. This includes heads of departments and agencies such as the ECG. This strategy is aimed at facilitating an all-encompassing and integrated development planning that serve as a strong and resilient foundation for facilitating a holistic development of municipal and district assemblies and the country at large. The development planning guide by NDPC outlines a sequence for development planning that should be followed. This begins with a clear statement of visions, missions, and goals of the municipality or assembly, a review of performance over the last implementation period and compilation of profile of the sector. Under the profile of the sector, the assembly is required to outline institutional capacities and also analyse cross cutting issues such as population, decentralization, culture, science and technology and innovation, security, disaster management, inequalities, water security. Other cross cutting issues mentioned include HIV/AIDS, gender, environment and development and vulnerability (National Development Planning Commission, NDPC, 2013). What is visibly missing in the statement of the profile is an analysis of institutional capacities to support the provision and management of electricity in the municipalities.

2.10. Summary of gaps identified

A wide range of academic literature exists on the electricity industry in Ghana. Different literatures outline various challenges confronting the sector and have proposed alternative policy interventions that are capable of helping improve on efficiency in the sector. However, a grey area that needs to be looked into is how electricity planning is linked to development planning at the

municipal and district assembly level. Besides the naming of ECG as one of the agencies and departments that are required to constitute the planning committee at the municipal and district assembly level, it is important to clearly identify how access to electricity is factored in the development planning process. It is also important to clearly examine how infrastructural growth is linked to planning of electricity provision in the municipality.

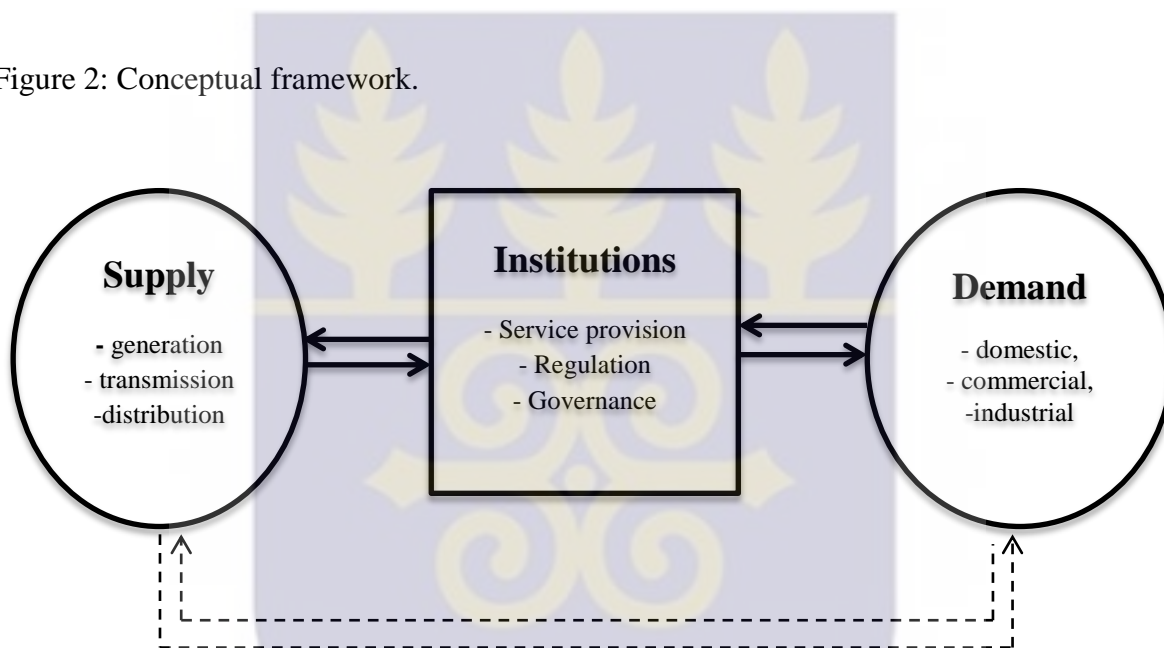
2.11. Conceptual Framework underlying the study

The framework for this work shows the strategic positioning of institutions in the supply and demand chain of service provision; in this particular case, electricity service provision. The foundation of the framework is the simple fact that service provision needs to follow a demand and supply chain. “Both, the demand system and the supply system need to be functioning well in themselves and need to interface very well in order to be effective.” (Hagmann, 2002 pp. 2). An effective service delivery is organized around reliable demand market. The framework depicts the power market and has three major parts: supply of power at one end with demand at the other end. In the middle of these two important sides of the market is the institution, which provides the framework to build, govern and regulate the power market. They connect with thick continuous arrows and thin broken arrows and show how the segments of the market interact. The thick continuous arrows indicate existence of strong linkages that actors should be consider critically in a reliable service market. The thin broken lines show that there is some linkage between the sectors connected but that linkage is a weak linkage. The demand side of the chain comprises consumers of power such as domestic, commercial, and industrial consumers. The supply side on the other hand includes generation, transmission and distribution of power. These two are interdependent; a viable supply side thrives in an active demand market and vice versa.

According to Cowan (1976) electricity in the 21st century is one of the basic needs in life as it is closely interwoven and linked to social and economic lives of people, from the simplest to the most sophisticated. In the poor people's energy outlook 2013, Practical Action (2013) illustrates how supply of energy (in this specific case, electricity) is critical for health delivery. Additionally it considers how it impacts on performance of children in school; in that health facilities that are not connected to regular supply of grid electricity are gravely handicapped in their provision of essential health services (Practical Action, 2013). More so, industrialization, which started in the late 17th century, has experienced phenomenal evolution, expansion and growth, with the development and integration of electricity in its processes. Domfeh (2014) illustrates how in 2013 industries in Ghana complained that frequent power cuts as a result of a compulsory power rationing scheme, disrupted their businesses and increased cost of production (Domfeh, 2014). Again, Aryeetey et al (2005) discussed how in 1997, ECG increased electricity tariffs by 300% in order to be able to generate enough income to support power generation and distribution activities. This vividly illustrates the indisputable interdependency between the supply side and demand side of the market. Demand and supply do not stand alone in the power market. They weave around a pivotal element – institutions, see Figure 2 . Institutions provide the framework, within which trade of electricity services occur. The trade process in the market is also regulated and governed by institutions to facilitate a viable and sustainable market. Aryeetey et al (2005) in their description of circumstances leading to the establishment to the Public Utilities Regulatory Commission (PURC) in 1997 highlighted a situation described as near market failure in the electricity market. This occurred when ECG (supply side actor) increased tariffs based on its accounting balance sheet results without consulting the demand side actors for a balanced decision. The result, according to Aryeetey et al (2005) was a revolt by consumers against ECG, which

almost resulted in a deplorable market failure. It took the timely intervention of government (institution) to set up PURC (another institution) to resolve the conflict and sustain the market (Aryeetey et al, 2005). This indicates that although the demand side and supply side are indispensable in the power market, the market only thrives efficiently within a well-managed and functioning institutional framework. Illustration of this concept is in Figure 2

Figure 2: Conceptual framework.



Source: International Atomic Energy Agency, IAEA, 2010; Adapted from International Atomic Energy Agency (IAEA)

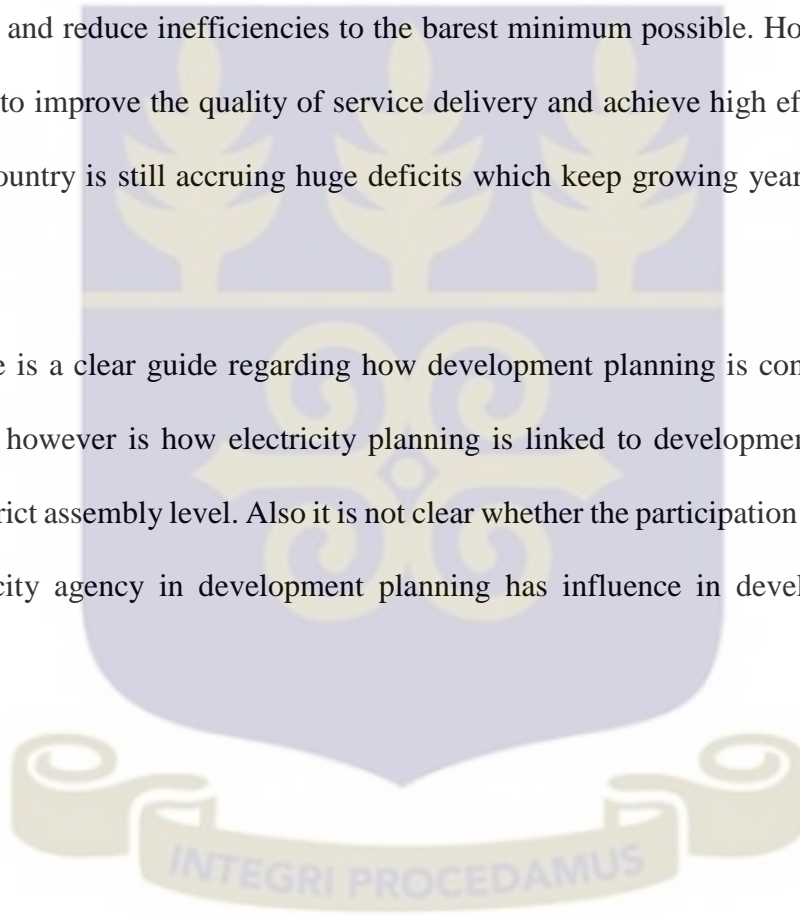
2.12. Conclusion

From the review, the research has established based on literature that effective service delivery, such as electricity provision, responds to a well-organized demand from consumers. If consumers are able to identify their needs and make demand for it, institutions and strategies are put in categories to respond to the demand and satisfy the stated need. The review also revealed that demand for electricity service in Ghana is driven by population growth and expansion in small, medium and large scale industries. More so, electricity in Ghana is generated mainly from

hydroelectric power sources and thermal generation sources. The country has however a huge potential to generate adequate power to meet the needs of the growing population and industrialization and also export for foreign exchange earnings.

Historically the country has a long history of electricity generation dating back to 1914. Since then series of institutional reforms and strategies have been developed to expand the sector, meet the growing demand and reduce inefficiencies to the barest minimum possible. However, regardless of all the efforts to improve the quality of service delivery and achieve high efficiency, research shows that the country is still accruing huge deficits which keep growing year after year due to systemic losses.

In addition, there is a clear guide regarding how development planning is conducted in Ghana. What is missing however is how electricity planning is linked to development planning at the municipal or district assembly level. Also it is not clear whether the participation of representatives from the electricity agency in development planning has influence in development planning process.



CHAPTER THREE

METHODOLOGY AND PROFILE OF STUDY AREA

3.1. Introduction

The chapter discusses the research methodology and the profile of the study area for this research. It begins with the research design, discusses data requirements, sources of data, tools for gathering data and the target population. The chapter also discusses sampling techniques and ethical considerations factored into the data collection process as well as the method of data analysis. The chapter ends with a profiling of the district assembly within which the research was conducted to provide contextual basis for the work.

