ADDIS ABABA UNIVERSITY
COLLEGE OF SOCIAL SCIENCES
SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF GEOGRAPHY AND ENIVAROMENTAL STUDIES

ANALYSIS OF ACCESSIBILITY OF URBAN HOUSEHOLDS TO SELECTED PUBLIC SERVICES IN SUMMIT CONDOMINIUM HOUSING, ADDIS ABABA

BY

AZIZ TSEHAY

A THESIS SUBMITTED TO ADDISABABA UNIVERSITY IN PARTIAL FULFILLMENT FOR THE DEGREE OF MASTER OF ARTS IN GEOGRAPHY AND ENVIRONMENTAL STUDIES

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ADDIS ABABA

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Content

List of figures

List of tables

Acronyms and Abbreviations

AACA:	Addis Ababa City Administration
AACACAILIC:	Addis Ababa City Administration Integrated Land Information Center
AACG:	Addis Ababa City Government
AACRT:	Addis Ababa City Road and Transport Authority
AAWSA:	Addis Ababa Water and Sewerage Authority
ABS:	Australian Bureau of statistics
AHO:	Africa Health Organization
AU:	The Africa Union
BOFED:	Bureau of Finance and Economic Development
CSA:	Census Statistical Authority
CSP:	Country Strategy Paper
CWA:	Common Wealth of Australia
DRC:	Democratic Republic of Congo
EEPCO:	Ethiopia Electricity Power Corporation
EEU:	Ethiopian Electric Utility
EPSU:	European Federation of Public Service Unions
ERA:	Ethiopia Road Authority
FEDB:	Finance and Economic Development Bureau
FMoH:	Federal Minster of Health
GTP:	Growth and Transformation of Plan
HEP:	Health Expansion program
HEW:	Health, Education and Welfare
IBRD:	International Bank of Reconstruction and Development
IEA:	The International Energy Agency
METEC:	Metals and Engineering Corporation
MDG:	Millennium Development Goal
MOH:	Minister of Health
NGO:	Nongovernmental Organization
OECD:	Organization for Economic Co-operation and Development

PACSP:	Population Affairs Coordination Sub Process
PBS:	Promoting Basic Services Program
PVC:	polyvinyl chloride
UN:	United Nation
UNECA:	United Nations Economic Commission for Africa
WEO:	World Energy out look
WHO:	World Health Organization
WSA:	Water and Sewerage Authority

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ABSTRACT

The purpose of the study was to analyze the Accessibility of Public Services to Urban Households at Summit Condominium Housing Site. That means, this study was intended assess the physical infrastructure of public services, identify the accessibility of public services, investigate to the satisfaction of customers, analyze supply and demand of public services and to find out the factors that affects the accessibility of public services.

In order to achieve the objectives well, the essential data were collected from primarily and secondary sources. The Primary data were gathered from the dwellers of Site by means of questionnaire survey, Key Informant Interview (KII) and field observation. Hundred household heads were selected by systematic random sampling technique and ten experts were selected by purposive sampling technique. Secondary data were obtained from different government sectors such as Addis Ababa Water and Sanitation, Addis Ababa Water and Sanitation Gured Shola Branch, Ethiopian Electric Utility, Ethiopian Electric Utility Eastern Addis Ababa Region, Addis Ababa Health Office, Summit Health Center, Addis Ababa Road and Transport Authority and Bole Transport Office.

The collected data were qualitative and quantitative. When the data was analyzed the following method was used; fully mixed concurrent equal status designs quantitative and qualitative phases occur at approximately the same point in time, with both phases being given approximately equal weight and mixing occurring within or across the data collection, analysis, and interpretation stages.

Thematic analysis and descriptive statistics were employed to analyze qualitative and quantitative data respectively. This was done by using descriptive statistics, such as frequency, percentage and mean; inferential statistics specifically used standard deviation.

The result of the analysis revealed that the different stakeholders (almost all under government) involved in delivering public service at Summit Condominium House Site, but the supply of public services was not much with the demand of clients (demand of services greater than supply of service delivery)and also there are some limitations on quality and quantity of physical infrastructures.