3.2. Research Design

In addressing the research problem posed in this study, the research employed a qualitative paradigm. This is used because of the unstandardized nature of the study (Bergman, 2006). Qualitative paradigm allows the research to stay open and flexible towards the study. It also focuses on individual cases and therefore gives a deeper and more complete picture of the object of research. Qualitatively, an in-depth interview was conducted with officials of ECG, the town and country planning office, and municipal assembly. In-depth interview was chosen because it enabled the researcher probe further in an attempt to gain deeper understanding of the variables under study.

3.3. Data Requirements and Sources

The research depended on triangulation of both primary and secondary data in studying the various variables in the study related to its objectives. The choice of this method was on the basis that the weaknesses of one method will be offset by the other and hence a more accurate and dependable data for the research would be obtained.

3.3.1. Primary Data Needs and Sources

In simple terms, primary data is data that is collected by the researcher. According to Ahiadeke (2008) primary data can be collected through different methods such as laboratory tests, interviews, participant observation and field research. In this research, primary data formed the crux of analysis. The study used primary data to analyse all the three objectives of the research with the aim of finding the most accurate available answers to questions raised. The research depended on primary data in an attempt to understand how development planning was conducted and further sought to know who is involved in the planning process, when to do it, and identified various stakeholders involved. Primary data was further sort on electricity supply planning. Additionally, the research collected primary data on infrastructural development strategies in ASEMA, further seeking preferred standards for infrastructural development and electricity extension. Semi structured interviews were conducted with purposefully selected key respondents from three institutions that were well purposefully selected. The institutions selected included the office of the Awutu Senya East Municipal Assembly (ASEMA), the Town and Country Planning Department of ASEMA, and the municipal office of the Electricity Company of Ghana. One key respondent from each of the selected institutions was interview with the aid of a semi-structured questionnaire. The interviewer recorded responses from the interview, transcribed and analysed accordingly.

3.3.2. Secondary Data Needs and Sources

Secondary data is data that has already been collected and used for a purpose and is available in books, documents, government statistical databases and reports of institutions. Secondary data from reports and documentations of the selected institutions would be used to validate responses received through the interviews. In addition, available secondary data would be used where

primary data may be lacking. In all cases, available documents would be perused for secondary data that provides further information on questions raised.

3.4 Data Gathering Tool and Procedure

Semi - structured interview guides were the main data collection tools for the research. Separate guides were developed for the different respondents selected for the research. A fourth guide was also developed to guide the facilitation of focused group discussions with demand side actors (males, females and opinion leaders) of the electricity service industry in the municipality. Interviews and focused group discussions were held face to face with respondents. This allowed respondents to give undivided attention to the interview and provided better responses to questions with little distraction. The guides were developed based on a matrix showing the linkage between research objectives, questions, data needs and data collection method. **Table 4** shows the matrix indicating the linkage between objectives, questions, data needs and collection method.

To collect data two rounds of visits were made. The first visits will be aimed at identifying the selected key informants and specifically locate their offices. During this visit, the intent for the study was disclosed to the respondent and their initial consents to participate in the planned interview were sought. Appropriate appointments were then booked with individuals within times that were convenient for them. In agreeing on the time for the interview, respondents were restricted to a given time period to choose dates that will be appropriate to conduct the interview. This is because there was limited time for data to be collected for the research. In addition, participants in the focus group discussion were identified and notified. Venue and time for the focus group discussions were also scheduled. The second round of visits were aimed at meeting with key informants to conduct the interviews and group discussions as scheduled. To do this, the

researcher visited the respondents in their offices. Besides their offices, they were allowed to choose other locations that they considered conducive. The interview was planned to be completed at a one time sitting except under circumstances where respondent was unable to continue with the interview, in which case the meeting was postponed. Each interview lasted a minimum of one hour and a maximum of two hours. Focused group discussions were also completed at a one-time sitting between 1-2hours.



Table 4: Linkage between objectives, data needs, sampling, and data collection method (I)

#	Objective	Questions	Data needs	Who to contact	a) Data collection method b) Type of data c) Method of data analysis	Sampling method	
1.	To identify the linkage between infrastructural development and electricity supply planning in the municipality.	Is there a link between infrastructural development planning and electricity supply planning in the municipality?	How development planning is conducted	Key informants from the district assembly (MCD, MDPO, Assembly members, special planning officer)	a) Interview → Focused group discussion b) primary data c) qualitative	Purposive sampling and Snowballing	
			Who is involved				
			When is it done				
			List of stakeholders involved in planning				List of participants/minutes of meeting
		How electricity supply planning is done	Key informants at ECG office (manager/planning officer/engineer)	Interview → Focused group discussion b) primary data c) qualitative	Purposive sampling and Snowballing		
							Who is involved
							When is it done
							List of stakeholders involved in planning

Source: Author's construct (2014)

Table 5; Linkage between objectives data needs, sampling data collection method (II)

Objective	Questions	Data needs	Who to contact	a) Data collection method b) Type of data c) Method of analysis	Sampling method
To compare the current rate of infrastructural growth and reach of electricity supply in the municipality.	At what rate is electricity supply expanding in the municipality as compared to infrastructural expansion?	Number of housing facilities available in the municipality	2010 Population and housing census report	a) Document review b) secondary data	Purposive sampling and Snowballing
		Number of new structures erected since 2012	Key informants (MCD, MDPO, M&E or MIS officer, architect)	a) Interview b) primary data	
		Length of electricity lines in the ASEMA Length of electricity lines added since 2012	Document review (if possible) Key informants (manager/engineer, monitoring officer)	a) Document review b) secondary data a) Interview b) primary data	Purposive sampling and Snowballing
Examine the challenges in infrastructural development and electricity supply in the municipality	What are the challenges confronting electricity supply and infrastructural development strategies in the municipality?	Infrastructural development strategies in ASEMA	Document review (development plans etc.) Key informants - Key informants (MCD, MDPO, M&E or MIS officer)	a) Document review b) secondary data c) qualitative	Purposive sampling and Snowballing
		What is the preferred standard for infrastructural development / electricity extension Challenges Coping strategies		a) Interview b) primary data c) qualitative	
		Electricity extension strategies Challenges	Document review (if possible) Key informants (manager/engineer, monitoring officer)	a) Document review b) secondary data a) Interview b) primary data	Purposive sampling and snowballing

Source: Author’s construct (2014)

3.5 Target Population and Sample Size

The nature of the work did not require a large population; however resource personnel with adequate information on the subject under study were involved. The target populations for this study were institutions responsible for the planning and management of development, infrastructure and electricity supply in the municipality. In line with the objectives of this study, stakeholders from EGC, Town and Country Planning office and the municipal assembly with senior level managerial responsibilities were sampled for this study. In addition, selected opinion leaders who used electricity for domestic or commercial purposes were also interviewed. The study was carried out in Kasoa within the Awutu Senya East Municipality in the Central region of Ghana. The Kasoa community was purposively selected, because of its status as the capital town of the municipality. Kasoa therefore housed offices of all major departments and agencies such as ECG, an official of the town and country planning office that played key developmental roles in the municipality. In addition, as the capital town of a newly created municipality, Kasoa was known to be one of the fastest growing towns in the West African sub-region².

Twenty-One (21) respondents participated in this study. Respondents included demand side actors (consumers, specifically domestic users of electricity) and supply side actors (EGC) in the electricity service sector. They also included stakeholders concerned with development planning (municipal assembly office) and infrastructural growth (town and country planning office) in the municipality. Demand side actors included opinion leaders, males and females put together in separate focus groups. One (1) respondent was selected from each of the three (3) selected

² ASEMA, 2013

institutions to make the total of three (3). Respondents were purposively selected based on their importance to the study.

Respondent from the municipal office provided evidence on how development planning was conducted – this included identifying stakeholders involved and their achievements. They provided evidence on the link between development planning and electricity provision planning in the municipality. Respondent from the town and country planning also provided evidence on the planning, expansion and management of infrastructural growth (increase in housing units) in the municipality. He or she further provided evidence on the linkage between development planning, infrastructural development (increase in housing units) and planning or provision of electricity in the municipality. Respondent from ECG also provided evidence on the planning and extension of electricity to houses units in the municipality. Additionally, the opinion leaders provided evidence on how efficiently the institutions were working together to ensure that electricity supply was well planned and provided to meet the needs of consumers. They further identified challenges faced by consumers on electricity provision and how that was related to institutional inefficiencies. Male and female consumers also provided information on electricity supply and challenges faced by consumers under the current supply regime.

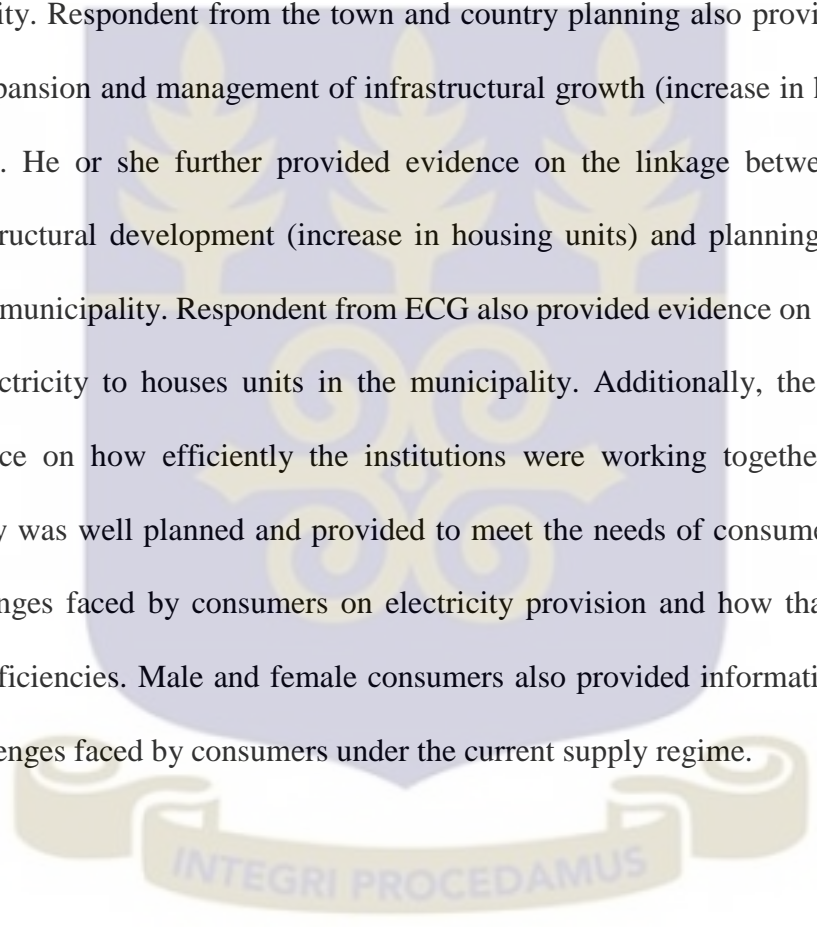


Table 6: Summary of sample size

Method	Respondent	Total sample
Interviews	Key informants	3
Focus Group discussion	Opinion leaders	6
	Males consumers	6
	Female consumers	6
Total sample		21

Source: Author's own construct (2014)

3.6. Sampling Technique

The study employed purposive sampling technique to select 3 three key informants (KR1, KR2, KR3) from three institutions. Six opinion leaders, six male consumers and six female consumers (FG1, FG2, FG3) representing demand side actors were also sampled using a combination of purposive and snowballing sampling method. Purposive sampling, which is a non-random sampling method, was considered appropriate for reflecting each important sub-group relevant to the conceptual framework and research question especially when the unit of analysis was not 'the person'. Ahiadeke (2008: 90) indicated that the "strength of purposive sampling lies not in its coverage, but in its depth". This method of sampling was therefore employed because the study sought to collect in-depth interview data from key respondents. The rationale for purposively selecting participating institutions was based mainly on the key roles they played in relation to the study. The participating institutions included Electricity Company of Ghana as the supplier of electricity to consumers. The Municipal Town and Country planning office played specific roles in infrastructural planning in the municipality. Thirdly, the municipal assembly office was also purposively selected because of their crucial role in coordinating activities of all departments and agencies in the municipality.

With respect to the opinion leaders, the municipality was stratified into six electoral areas. One unit committee member from each electoral area was invited for the group discussion. The assemblies were sampled based on their unique role as political representatives of their constituencies at the municipal assembly. They also played key roles in development planning and decision making in the municipality. Selection of male and female consumers were also purposive. A popular market center, the Kasoa new market was selected and one consumer purposively selected. The remaining participants were then identified using snowballing method with the first participant as reference point. As part of the selection process for the focus group discussions, consideration was given to their work background to provide a mix of professions and experiences relative to their use of electricity. As such, for Focus Group 1 (FG1) participants included a nursing officer, steel bender, a teacher, block layer and two traders. Focus Group 2 (FG2) was made up of male consumers. Most of them were traders and shop keepers. The third group (FG3) constituted female consumers. They included traders, one safety assistant, one revenue collector, one hair dresser and one dressmaker.

3.7. Executing the interview

All interviews were carried out within the Kasoa Township over a period of one week. Three individual interviews were held with key respondents in their respective office premises. The other three were organized in a meeting for a one-off focus group discussion at the municipal assembly office of ASEMA. Before the interview or focus group discussion commenced, a declaration of consent guaranteeing anonymity and the sole use of the interview for the purpose of this master thesis was discussed and duly signed by the participants. The interviews were conducted in English language because all the selected respondents were highly educated professionals who used English as the official medium of communication; hence, they found it more comfortable

communicating in English. The focus group discussions was however conducted in Twi since all the selected opinion leaders were more comfortable communicating in Twi than any other language.

3.8. Method of Data Analysis

The study set out to answer three main questions based on its objectives. For all three questions qualitative content analysis were applied to analyse the data collected. Review of relevant literature showed different kinds of definitions assigned to content analysis. However, for the purpose of this study the definition by Berelson (1952, pp.8) best explained it: “Content analysis is a research technique for the objective, systematic and quantitative description of the manifest content of communication”. Qualitative content analysis provided the opportunity for the study to make inferences in small communications.

Due to the nature of the study, formal institutional information were required from respondents. As such informal or personal sentiments of respondents on the issues discussed were not needed in the data analysis. Responses based on facts with corresponding formal proof in accessible documents were given priority consideration before others. In addition categorical responses stemming from the experiences of respondents were considered useful and analysed. Responses were categorised into specific sub-themes for clearer analysis of data.

3.9. Ethical Considerations

3.9.1. Respondent selection and conduct of interviews

To begin with, formal permission to use the selected institutions for the intended study were sought. An introductory letter from ISSER identifying the student and the purpose of the research were sent to the appropriate authorities of the institutions to that effect.

Once the permission letter was approved, individual consent of sampled respondents was also sought properly. Respondents were informed that the research was an academic exercise and data will be used only for that purpose. There were therefore no known risks involved in one's participation. Participants were given a consent form to fill and sign to show their understanding and willingness to participate in the study.

Although participants were purposively selected as key informants based on their strategic roles in their respective organizations, they were allowed the opportunity to willingly provide their personal consent to participate in the interview or decline. In a case where a selected respondent declined, his or her views were respected and appropriate alternatives then sought using snowballing selection procedures. Furthermore, participants were informed about their right to withdraw from the study at any point in time as they wished. Another important ethical issue that was critically considered was confidentiality. Participants were assured that information gathered was to be kept as confidential as possible. In all the work, names and identity of respondents were not disclosed anywhere in relation to the research. Disposal of information was also considered. Participants were assured that, all information relating to them would be destroyed after the Graduate School had accepted the work. Participants were also informed on the need for the interview to be recorded with audio recording devices and thereafter assured that no part of the content of the interview was used for any other purpose nor would it be stored beyond the period of the study, and that all recordings was kept confidential and destroyed after they were transcribed. Based on the information given, participants were allowed the opportunity to either accept the use of the audio recorder or not. Finally, all references and information sources were dully acknowledged in the work.

3.9.2. Anonymity of respondents

In order to protect the honor and dignity of respondents, the study observed some level of anonymity for respondents. The study avoided the use photographs and names of respondents as much as possible. According to Orb *et al*, (2001) qualitative researches must employ an appreciable degree of beneficence, that is, doing good for others and preventing harm. In pursuence of this important ethical code, respondents in this study were identified with acronyms such as KR for key responment and FG for focused group member. Key resonvents were therefore refered to in the study as KR1, KR2, or KR3, while focused group members were referred to as FG1, FG2 or FG3.

3.10. Profiles of the study areas

3.10.1. Background of the municipality

The Awutu Senya East Municipal Assembly was established under L.I (2045), 2012 carved out of the then Awutu Senya District Assembly. It is located in the Eastern part of the Central Region and is a major peri-urban community to Accra. The municipality was inaugurated on 28th June, 2012.

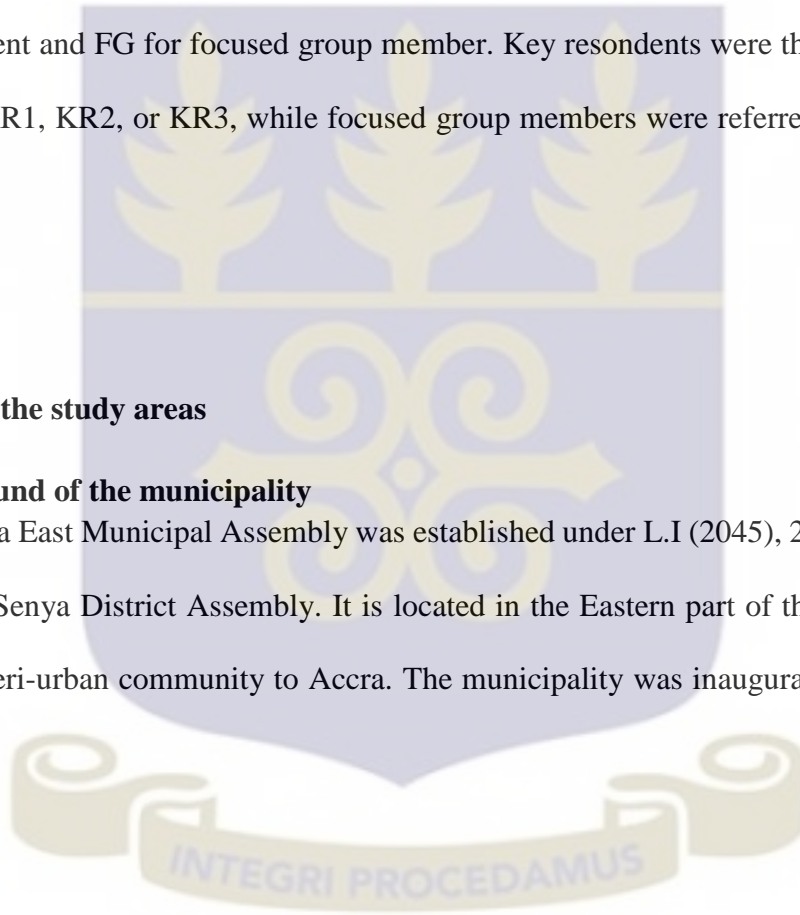


Table 7: Statistical data on Ewutu Senya East Municipal Assembly

Distance from Accra	Land area	Location	Annual growth rate	Electoral areas	Population	
13km	180km ²	5°45S-6°00N 0°20-0°35E	3%	6	Total Pop.	Male:Female
					133,000 ⁱ	1:1.06

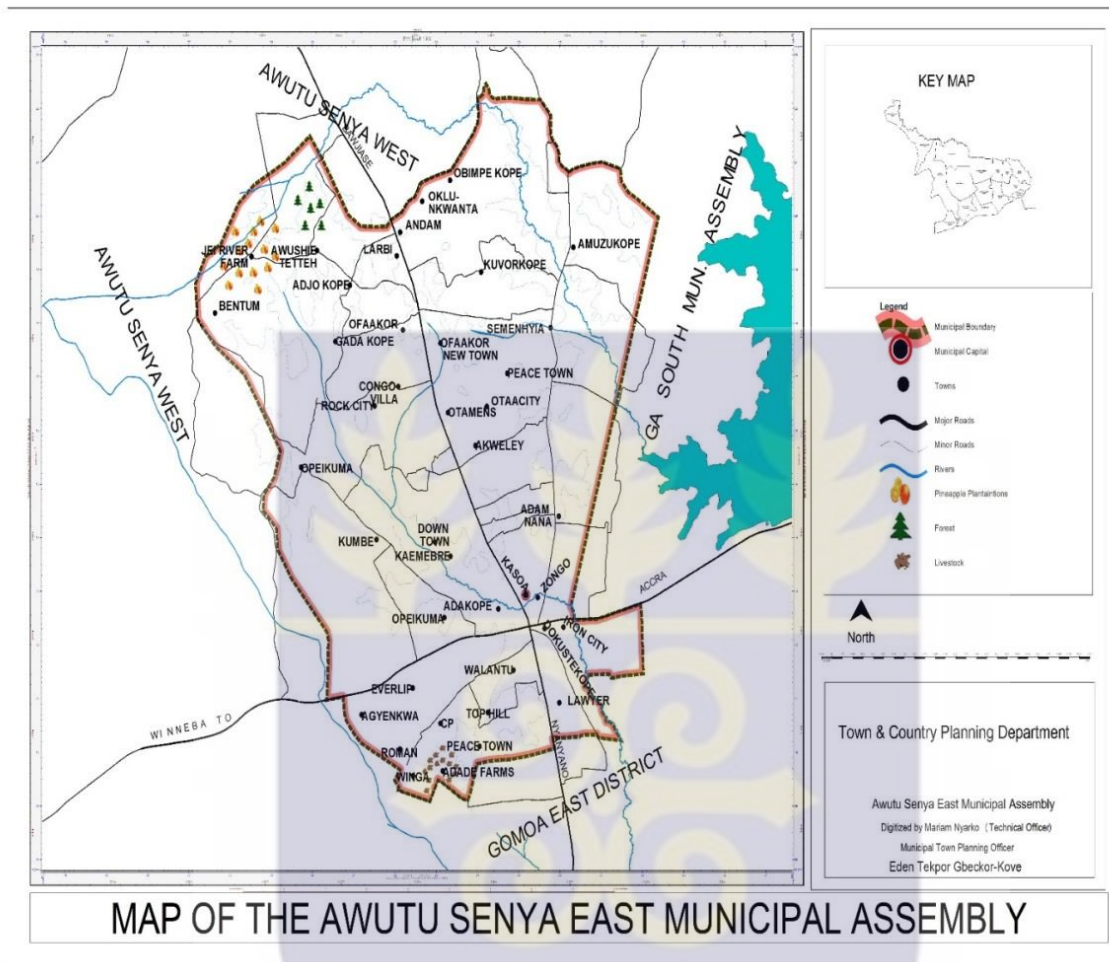
Source: Awutu Senya East Municipal Assembly, 2014.