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Public service is defined in different ways by different authors. For example; Public services are defined as those services which are mainly, funded by taxation. Government delivery public services are differing from commercial private-sector services in a number of ways. Government involvement most typically would include public management in central and local government, the health authorities, and education, defense, justice and noncommercial semi state organizations in order to deliver services to satisfy peoples demand. However, private sector also involve in provision public services in search for profit (Humphreys. 1998). Martin (2004) demonstrated that of public services are commonly concerned with health care, education, water and sanitation, and electricity, is that governments have public responsibility for them.

The public service in a democratic developmental state essentially focuses not only on the delivery of services, but it is also crucial for economic and social development. It contributes to development by providing the essential services and basic infrastructure necessary to help spur economic development and improve the lives of communities, especially poor communities. This primarily is done through regulating, administering and follow executing, delivery infrastructure and encouraging investment. At the second level done maintenance and servicing of service, and then ensuring the public service are operationally and functionally oriented in a way that services (Fakir, 2007).

In contrary of developed states, developing world public services are not adequately available to household. According to World Bank (2012) inadequate infrastructure is a constraint on growth worldwide, and particularly in developing countries. Infrastructure services are often inadequate to meet demand, resulting in congestion or service rationing. Infrastructure services are also often of low quality or reliability, while many areas are simply un-served. The poor infrastructure performance reflects pervasive challenges facing governments. This happens in ways that first; most countries simply are not spending enough to provide the infrastructure needed. Secondly, poor planning and coordination, weak analysis underpinning project selection,

pursuit of political gain, and corruption, mean that the limited resources are often spent on the wrong projects. Moreover, the delivery of infrastructure assets and services often disappoints construction of new assets costs more and takes longer than expected, and service delivery is weak. Finally, infrastructure assets are often poorly maintained, increasing costs and reducing benefits.

Governments and citizens use a variety of methods to delivering public services like central government provision, contracting out to the private sector and NGOs, decentralization to local governments, community participation, and direct transfers to households. There have been spectacular successes and miserable failures when applied in developing country. Both points to the need to strengthen accountability in three key relationships in the service delivery chain: between poor people and providers, between poor people and policymakers, and between policymakers and providers. Foreign-aid donors should reinforce the accountability in these relationships, not undermine it (World Bank, 2004).

Ethiopia in Promoting Basic Services Program formerly the Protection of Basic Services Program is a nationwide program that aims to contribute to (i) expanding nationwide access to basic services notably education, health, water supply, sanitation, rural roads and agricultural extension services, and (ii) improving the quality of these services. It funds block grants that support adequate staffing and recurrent expenditures for these services, accompanied by measures to promote transparency and accountability at the woreda (district) level. It has also helped to strengthen the decentralized public financial management system and supports local civil society organizations that improve opportunities for citizens to provide feedback on service delivery to local administrators and service providers (PBS, 2013).

1.2. Statement of the Problem

Public services such as water, electricity, health and transport are very important for better life and essentially supplied efficiently and continually to each households (Butterworth *et .al,* 2013; Temesgen, 2006). In Ethiopia the accessibility of these public services is gradually increasing. However, the accessibility still now does not match with the demand of households

Addis Ababa has been facing different challenges that include insufficient and sub-standard infrastructure provisions of electric grading, health institution, portable water and road infrastructure; insufficient public facilities and acute shortage of water, electricity, health and transport. All these, in fact, are show in deprived poverty status of the metropolis. In order to minimize these challenges, an enormous effort has so far been made by the city government even though they are not adequate (BOFED, 2010; Tolon, 2008 ;).

The supply of adequate, quality, and safe drinking water is a basic need for every human being. However, many people particularly in developing nations lack access to quality and adequate water services which affects their life in many different ways (Tamirat, 2014). In the context of Addis Ababa, water supply service is poor. At the moment, Addis Ababa city which accounts for over a quarter of the nations urban population is facing unreliable and inadequate supply of water (Kinfe and Berhanu, 2013).

The electric power supply obviously, sustained and concerted efforts such as: increase in supply, upgraded including rehabilitation of power infrastructure, implementation of demand-side management and energy efficiency programs, use of cost reflective tariffs and others such as decentralization of EEPCo's operations, are necessary to improve quality and reliability of services. EEPCo's great majority of power load comes to Addis Ababa. The capital city is the national leader in terms of average monthly energy expenditure and its share in the overall monthly household budget. The City, Ethiopia's economic hub, however is not free from daily power crises, unscheduled blackouts, and low quality power supply was happened (Dave, 2010).