ASEMA is one of the fastest growing municipalities in Ghana and serves as a dormitory settlement for workers in Accra with about 80,000 people travelling from the municipality to work in Accra in the morning and an almost same number returning after work.

3.10.2. Topography / Drainage and nature of the soil

The topography of the municipal is characterised by isolated undulating highlands located around the Ofaakor and Akwerley area. The nature of the topography is directly related to the soil type. The highland and lowland area have loamy soils and clay soils respectively. The drainage in the high areas is not intensive as compared to the lowland areas. The major river namely Okrudu drain into the sea and cause flooding during the rainy season. The municipality is underlain by Birrimian rocks, which consist of granites and phyllites. The area is basically low-lying with protruding granitic rocks in some areas. In the semi-deciduous forest zones, the soil type is mostly loamy soils which supports many plants and therefore suitable for arable farming. These crops include Pineapple, cassava, plantain, yam, maize, cola-nuts, citrus and pawpaw.

Figure 3: Map of ASEMA.



Source: Awutu Senya East Municipal Assembly, 2014

3.10.3. Demographic Characteristics

The population of the Municipality is currently estimated at 270,000 (projected from 2000 Population and Housing Census). The average annual growth rate of the Municipality is 3.0%. The ratio of male to female is 1 to 1.06 and the population is youthful. The average Household size of the municipality is five (5) (2000 PHC). Housing characteristics are summarized in table 8.

Table 8: Summary of housing characteristics in ASEMA

Description	Characteristics	
No. of Houses	37,000	
No. of Households (HH)	26,325	
Household Size	5	
Head of Households (%)	62.3 (M)	37.7 (F)

Source: Ghana Statistical service (2000)

3.10.4. Economy of ASEMA

The main economic activities in the Municipal include Trading mainly wholesale/retail trade, agro-processing, informal sector service and commerce. Trading and its related activities are the leading economic ventures and employs about 60% of the working population in the Municipality. Livestock production is also practiced in the Municipality but on a smaller scale. The private informal sector contribution is enormous. It employs about 21% of the working population in the banking and service sectors but needs to be integrated with the formal sector. Other economic activities include service (banking and internet) and agro processing (Cassava dough, Gari and Corn dough).

3.10.5. Health

ASEMA has 2 CHIPS compounds, 1 health center, one polyclinic and 15 private health facilities. The nurse to population ratio in the municipality is recorded at 67 nurses to 111,303 people. Doctor to population ratio in ASEMA is one doctor to 111,303 people. HIV prevalence rate is recorded at 0.46 per 1000 population (2012) which has since fallen to 0.07 per 1000 population (January 2013 until date). The top ten diseases recorded in the Municipal include Malaria, ARS, Skin Diseases, Anaemia, Diarrhoea (dxs) and among others (Directorate of Health-Awutu Senya East Municipal, 2012).

3.10.6. Security

There is a full representation of all the security services in the Municipality. There are private security firms in the Municipality besides the Municipal City guards. The Municipal Police Service, located in Kasoa, prevents and detects crime, apprehends offenders and maintains public orders and safety of persons and properties in the Municipality. The service also performs motor traffic duties to ensure safety on our major roads in the Municipality, vets and issues police criminal certificates. Currently apart from the main station in Kasoa, there are visibility Police Tents located in the following neighborhoods: Opekuma, Kasoa Zongo, Kaemebre, Akweley, Krispol city, Amusukope, and Adam Nana.

3.10.7. Electricity

Electricity in ASEMA is provided by the Electricity Company of Ghana (ECG) a major distributor of grid electricity in the country. Power is tapped from the Weija Irrigation Dam site power station, which was established between 1978/79. However, the first town in the municipality to have received grid electricity supply was Bawjiase in 1991, from where power was extended to other parts of the municipality. The Kasoa district office of ECG was established in 1997 to support electricity supply. The customer base then was 1000 but has since increased to 75000 according to the 2014 mid-year quarterly report. The customer base is composed of 43,000 credit customers and 28,000 prepaid customers. By the demarcations of ECG, the ASEMA district of electricity shares boundaries with Accra at the New Bortiano toll both site, with Winneba at Gomoa Buduatta and Akim Swedru at Awutu Adumase. Like the population of the district, one unique feature of the ASEMA district of ECG is the rate of growth of the customer base. As at 2013, the rate of growth is estimated at 30% per annum as compared to average of 5%-10% per annum recorded across the nation.

3.11. Limitations of the Study

In the process of the study, two major challenges were encountered. The first was time constraint and the second bordered on limited funding. These two constraints had an impact on the depth of the study in a number of ways. For instance, in the sampling process it was difficult to disaggregate focus groups based on their use of electricity such as commercial users, domestic users. Value addition to life and businesses could not also be conducted. Moreover, rural inhabitants in the municipality were not sampled in the focus group discussion; hence, their views were not captured. In the midst of these challenges, however, the study optimized limited resources to generate relevant empirical evidence to enhance knowledge on this subject.

3.12. Conclusion

Generally, the research used a qualitative design-using interview as its main means of gathering data. Sample size for the study was thus few but required in-depth interview to gather data. The interview was complemented with a focus group discussion to collect and integrate demand size views in the study. The study was conducted in the Awutu Senya East Municipality, one of the newly created municipalities under L.I (2045), 2012. It has a highly dense capital, which serves as both a peri-urban community and dormitory town for many people who work in Accra. The municipality was generally connected to grid electricity and has a district office for ECG that manages electricity service supply.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION

4.1. Introduction

This chapter presents analyses and discussions of results of the study at two levels, supply side analysis and demand side analysis. The chapter also provides the profiles of all respondents who provided data for the study.

4.2. Background characteristics of respondents.

As indicated in section 3.2.9., the interviewees for this study would be referred to as KR1, KR2 and KR3 respectively and participants in the focused group discussion would be referred to as FGM1, FGM2 and FGM3. KR1 is a staff of the Awutu Senya East Municipal Assembly and has been working as development planning officer in the municipality for the past two years; that is since the municipality was created. Beyond that, KR1 has worked in similar capacity at different districts and municipalities of Ghana for the past 10 years and thus has extensive experience in development planning in general. KR1 is also one of the members of a core team that lead and facilitates the development planning process in the municipality and therefore possesses adequate knowledge of the legal basis of development planning, why it is done and how it should be carried out as expressed in the statement below. KR1 further expressed adequate knowledge of stakeholder involvement in the development planning process and roles they play:

‘... town and country planning according to the LI 1961 is a department of the assembly, right! being a department it means that whatever we are doing at the assembly we have to involve them... the chapter 20 of the constitution; the 1992 constitution actually enjoins us to make the planning participatory...’(KR 1, 2014)

KR2 is a technical officer at the Town and Country Planning (TCP) department at Awutu Senya East Municipal (ASEMA). His role is to assist the planners in conducting their official duties. He is involved in the planning of settlements in space in a geographically specified community. KR2 has six years of working experience as a staff of the Town and Country Planning Department but has been working in the Awutu Senya District / Awutu Senya East Municipality for four years (two years within the Awutu Senya District and 2 year in the Awutu Senya East Municipality). He appears not to play any specific role in development planning in the municipality. His roles are confined to the technical aspects of infrastructural planning and citing of facilities such as housing, electrical installations, communication mast, water installations in the municipality. This is to ensure that the placement of facilities conform to the official plan approved by the municipality. He is also involved in the conduct of official inspection to identify facilities that are wrongly placed and officially initiates processes to remove them or relocate them.

KR3 is the municipal manager of ECG in the Awutu Senya East Municipality. He has about ten years of experience working as district manager of ECG, but has been in the ASEMA for only two months. His official function is to manage general operations of ECG in the municipality. In his view, his role in development planning in the municipality is to provide electricity services to communities.

“... our role is to provide electricity services to the community ... we plan budgets of projects related to electricity service provision and execute them as we go...” (KR3, 2014)

Participants in the focused group discussions represent demand side respondents for the study. They would be referred to as FG1, FG2 or FG3. **Table 9: Summary of profiles of respondents**

Respondent	Profile
KR1	Works with Awutu Senya East Municipal Assembly as Officer in-charge of development planning. Has over 10 years' experience in development planning, but has been working in ASEMA for 2years.
KR2	Works with the ASEMA department of Town and Country Planning as technical officer in charge of settlement planning and inspection. Has 6 years' experience but has been working in the municipality for 2years
KR3	Works with ECG as district manager and has 10years experience, although he has been working in the current position for only 2months.
FG1	This group was made up of one female nursing officer, steel bender, a teacher, block layer and two traders. They are all unit committee member representing different communities in Kasoa.
FG2	This group constitutes male consumers. Most of them were traders and shop keepers.
FG3	This group constitutes female consumers. They included traders, one safety assistant, one revenue collector and one hairdresser and one dressmaker.

Source: Authors own creation (2014) based on data collected from the field

4.3. Supply side analysis

4.3.1. Development planning in ASEMA

This section would discuss responses of interviewees in how development planning is conducted in ASEMA with aim of identifying how development planning is linked to the total harmonization of development in the municipality.

Among the key respondents interviewed, KR1 appeared to have extensive knowledge and experience in development planning. His responses indicate that development planning is guided by a guideline provided by the National Development Planning Commission (NDPC) (National Development Planning Commission, 2013). The document provides detailed systematic guideline to how medium term development planning is initiated and facilitated at the municipal and district assembly level. He summarized the process into a four-step procedure; i.e. the constitution of the core planning team, design and administration of questionnaires, public hearing or diagnostic workshops, and finally sampling and prioritization of developmental issues. To achieve a holistic development plan, it is important that the planning be conducted in a participatory and inclusive manner as defined by National Development Planning Commission (2006). KR1, KR2 and KR3 all share similar view on the need for development planning to be participatory. The difference between them however is that whereas KR1 believes that efforts are made to make it participatory and inclusive as possible, KR2 is not sure if this effort is made at all, while KR3 believes that important institutions are simply not considered in the planning process.

“...we have a team, there is a team in place; planning team...we design questionnaire for the public to fillwe have something in place called public hearing, which I call diagnostic workshop ... we look at the problems of the community and we prioritize the issues, for instance the one we did in Kasoa, the first of one was security...” (KR3, 2014)

All the activities that are facilitated by the planning team, including questionnaire administration and public hearing are all geared towards achieving participation and inclusiveness. However, although these steps are initiated by the team full participation and inclusiveness is often not achieved because the team is constrained by a number of factors. The prime of these factors is budgetary and time constraint. In addition, a review of the NDPC guideline (2006) indicates that capacities of implementing agencies in the municipality need to be assessed and outlined in the development planning process. However, from the interviews, it was clear that this aspect of the planning process is not critically conducted;

“...they do not consider us in the process, nobody has ever come to ask if we have the capacity to support the implementation of the plan they are developing, but we are supposed to provide the power service...” (KR3, 2014).

If it is done at all, ECG is visibly neglected in the process. This anomaly however, can be traced back to the guideline provided for by NDPC. The guideline makes no mention of ECG as part of institutions that should be considered as seen in National Development Planning Commission (2013, page 22).

Interestingly, an important step that is supposed to aid the proper finalization of the document is validation. This step could have been used and opportunity to at least inform agencies like ECG on the development plan and elicit some inputs from, but unfortunately, it is not conducted in ASEMA.

“... what we normally do is that; the guideline also states that we need to have a second public hearing, I call it the validation workshop where the data collected will fit the plan, we should be

able to take it back to the community for the community members to validate every information that we gathered...”(KR1, 2014).

4.3.2. Stakeholders involved in development planning

This section of the study, sought to ascertain the knowledge of key respondents on stakeholder involvement in development planning in the municipality. This was to help assess level of participation and inclusiveness in the development process. KR1 and KR2 listed different stakeholders based on their perspectives and job experiences. KR3 however stated categorically that he had no knowledge of stakeholders involved in the process. The stakeholders listed by KR1 include the Town and Country Planning officer and the Engineer of the Works Department. Others were Directors of Education and Health, the budget officer and the Municipal Finance Officer. These were among the team that initiated and facilitated the development process.

“...with the involvement, we have a team, and the team is made up of the town and country officer, engineer of the works department, we’re also talking of education, health, and any other organization that has anything doing in the municipality can also be part of the team ...the MFO³, the municipal budget officer...”(KR1, 2014)

In addition to this, he further enlisted a second group of stakeholders, but these stakeholders were only consulted for inputs into the development plan during the public hearing meeting (the diagnostic workshops). The second group of stakeholders whom he described as the beneficiaries of the services provided by the assembly are listed in the following quote;

“...with the diagnostic workshop we’re inviting people from the community; the beneficiaries of our programs, so we’re talking of market women, people with disabilities, the departments, all the

³ MFO is the Municipal Finance Officer at the assembly

departments, the other departments apart from the ones I have mentioned, youth groups, assembly members, opinion leaders, traditional authorities, women groups, the police, so ECG and water are normally invited, this is where they are invited ...” (KR1, 2014).

KR2 on his part appeared to have adequate knowledge of stakeholders involved in the planning process, however he went ahead to express what he describes as his expectation in this regard.

“...for the statutory planning committee, the development planner will be there, electricity has to be there, water has to be there, fire service has to be there, lands commission has to be there, these are the technical bodies they all have to be there...”(KR2, 2014).

As expressed earlier, KR3 indicated precisely that he has no knowledge of stake holders involvement in the planning process. Clearly therefore, ECG is not involved in the planning process and therefore do not make substantial input into the development planning process. It is also clear that they are not the only agency that is excluded from the planning process. Most of the service agencies are also not considered in the planning process. This exclusion of agencies such as ECG also has its roots in the guideline (National Development Planning Commission, 2006) developed for the Metropolitan, Municipal and District Assemblies (MMDAs). No mention is made of service agencies in the profiling of stakeholders for development planning.

4.3.3. How electricity service provision is linked to development

In Ghana, electricity is a basic utility service like water. It forms an integral part of domestic life and industry. It is also a major contributor to economic growth in Ghana. Currently is estimated to contribute 0.8% of the country’s GDP (Osei *et al*, 2012). Besides, from the Electricity Company of Ghana’s Report (2012) the progress, growth and development of other industries that support the economy of the nation depend heavily adequate and reliable supply of electricity. Other

examples of these industries include the Volta Aluminum Company (VALCO), Tema Oil Refinery (ToR), mining companies, telecommunication companies, government business, and medium to small-scale industries. These industries contribute over 75% of GDP.

From the interviews, KR1 linked development in the municipality and electricity service supply as it relates to security and economic activities. In his response, he indicated that as a service, electricity is a key component of development planning. He further described how it often surfaced as one of the important needs expressed by community members during diagnostic fora.

“... for example the one we did at Kasoa, the number one was access routes and drainage systems, ... I think and the 3rd one was security; and the security here they are talking of lightening, where we should have lights, and that’s where ECG and stuff come in; because a lot of the places are dark, arm robbery cases always take place so people are always talking of we having lights, ok ...” (KR1, 2014)

All three respondents, KR1, KR2 and KR3 draw a strong linkage between electricity provision and development. What is missing however is how this linkage translates into the development planning process at the municipal assembly level? In the NDPC development planning guideline, the basic unit of development and its planning is attributed to the district, municipal or metropolitan assembly. Hence, the importance of various agencies to development should be seen within the activities of the basic unit and specifically in the development planning process in the municipality. It is clear from the study that this linkage is not translated into planning which is the first and most important step to reliable, progressive development. In the study, there was no avenue created to harmonize development plans of the assembly and ECG. A response from KR3, indicated that

often, the assembly is found doing what they find is expedient while ECG also does what they find expedient.

“...we⁴ are all doing our own individual thing, which is not good...” (KR3, 2014)

Interestingly, KR3 confirms this by indicating that sometimes ECG works parallel to the assembly.

“... as for a department like the town and country planning, according to the L1 1961 they are members and so they are part of it, but when it come to a utility like electricity then that’s where the problem lies, they may come but they may not have much say there... so sometimes you see ECG working parallel to whatever we do...” (KR1, 2014)

This is not to say that the assembly does not collaborate with ECG on any ground. There are areas where they collaborate. For instance, ECG collaborates with assembly in implementing the SHEP programme in a bid to connect communities to electricity. This stems from development plans that prioritize electricity provision as a major development agenda for the municipality at a given time. What is lacking is that even under the Self-Help Electricity Project (SHEP) programme the plans of ECG and the assembly are not synchronized from beginning. The service is only informed from the superior agencies (Energy Commission) to embark on the programme as and when funding is available. In addition, ECG is contacted in situation where the assembly decides to embark on programs such as street lightening.

4.3.4. The ideal situation

This section of the study aimed at eliciting views of respondents on their ideal expectation regarding the linkage between electricity service provision and development. All three respondents agree that development is closely linked to the reliable and sustained provision of electricity

⁴ ‘We’ in this statement refers to ECG and the Assembly

services. A lag in the service provision therefore would negatively affect development as expressed by (Domfeh, 2014). This implies that the planning of development should also be conducted in a synergistic manner through collaboration, coordination and harmonization of plans of ECG - the service provider, into the actual development planning system. This was expressed by KR1 as ‘working hand in hand’.

“... so they⁵ need to work hand in hand with us⁶...” (KR1, 2014)

KR2 described a process by which various agencies could collaborate to implement the development process while KR3 describes it as having ‘close collaboration’ with the assembly and other agencies.

“...before a chief sells the land, he comes to the TCP; he’ll be allocated a plot; by then the roadmap has been pegged and the highways have demarcated the major roads, then ECG can come mount their poles and water company can come and place their pipelines; but the problem we are having is land ownership...” (KR2, 2014).

“...there should be proper close collaboration and coordination so that when the municipality is embarking on any development ECG has to be aware to provide the necessary power needed...there is no collaboration and coordination...”(KR3, 2014).

However, as mentioned earlier, the ideal situation only remains desires of the various respondents and probably their respective institutions since the guide underlying development planning makes no specific provision for this collaboration to occur. The NDPC district planning guideline makes

⁵ ‘they’ in this quote refers to ECG

⁶ ‘us’ in this quote refers to the municipal assembly

provision for the harmonization of the district plans by the regional coordinating council, but does not create a platform where short or medium term plans of the different agencies could be collated and harmonized at the planning level (MMDA level).

4.3.5. Infrastructural growth and electricity extension in ASEMA

ASEMA is named among the few societies in west Africa that is growing at a phenomenal rate but the data from the 2010 housing and population census indicate that population in the municipality is growing at 3% per annum as against 3.1% for the central region and 2.5% for the nation. ASEMA's population is estimated at 133,500 people in 2013 as compared to 108,422 for 2010. The municipality is 92% urban and 8% rural (Ghana Statistical Service, 2012). The housing population of ASEMA is recorded at 15,502 as at 2010 (Ghana Statistical Service, 2012). Although rate of growth in housing development in the municipality is not known yet, the Municipal Works Engineer indicated that on the average, 250 permits are granted per week for the construction of new housing facilities in municipality. This makes 13,000 permits granted for the construction of housing facilities. The number of these houses that are completed per annum is not known. In comparison to electricity extension, which according to the reports from ECG indicates that from a customer base of 1000 in 1997, the district now has 75,000 customers over 17years; it is worth noting that growth in the municipality is indeed phenomenal in both housing expansion and electricity extension (Field Data, 2014). However, the study does not identify any significant lag in electricity supply extension, which can be attributed to poor institutional arrangements.

4.3.6. Challenges

Table 10 shows a summary of key challenges identified. Generally, all the challenges that were mentioned by the different respondents are similar to a degree. However, three challenges specifically run through responses of all the three respondents. These include poor coordination of

development planning in the municipality, poor collaboration among different agencies of the municipality to implement development projects in the municipality and the wrong citing of electricity installations in the municipality due to poor coordination of plans, and poor collaboration of departments and agencies in the development agenda. This wastes precious time and resources that could have been invested in advancing other projects, and puts financial pressure on ECG in terms of cost of reinstalling of removed installations at the appropriate places.



Table 10: Summary of challenges identified

List of challenges		Common challenges identified
KR1	<ol style="list-style-type: none"> 1. Poor coordination of development planning 2. ECG working parallel to the assembly 3. wrong citing of electrical installations 4. digging roads to install electrical facilities after the road is done rather than during road construction 5. ECG working parallel to ASEMA 	<ol style="list-style-type: none"> 1. Poor coordination of development planning 2. wrong citing of electrical installations – relocation of these installations is often
KR2	<ol style="list-style-type: none"> 1. Poor communication flow between agencies 2. wrong citing of electrical installations 3. Encroachment on lands 4. Lack of collaboration between agencies 	<ol style="list-style-type: none"> a. Costly b. Time consuming c. Retards development 3. Lack of collaboration between agencies
KR3	<ol style="list-style-type: none"> 1. Poor collaboration among departments and agencies 2. uncoordinated planning of development in the municipality 3. relocation of wrongly cited installations at a cost <ol style="list-style-type: none"> a. Costly b. Time consuming c. retards development 4. inability to provide reliable service to customers 5. difficulty to adequately cover areas that are developed with electricity connection 6. ECG is working independent of ASEMA 	

Source: Field data (2014)

Most of the challenges recorded were linked to the type of decentralization scheme under which ECG operates which is embedded in the Electricity Corporation decree, 1967 (NLCD 25). Furthermore, chapter 20 of the 1992 constitution, article (244:b) places the mandate of

development planning in the authority of the assembly. This is stated as “the formulation and execution of plans, programs and strategies for the effective mobilization of the resources necessary for the overall development of the district;” (article 245: b, 1992 constitution).