In Addis Ababa currently the new construction of roads are increase and also maintaining the existing ones is increasing throughout years but it needs more effort to gain a good

infrastructures in the city. On the other hand the delivering of public transportation is a low quality because of the limited number of buses and taxis, poor management, and poor driving ethics of drivers (FEDB, 2002; Yonas, 2014).

However, Ethiopia as well as Addis Ababa shows good progress on provision of health services, more and more efforts have to be executed by the concerned organizations to bring about an equitable distribution of health services and health resources and focus on the quality of services delivery (FEDB, 2002; Challi et, al. 2004).

Therefore, Summit Condominium Housing Site is one of the part of the city and isn`t far from the reality of Addis Ababa public services provision. Thus, the main intention of this study was to analysis the accessibility of basic public service to households particularly provision of water, electricity, health and transport. Moreover, the analysis was made focusing on the condition of physical infrastructures they are listed above.

1.3. Objectives of the Study

1.3.1. General objective

The general object of this study is to analyze the actual accessibility of selected public services at Summit Condominium Housing, Bole Sub-city and measuring the physical accessibility of the public services.

1.3.2. Specific objectives

More specifically, the study is aspired to:

- Assess the extent in which physical infrastructures are developed at Summit Condominium Housing Site
- Identify the actual supply of water and electricity to households; health and transport services to society at Summit Condominium Housing Site dwellers
- Investigate the satisfaction of Summit Condominium Housing Site dwellers on provision of public services
- Explore supply and demand of dwellers of public services.
- Find out the major factors that affect the accessibility of public services

1.4. Research question

The main purpose of the study is answering the following questions which are driven from the objective stated above.

- In what range developed the physical infrastructure of public services at Summit Condominium Housing Site?
- What are the actual provisions of public services at Summit Condominium housing Site?
- How much proportional demand and supply of public services?
- What are the factors that affect the access of public services?
- To what extent the dwellers are satisfied by provision of public services

1.5. Scope and Limitations of the Study

It would have been more comprehensive if the scope of the study was wide and detail more. However, because of time and resources constraint, the spatial scope of this study is limited at Summit Condominium Housing Site. The study focuses on analysis of households to public services mainly water, electricity, health and transport at Summit Condominium Housing Site.

When the study took place it had faced with different challenges such as shortage of time. Some of respondents were not willing to fill the questioners. Addis Ababa Transport and Road Authority (AART) and AART Bole Branch and Health Center of Summit had also no well-organized data. The researcher could not obtain the data from health center about children and maternal mortality rate per year because of this cannot compute the annual children and maternal mortality rate. Bole Branch Transport Bureau had not detail descriptions of road design on the study such as width of road and pedestrian lane, serving time and the maintenance period that were made constrain on data analysis.

1.6. Significance of the Study

The accessibility of households for water, electricity and health services are very essential, it makes life better and easy for modern society. The research analyzed the actual accessibility and demand of the summit dweller for services. There for, research is supposed to first serve as input for others further researches which take place at national and Addis Ababa level; second, findings out will be fulfill the gap of information of concerned managers and planners of Bole sub-city; and third, important for dweller to appeal to government and non- government body supported by relevant figure or to find a solution by themselves.

1.7. Data Validity and Reliability

Reliability and validity are the two most important and fundamental techniques of any research measurement procedure. As Golafshani (2003) cited in Joppe (2000) the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable. (Ayodele, 2012) cited in McBurney & White (2007) view validity as an indication of accuracy in terms of the extent to

which a research conclusion corresponds with reality. The foregoing suggests that validity hinges on the extent to which meaningful and appropriate inferences or decisions are made on the basis of scores derived from the instrument used in a research.