Other significant challenges that were identified include ‘working in parallel’ and ‘working independent of each other’. These were identified by KR1 and KR3 respectively. Although these did not run through it gives credence to the poor collaboration and coordination of work in the municipality. ‘Working in parallel’ here means that, the two institutions – the Assembly and ECG are likely to plan, budget and initiate the implementation of similar activities, either complementary or supplementary to each other as separate, independent projects. For instance a response from KR1 which sounded more like complain, indicated that ECG often dug through roads that have already been completed to install high tension cables that support the provision and distribution of power. This activity weakens the strength of road and reduces its life span. However, with proper coordination, harmonization and collaboration, the installation of the high tension cables could have been planned alongside the road construction, and implemented within the budget of the road construction and ensure that the quality of it is kept without avoidable digging through to weakening its strength. An analysis of the cost element associated with this challenge would shock anyone who sees it.

“... sometimes EGC digs our roads after they are completed to install cables, which is not appropriate, if we knew, we could have included that in the road construction process...” (KR1, 2014)

An underlying cause of the challenges that were identified by two of the respondents relates to the type of decentralization under which ECG operates. The VRA and ECG are two state owned

companies but with delegated powers to conduct business on behalf of government. Delegation according to Neven, (2005) is a more extensive form of decentralization. It allows central governments to transfer responsibility for decision-making and administration of public functions to organizations such as ECG and VRA in a semi-autonomous state. They are not wholly controlled by the central government, but are ultimately accountable to it. Governments delegate responsibilities when they create public enterprises or corporations, housing authorities, transportation authorities, special service districts, semi-autonomous school districts, regional development corporations, or special project implementation units. Usually these organizations exercise a great deal of discretion in decision-making. They may be exempt from constraints on regular civil service personnel and may be able to charge users directly for services. Operating under such powers, ECG therefore exercises discretion in decision making to a degree. The exercise of these powers is contributing to the poor collaboration in development planning. However, a response from KR3, puts the problem in proper perspective. He indicated that, the assembly has all the powers to initiate and manage favorable collaborations and cooperation among agencies on issues of common interest.

“... as for a department like the town and country planning, according to the L1 1961 they are members and so they are part of it, but when it come to a utility like electricity then that’s where the problem lies, they may come but they may not have much say there... so sometimes you see ECG working parallel to whatever we do; even sometimes we do invite them but they don’t attend; that is a challenge; because is more or less autonomy body, with the autonomy; paying allegiance to us...; though act 462, (section 12) is saying that we are the planning authority of the municipality they see us from afar though we engage them...”(KR1, 2014)

Table 11: Summary of responses – supply side responses

Key Responses	Interpretation of Responses		
	KR1	KR2	KR3
1. Has knowledge of development planning in the municipality	Yes	Partly	No
2. Is involved in development planning	Yes	Partly	No
3. Knows stakeholders involved	Yes	Yes	No
4. Development planning includes all relevant agencies	No	No	No
5. Development planning includes only a selected few	Yes	Yes	Yes
7. Development planning is well coordinated	No	No	No
8. Development planning is poorly coordinated	Yes	Yes	Yes
9. Development planning needs to be well planned	Yes	Yes	Yes
10. Poor coordination of development planning retards development	Yes	Yes	Yes
11. ECG is autonomous	Yes	Partly yes	Yes
12. ECG feels autonomous	Yes	Yes	Yes
13. Electricity company is affected if planning is not well coordinated	Yes	Yes	Yes
14. Electricity provision needs to be included in development planning	Yes	Yes	Yes
15. ECG is involved in development planning	No	No	No
16. It is necessary to involve ECG in development planning processes	Yes	Yes	Yes

Source: Field data, 2014.

4.3.7. Coping Strategies

Coping mechanism in this study refer to strategies that are adopted by development agents in the municipality to bridge the gap in development as a result of poor collaboration and coordination of development planning to achieve holistic development. Results from the interviews indicate that development agencies in ASEMA react to issues as and when they occur, and are not guided

by a usable holistic development plan that factors in plans of all concerned departments and agencies. In addition, regular site inspections are carried out by responsible agencies to locate anomalies in the development process and take steps to address them appropriately.

“... I can say that right now we are only reacting to the things; when it occurs we just make a move to correct it, like calling ECG to remove poles that are wrongly placed on roads...”(KR1-2014).

4.4. Demand Side Analysis

This section of the study discusses views of respondents interviewed in focused groups representing demand side actors. Consumers were interviewed in three separate groups. They include opinion leaders, women and men’s groups.

4.4.1. Development planning in ASEMA

The sub-section would discuss views of the focus groups to assess their knowledge of the development planning process from the consumer’s perspective; and further compare with responses from the key respondents. As stated in the methodology, the groups will be referred to in the study as FG1, FG2, or FG3. The groups expressed differing levels of knowledge of the development planning process. The FG1 expressed better knowledge and understanding of the process and shared bits of ideas on the topic. This is expressed as in the quote below;

“...usually a group comes around to collect views from the community, from us; they normally do it about three times before the plan is finalized...” (FG1, 2014).

A larger proportion of the participants in FG1, have either participated or been invited to a public hearing forum at least once. FG2, and FG3, however, did not appear to have sufficient knowledge of the development planning process. From the views of FG1, the development process as

expressed by the focused groups is similar to what was expressed by the key respondents. The group however drew attention to the composite programs that are developed out of prioritized activities.

“...after the activities have been accepted by opinion leaders, it is drafted into a final composite budget for the municipality...but when they organize one meeting they don't come to us again...” (FG1, 2014).

The composite Programs of Action (PoAs) according to the National Development Planning Commission, (2013), is formulated from a prioritised set of Programme activities and their cost. It is intended to enhance the achievement of the prioritised objectives of the plan for the Medium-Term period under the GPRS II. It provides the essential steps for ease of implementation, monitoring and evaluation. The PoA also helps to promote a cross departmental/sectoral approach towards problem solving in the districts. The group also indicated that the planning team does not return to them with activities that have been prioritised for validation with opinion leaders, even though in their view, that should be the ideal order.

4.4.2. Stakeholder involvement in development planning

This section will discuss responses from focus groups on the topic and compare with responses from key respondents. On this topic too, FG1 expressed better knowledge of stakeholder involvement than FG2 and FG3. Stakeholders mentioned by focus groups are again similar to that of the key respondents. Stakeholders include Ghana Education Service, Ghana Health Service, police service, municipal finance and budget officers and Ghana Fire Service.

“... we have seen Ghana Police, Fire Service, GES, health at the meeting, they are among the team that come...” (FG1, 2014)

They also expressed knowledge of people who participate in the public hearing meeting (diagnostic meeting). Some participants indicated having been invited or having participated in the public hearing meeting for the previous year. Participants at this forum listed include market queens, religious leaders and unit committee members. Others include traditional rulers, representatives of Landlords or Landladies and GPRTU representatives. On the specific role of ECG in the process, the group indicated that although they expect them to be included in the planning process, they do not seem to be involved. A member of FG1 stated outright that ECG does not get involved in planning processes in the municipality.

“...they invite the market queen, and association president like butcher’s association...” (FG2, 2014)

“...I was at the last public hearing, but I didn’t see ECG... I think the assembly didn’t invite them...” (FG1, 2014)

“... I hardly notice them, especially, electricity and water...” (FG1, 2014)

4.4.3. How electricity service provision is linked to development

This sub-section will also discuss views of focus group members on linkage between electricity service provision and development. Although all groups expressed differing views on this topic they all appeared to have quite an appreciable knowledge of how electricity is linked to development. FG1 sees electricity as an essential source of energy that supports development as expressed by Osei et al (2012) in a policy brief that indicates that industries that contribute over 75% of GDP all depend on electricity as a major source of energy.

“... they are important, we use electricity for everything we do here in Ghana, offices, industries, home, they all use electricity...” (FG1, 2014)

All participants in FG1, FG2 and FG3 use electricity at home for domestic purposes. The larger proportion use electricity for lighting, and for powering communication and information gadgets such as television, radio and mobile phones. A few of them use electricity for cooking and laundry to a degree. Uses of electricity to participants are listed in



Table 12. Access to the use of electronic equipment such as mobile phones and television sets enhances the quality of life of consumers as expressed by (Azoumah *et al*, 2010). In the view of Azoumah *et al*, (2010), access to electricity enhances the HDI of individuals.

“... because we have electricity, we can watch TV, communicate using mobile phone, we have light too...” (FG2, 2014).

In relation to development planning in the municipality, FG1 indicated that ECG is considered only after the plan is done and specific developments require electricity supply. This often relates to connecting new communities to the grid. As discussed in section 4.3.2., ECG’s non participation in development planning process is an issue that relates to the Medium Term Development Planning Guideline (National Development Planning Commission, 2010).

4.3.4. Challenges

From the demand side, challenges listed hinged around the frequent power cuts experienced across the nation. Secondly, participants complained about low current levels or fluctuating current levels, which destroy electrical gadgets. The frequent power outages can be linked to a number of direct challenges within the power generation system. The 2012 annual report of the VRA outlined several challenges within the power generation system. These include, low power reserves, which has reduced from 15% to 5% over the years. According to the report, this was eroded mainly by the high growth in electricity demand estimated at about 10% per year and high GDP growth without a commensurate growth in generation capacity (Volta River Authority, 2012). Other challenges related to generation include 45% reduction in inflow of gas from Nigeria to support thermal power generation (Volta River Authority, 2012). The energy commission also outlines this challenge. The commission indicated that electricity supply is often insufficient due to unexpected shortage in gas volume supplied by Nigeria (Energy Commission of Ghana, 2012).

Table 12 displays a grid of responses obtained from respondent present for the focus group discussions.

“...the light offs are just too much...”(FG3, 2014)

“...you see it is not so much about the light offs, as for that we all know, but the low currents... they spoil all our gadgets...”(FG1, 2014)



Table 12: Response Grid – focused group discussion with demand side actors

Questions	FG1	FG2	FG3
Development planning in ASEMA	Has knowledge in indicated it is led by the municipal assembly	No idea	No idea
Stakeholder involvement in planning	Had knowledge of stakeholders and public hearing forums; some have participated	Non has participated but has fair knowledge of participants in public hearing	Non has participated but has fair knowledge of participants in public hearing
Uses of electricity	Domestic uses - Lighting - Powering refrigerator - TV set and sound system - Laundry - Charging phones - Commercial uses - Powering office computers, air conditioners, fridges, printers, lighting	Domestic uses - lighting - TV set and sound system - charging phones Commercial uses - powering office Commercial uses - power cutting tools - power drilling tools	Domestic uses - TV sets and sound system - laundry -cooking -lighting
Challenges	-Frequent power outages -Low currents	- Frequent power outages	- Frequent power outages
Effect of Challenges	- High cost of doing business due to the use of generator sets - Spends GHC 100.00 on fuel every 2 hours to power generator set. - Is unable to rely on refrigerator - Losses money when lights are out	- Work delays - Loss of valuable work hours - Losses money because hired labour is paid even no work done - High cost of using generator sets - Retards business	- High cost of using generator sets - cost lives, especially when lights go off in the middle of surgical procedures - delays work
Underlying causes of challenges	- Poor planning - Over reliance on hydro power - Power export	- Consumption overload	- Over reliance on hydro power - Poor planning

Source: Fieldwork (2014)

4.5. The place of Institutions in the electricity service market

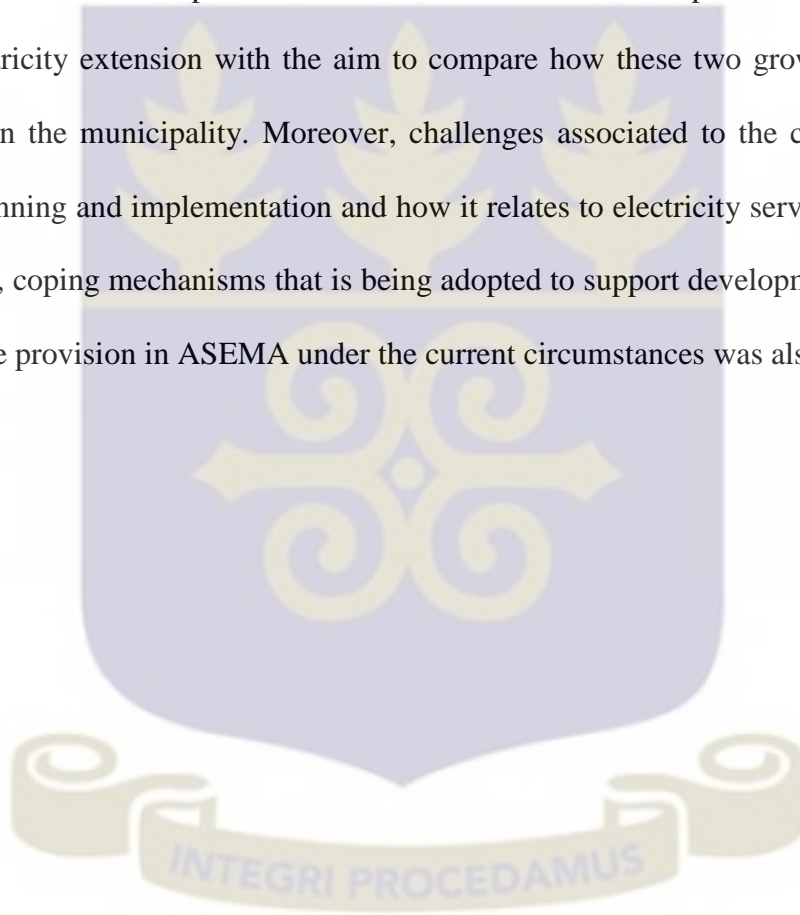
The conceptual foundation of the study gives a central position to institution. This was to indicate the importance of efficient institutional framework in facilitating an efficient service market. Efficient institutions are required to build, govern and regulate an efficient power market. The focus of the study therefore bordered on a basic function of institutions in the municipality to support the service market - planning. The main electricity service provider in ASEMA is ECG; however, there are other institutions that play complementary or supplementary roles in ensuring that the service provided in an efficient and satisfactory manner. It is therefore necessary to create synergy among planning of programs and projects by these complementary institutions. In addition, activities of the institutions also need to be conducted in synergy with one another.

However, from the study one clear deficiency of the service market in the municipality is poor planning coordination and collaboration to achieve a holistic development in the municipality. This results in a number of deficiencies in the service provision such as inability to satisfy consumer demands, high cost of service provision, and inappropriate installation of service equipment. Consumers are bedeviled with frequent power outages, and low current levels that affect economic activities and create dispassion for electricity service providers. With good synergy among the institutions right from planning to implementation, ECG can provide a more satisfactory service to consumers.

4.6 Conclusion

This chapter discussed results of the study under seven related themes. Themes considered include development planning in ASEMA; which sort to understand the process through which development planning is conducted. The next theme discussed stakeholder's involvement in development planning with the aim to situate the role of different institutions such as ECG in the

process. This was followed by a discussion on how electricity service provision is linked to development in the municipality with the objective of putting the importance of electricity service provision to development in the municipality in perspective. The discussion of the ideal situation was aimed at identifying the desired or preferred situation in relation to development planning, how it should be conducted and which stakeholders to involve in the process in order to achieve a holistic development. The chapter further discussed the relationship between infrastructural growth and electricity extension with the aim to compare how these two growth processes are being achieved in the municipality. Moreover, challenges associated to the current method of development planning and implementation and how it relates to electricity service provision was assessed. Finally, coping mechanisms that is being adopted to support development planning and electricity service provision in ASEMA under the current circumstances was also discussed.



CHAPTER FIVE

SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

5.1. Introduction

This chapter is in three sections. The first involves a summary of the key findings of the study, followed by the advancements of some recommendations based on the results obtained. The final section entails the conclusion of the entire work.

5.2. Summary of Key Findings

The study sought to identify the linkage between development planning and electricity supply planning in the Awutu Senya East Municipal Assembly. It further compared the rate of infrastructural growth and electricity supply extension. Finally, the challenges in the institutional framework supporting infrastructural development and electricity supply in the municipality were also examined.

5.2.1. Development Planning in ASEMA

Development planning in ASEMA is conducted based on the NDPC guideline for development planning at the district level. The process is initiated by the municipal coordinating office of the assembly. The first step of the process entails the establishment of a committee to facilitate the process. The team proceeds with the planning process by developing and administering questionnaires to elicit suggestions and development concerns from community members to be considered in the medium term plan. A public hearing known as diagnostic workshops to gather more suggestions of what to include in the plan follows the questionnaire administration. Results of the questionnaire administration and diagnostic workshops are further assessed and graded in priorities and developed into a draft medium term plan. Community members should validate this

draft, as per the directive of the development-planning guide. However, this stage is skipped due to financial constraints. The draft is forwarded to the NDPC for authentication. It is finally accepted and signed as an official document for the municipality. It is worth noting however, that plans of agencies such as ECG are not considered in the process. They do not also report to any authority in the district assembly.

5.2.2. Stakeholder Involvement

From the study, it is clear that efforts are made to make the medium term development planning process as participatory and inclusive as possible. However, the guideline supporting the process places limitations on the level of involvement of important agencies such utility service providers. As a result, ECGs participation in the planning process is minimal. This is compounded by ECG's status as an agency with delegated authority and discretionary powers in decision-making. Hence, even when the assembly decides to involve them in the planning process they sometimes do not participate.

5.2.3. Electricity service provision and development in ASEMA

There is a consensus on the importance of electricity service to development. Electricity is main source of energy used for lighting, powering domestic gadgets such as fridges, television, mobile phone, and commercial machinery for mass production. It is the energy backbone of the municipal economy and has impact on its economic progress. The missing link however, is that, electricity supply is not adequately factored into the development planning process in the municipality. ECG and the Assembly develop separate plans and implement them separately. The plans are not coordinated; neither do the two offices collaborate in developing the plans. This results in parallel activities, uncoordinated development implementation, repletion of activities that could have been conducted together. Its effect on the demand side is poor quality service such as low currents, and

frequent power outages. These two challenges translate into huge economic losses by consumers such as loss of work hours and low work outputs. This is expressed in Domfeh (2014) illustration of how in 2013 industries in Ghana complained that frequent power cuts because of a compulsory power-rationing scheme, disrupted their businesses and increased cost of production.

5.2.4. Challenges

Two levels of challenges were identified in the study. One level is on the weakness in the institutional set-up supporting electricity service delivery while the second borders on quality of service provided by the institutions to consumers. The supply side weaknesses relate to poor coordination of planning among the institutions such as the municipal assembly and ECG (service provider) to produce a more holistic development and reliable electricity service provision. The demand side challenges are offshoots of the weakness of the supply side. It bothers on low currents of electricity supplied to consumers and its unreliability.

5.3. Recommendations

Based on the finding of the study from both the supply side analysis and demand side analysis, the study recommends the following.

- Identify essential service providers and involve them in the development planning process.
- Harmonize plans of different agencies and departments into the composite plan of the municipality.

The NDPC guideline for medium term planning, places the mandate of development planning under the metropolitan, municipal or district assembly. The municipal assembly therefore initiates planning and constitutes the team that facilitates the process. In the process, it would be necessary to embark on activities that identify important service provision agents such as ECG and include

them in the process. The importance of these service providers to the development process should be made clear right from the start. Clear roles should be assigned to representatives from the service providers in the planning process to make them useful and create ownership. Creating a sense of ownership will help deepen collaboration opportunities and create the needed synergies among agencies and department involved in the planning process. This process will ensure that concerns of all relevant agencies are considered and factored into the planning process.

Secondly, it is clear all agencies and departments working in the municipality plan their activities by themselves. However, the plans are not coordinated neither is there collaboration during implementation. The municipal assembly could also adopt strategies to harmonize plans of all departments and agencies not forgetting utility service providers into the composite plan of activities that is developed alongside the medium term development plan. Finally, it would also be necessary to set up an office, or assign an office with the responsibility to coordinate development implementation in the municipality. Any department or agency that decides to embark on a major development project must do so under the supervision of the coordinator, to ensure development is conducted in synergy with activities of other agencies and departments.

5.4 Conclusion

Finally, the study sought to assess how institutions support service provision in the ASEMA. Specifically however, it assessed the link between development planning and electricity service provision. Attempt was also made to compare the rate of infrastructural growth and electricity service extension to the inhabitants and assessed challenges confronting electricity supply and development planning strategies in the municipality. From the study, it was established that electricity service provision could not be divorced from the development planning process in the municipality. Electricity as a utility service is the major source of energy that support both

economic and social lifeline of inhabitants of the municipality and therefore must form an integral part of the development process, and hence its planning. However, the study also discovered that there is weak linkage between the municipal coordinating office in-charge of development planning and service provider, ECG. This was attributed in part to weakness in the development planning guideline by NDPC, partly to failure on the part of the assembly to make efforts to involve relevant service agencies such as ECG and partly to the status of ECG as a decentralized agency with delegated powers.

Comparing infrastructural growth and electricity extension in the municipality, there was a major challenge in assessing data to make concrete analysis of the current situation, however, from discussion with relevant key respondents, it was clear that majority of inhabitants in the municipality have access to grid electricity. In addition, there is adequate capacity to provide electricity service to support further growth of the municipality even over the next five years. Regarding challenges, two major challenges were identified. These include poor collaboration among institutions to support development planning and poor coordination of planning and implementation by different agencies. Hence, the different agencies in the municipality, especially ECG and the assembly, work independent of each other. This is contributing to challenges consumers face regarding electricity service such as frequent power outages and low currents, which have major effect on economic activities in the municipality.