Validity is important instrument for all research. Therefore, the researcher attempt to keep validity of study as followed. First, the research question emanated from research objective in order to keep consistency the research objective and research question. Second, reviewed many conceptual and empirical literatures on the problem issued in order to incorporate major concepts in data generating instruments, which enabled to investigate the issue in comprehensive way. Third, the researcher observed methodological aspects on previous researches and scholarly articles written in Ethiopia and abroad to keep constructive validity of the study

Fourth, to check validity of the items, the questionnaire was given to advisor. Then, based on the comment vague words and ambiguous statements were corrected and the necessary re-arrangement and refinement of the questionnaire was made. Some relevant items were added while irrelevant ones were discarded. After preparing both the questionnaire and the interview questions in English and then reviewed by important persons (my friend English teacher). Then the instruments was translated in to Amharic and again assessed by my friends who are from language department. Accordingly, all the record modifications were also made.

Fifth, the researcher carried out a pilot survey through data collector to check the validity and reliability of questionnaire in order to implement useful and valuable questionnaire to respondent which was taken place before implementation of actual questionnaire. The pilot survey is important to reduced error of data.

1.8. Ethical Consideration

A written letter from school of Geography and Environmental studies of Addis Ababa University was to the concerned body to get approval for collecting the data. Moreover, the researcher prepared an informed consent to be read by assistant data collectors to each respondent before starting data collection. The informed consent form was prepared based on the ethical principles of confidentiality, privacy and used only for the research purpose.

Researcher informs objective of study and announce importance of the result to informant and interviewees. Data collector would have smart approach with them and explain in easy way. In addition to that, when data generate from respondent was keep their confidentially, not transfer their personal information to others bodies without willingness of them.

1.9. Organization of the Thesis

This thesis has basically attempted to describe the accessibility of public services at summit condominium housing Site. The first chapter of the thesis centered on the introduction, the rationale, statement of the problem, objectives, research questions, study area and methods of research, significance, scope and limitations, data validity and reliability, ethical consideration and organization of the study. The second chapter also contains literature review which is directly related with accessibility household to public services namely water, electricity, health and transport are elaborate and explain as far as possible by related documents. Chapter three is consists description of the study area and methods and materials. The method of research which uses to collect data from target sources of data. That collected data manly analysis, interpret and presentation on in chapter four. Chapter five, it is focuses on list dawn on finding out of study about public serves in Summit Condominium Housing Site. This chapter mainly deals with summary, conclusion and recommendation.

CHAPTER TWO: RELATED LITERATURE REVIEW

2.3. Theoretical Literature Review

2.3.1. The concept of household and public services

Many authors wrote about public services. Among them Zann,L and Zann,S (2008) and World Bank (2008) stated that public services are very essential and indicator of national economic growth, it has a great impact on the standard of living. Public services (infrastructures) are the basic framework for delivering energy (electricity), transport, water, and others to people direct or indirectly affect people's lives everywhere. Access to public services in urban resident such as provision of electricity, water, and transport are much low in low income countries than do their in middle income countries (Garmendia *et. al*, 2004).

Public services are delivered and owned by government and private. Many scholars wrote on the compare private with government which is effectively provide services, for instance, EPSU (2014) unlike the private sector, public service systems cannot be blindly guided by the financial performance of individual organizations. These public objectives also need to be achieved as efficiently as possible and so technical efficiency remains important.

Public services need to include structures which ensure that the public objectives are constantly reinforced and monitored by democratic mechanisms of accountability and involvement of the public. Such mechanisms include formal accountability to elected public bodies, such as municipalities or governments; structures for public participation in decision-making, including full transparency of information; and active involvement of representative organizations, such as community associations. The achievement of public objectives is weakened where the private sector is involved (EPSU, 2014).

Household has definition in vary from country to country, scholar also define in different way. According to Beaman and Dillon (2010) define in four way the first definition: A household is composed of the group of people living in the same dwelling space and who acknowledge the authority of a man or woman who is the head of household. Second definition: A household is composed of the group of people living in the same dwelling space who eat meals together and acknowledge the authority of a man or woman who is the head of household. third definition : A

household is composed of the group of people living in the same dwelling space who have at least one common plot together or one income-generating activity together (for example, herding, business, or fishing) and acknowledge the authority of a man or woman who is the head of household. Fourth definition : A household is composed of the group of people living in the same dwelling space who eat meals together and have at least one common plot together or one income generating activity together (for example, herding, business, or fishing) and acknowledge the authority of a man or woman who is the head of household.