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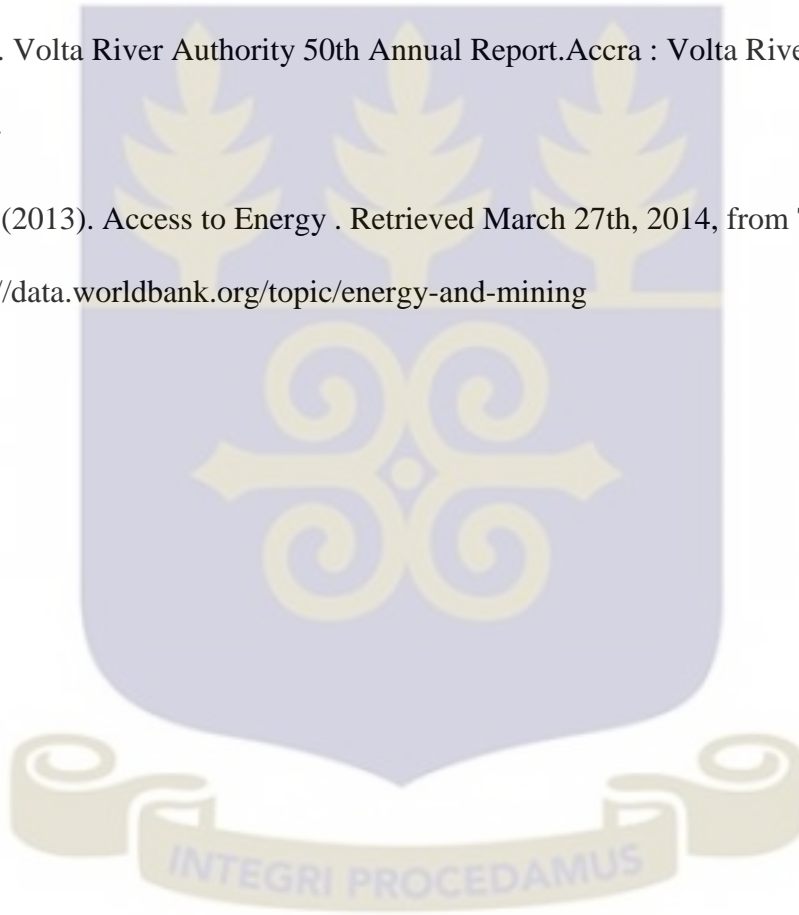
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APPENDIX 1: INTERVIEW GUIDE FOR MUNICIPAL ASSEMBLY

INTERVIEW GUIDE

Preamble: *this interview is an attempt to collect data for a dissertation that is “Examining the institutional framework for sustainable electricity supply in the midst of rapid urbanization in the Awutu Senya East Municipality” to be submitted in partial fulfillment for the award of MA in Development Studies at the Institute of Statistical Social and Economic Research (ISSER), University of Ghana.*

Your decision to grant this interview is considered a benevolent support to this academic work. All necessary permissions will be sort before this interview is undertaken. Choice of venue and time for the interview are to be made by the respondent; under no circumstances should the respondent feel coerced to grant the interview or feel obliged to answer any question against his or her will. The interview seeks to obtain in-depth understanding of the issues being discussed hence follow up questions would be posed as well based on responses to initial questions posed. Once again under no circumstances should the respondent feel coerced to answer any follow-up question against his or her desire to do so. Time period for the interview should be mutually agreed on before it begins however, if at any point in time the respondent wishes to withdraw from the engagement he or she is free is do so. Under such circumstances no interpretation would be made into the withdrawal beyond reasons that the respondent voluntarily gives before going away. Responses would be recorded through writing and use of voice recorders, respondents reserve the right to accept or decline the use of a recording medium.

1. Do you agree to grant this interview willingly? A) Yes [] b) No c) Not sure

2. Which of the means of recording do you accept or decline?

A) Notes taking i) accept [] ii) Decline []

B) Voice recording i) accept [] ii) Decline []

3. Is the timing convenient for the interview? i) Yes [] ii) No []

4. Is the venue convenient for the interview? i) Yes [] ii) No []

Sign here if you completely consent to the interview

(Respondent)

1. Personal details of respondent

a. Office of respondent:

Official functions of the respondent	
Maximum time of holding office	Role in development planning in the municipality

2. How development planning is conducted

Knowledge of any development plan for the municipality	Describe process of developing the plan
Name stakeholders involved	Support claim with documented <i>proof</i> (write name of document)
Knowledge of participation of electricity management office in the municipality in planning process	If yes, what role do they play in the process
How about Town and country planning officials	

3. How is development planning linked with electricity provision (planning, installation, extension, management)

What is working well with regards to linkages between development planning and development and electricity planning and extension?

What is not working well with regards to linkages between development planning and development and electricity planning and extension?

5. What should be the preferred state and / or procedure of development planning in the municipality?

--

6. Challenges / coping strategies of development planning

Challenges	Coping strategies

7. Other issues of development planning and infrastructural development planning



APPENDIX 2: INTERVIEW GUIDE FOR TOWN AND COUNTRY PLANNING

INTERVIEW GUIDE – (Town and Country Planning)

Preamble: *this interview is an attempt to collect data for a dissertation that is “Examining the institutional framework for sustainable electricity supply in the midst of rapid urbanization in the Awutu Senya East Municipality” to be submitted in partial fulfillment for the award of MA in Development Studies at the Institute of Statistical Social and Economic Research (ISSER), University of Ghana.*

Your decision to grant this interview is considered a benevolent support to this academic work. All necessary permissions will be sort before this interview is undertaken. Choice of venue and time for the interview are to be made by the respondent; under no circumstances should the respondent feel coerced to grant the interview or feel obliged to answer any question against his or her will. The interview seeks to obtain in-depth understanding of the issues being discussed hence follow up questions would be posed as well based on responses to initial questions posed. Once again under no circumstances should the respondent feel coerced to answer any follow-up question against his or her desire to do so. Time period for the interview should be mutually agreed on before it begins however, if at any point in time the respondent wishes to withdraw from the engagement he or she is free is do so. Under such circumstances no interpretation would be made into the withdrawal beyond reasons that the respondent voluntarily gives before going away. Responses would be recorded through writing and use of voice recorders, respondents reserve the right to accept or decline the use of a recording medium.

1. Do you agree to grant this interview willingly? A) Yes [] b) No c) Not sure
2. Which of the means of recording do you accept or decline?
 - A) Notes taking i) accept [] ii) Decline []
 - B) Voice recording i) accept [] ii) Decline []
3. Is the timing convenient for the interview? i) Yes [] ii) No []
4. Is the venue convenient for the interview? i) Yes [] ii) No []

Sign here if you completely consent to the interview

(Respondent)

1. Personal details of respondent

b. Office of respondent:

Official functions of the respondent	
Maximum time of holding office	Role in development planning in the municipality

Obj. 1

2. How planning is done

Knowledge of any development plan for the municipality	Describe process of developing the plan	
Name stakeholders involved	Support claim with documented <i>proof</i> (write name of document)	
How is infrastructural development planning done (process)	Who is involved	
How infrastructural planning linked to electricity planning and extension		
What is working well with regards to linkages between infrastructural planning and development and electricity planning and extension?		

What is not working with regards to linkages between infrastructural planning and development and electricity planning and extension?

Obj. 2

2. Status of infrastructural development and electricity extension

Number of housing facilities available

a. **Before 2012:**

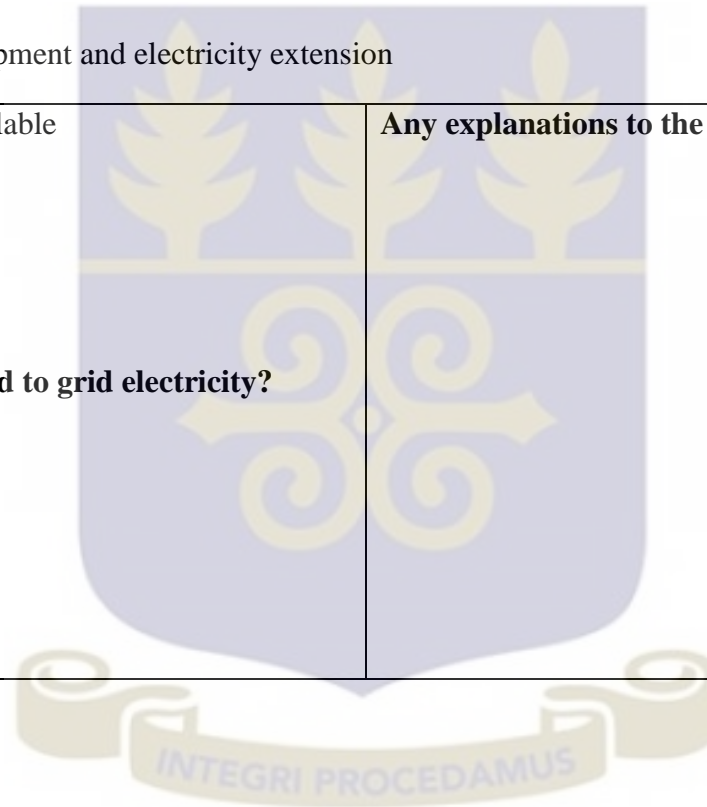
b. **After 2012:**

c. **Projections:**

% of housing facilities connected to grid electricity?

Projections

Any explanations to the data



3. How does electricity development planning and distribution relate to infrastructural development planning in the municipality?

Empty rectangular box for response.

Obj. 3

4. What should be the ideal status of electricity supply planning, and development?

--

5. Challenges / coping strategies of electricity supply planning

Challenges	Coping strategies
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6. Issues of development planning and infrastructural development planning



APPENDIX 3: ELECTRICITY COMPANY OF GHANA (ECG)

INTERVIEW GUIDE

Preamble: *this interview is an attempt to collect data for a dissertation that is “Examining the institutional framework for sustainable electricity supply in the midst of rapid urbanization in the Awutu Senya East Municipality” to be submitted in partial fulfillment for the award of MA in Development Studies at the Institute of Statistical Social and Economic Research (ISSER), University of Ghana.*

Your decision to grant this interview is considered a benevolent support to this academic work. All necessary permissions will be sort before this interview is undertaken. Choice of venue and time for the interview are to be made by the respondent; under no circumstances should the respondent feel coerced to grant the interview or feel obliged to answer any question against his or her will. The interview seeks to obtain in-depth understanding of the issues being discussed hence follow up questions would be posed as well based on responses to initial questions posed. Once again under no circumstances should the respondent feel coerced to answer any follow-up question against his or her desire to do so. Time period for the interview should be mutually agreed on before it begins however, if at any point in time the respondent wishes to withdraw from the engagement he or she is free is do so. Under such circumstances no interpretation would be made into the withdrawal beyond reasons that the respondent voluntarily gives before going away. Responses would be recorded through writing and use of voice recorders, respondents reserve the right to accept or decline the use of a recording medium.

1. Do you agree to grant this interview willingly? A) Yes [] b) No c) Not sure

2. Which of the means of recording do you accept or decline?
 - A) Notes taking i) accept [] ii) Decline []
 - B) Voice recording i) accept [] ii) Decline []

3. Is the timing convenient for the interview? i) Yes [] ii) No []

4. Is the venue convenient for the interview? i) Yes [] ii) No []

Sign here if you completely consent to the interview

Personal details of respondent

a. Office of respondent:

Official functions of the respondent	
Maximum time of holding office	Role in development planning in the municipality

7. How planning is done

Knowledge of any development plan for the municipality	Describe process of developing the plan	
Name stakeholders involved		Support claim with documented <i>proof</i> (write name of document)
Knowledge of participation of electricity management office in the municipality in planning process	If yes, what role do they play in the process	

8. Status of electricity extension

Length of electricity lines installed d. Before 2012: e. After 2012: f. Projections:	% coverage of municipality a. Before 2012: b. After 2012: c. Projections:
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9. How does electricity development planning and distribution relate to infrastructural development planning in the municipality?

10. What should be the ideal status of electricity supply planning, and development?

11. Challenges / coping strategies of electricity supply planning

Challenges	Coping strategies
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12. Issues of development planning and infrastructural development planning