A household includes all of the people who occupy a housing unit. One person in each household is designated as the householder. In most cases, this is the person, or one of the people, in whose name the home is owned, being bought, or rented. If there is no such person in the household, any household member 15 years old and over can be designated as the householder (Lofquist *et. al.*, 2010). A family consists of a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. Biological, adopted, and stepchildren of the householder who are under 18 are the own children of the householder. Own children do not include other children present in the household, regardless of the presence or absence of the other children's parents (Lofquist *et. al*., 2010).

A family household may also contain people not related to the householder. A family in which the householder and his or her spouse of the opposite sex are enumerated as members of the same household is a husband-wife household. In this report, husband-wife households only refer to opposite-sex spouses and do not include households that were originally reported as same-sex spouse households. Same-sex spousal households are included in the category, "same-sex unmarried partner households" but may be either a family or nonfamily household depending on the presence of another person who is related to the householder. The remaining types of family households not maintained by a husband-wife couple are designated by the sex of the householder. A nonfamily household consists of a householder living alone or with nonrelatives only, for example, with roommates or an unmarried partner (Lofquist *et. al*., 2010).

2.3.2. **Public Services vs Physical Infrastructure**

Infrastructure is the prerequisite for the development of any economy. Transport, telecommunications, energy, water, health, housing, and educational facilities have become part and parcel of human existence. It is difficult to imagine a modern world without these facilities. These are vital to the household life as well as to the economic activity. Infrastructure plays a crucial role in promoting economic growth and thereby contributes to the reduction of economic disparity, poverty and deprivations in a country. Greater access of the poor to education and health services, water and sanitation, road network and electricity is needed to bring equitable development and social empowerment. It is an important pre-condition for sustainable economic and social development (Srinivasu and Irao, 2013).

Water infrastructure*:* Adequate and well-maintained water infrastructure is a necessary condition for economic growth and poverty reduction. From water supply and sanitation to irrigation, flood control and hydropower, investments in water infrastructure need to keep up with global demand. New systems must be built for growing and urbanizing populations, changing consumption and income patterns, and food and energy security demands. At the same time, deteriorating structures require rehabilitation just to maintain current levels of service (Rodriguez *et. al*., 2012).

Electricity infrastructure: The electricity system cannot function without its distribution and transmission networks and the services they provide. Today and over the long term, the way these networks operate and develop will determine the cost-efficiency and reliability of overall electricity systems as they continue to decarbonize. Hence the importance of electricity networks in the overall electricity system. Policies to promote market liberalization and to introduce economic regulation of networks have fundamentally changed the way we use network services; more dynamic and regional power flows have emerged while increasingly effective regulatory arrangements have increased the use of network capacity. These results have created new hurdles for maintaining reliability, and also raise new investment challenges. These challenges are now magnified by the large-scale introduction of variable renewable generation, on both the transmission aspect and at the distribution level (IEA, 2013).

Transport infrastructure: Accessibility (people's ability to reach desired activities) and mobility (physical movement) provide benefits to society, including direct benefits to users (people engaged in the transport activity) and external benefits. Most economic and social activities involve transport and some, such as a life-saving trip to a hospital or delivery of valuable goods, have extremely large benefits. However, the existence of such benefits does not mean that all travel provides net benefits (benefits exceed costs) nor that increased mobility is necessarily desirable. Beyond an optimal level, additional mobility provides declining and eventually negative marginal benefits. Nobody would spend all their time and money on travel, nor should a community devote excessive resources to transport facilities (www.vtpi.org/tca/tca07/Issued- on March 2015).

2.4. **Empirical Literature**

2.4.1. **Accessibility of Water in Addis Ababa**

Most urban households had improved water sources including water piped into the compound 49 percent and water from public tap 33 percent. Most rural households had non-improved sources such as rivers, lakes or ponds 34 percent or unprotected wells and springs 29 percent. Twenty-one percent of rural households have access to piped water or water from a tap. While 31 percent of respondents considered their drinking water unsafe, 91 percent did nothing to treat the drinking water. Time to the source of drinking water varied between urban and rural areas. Most urban households 82 percent took less than 10 minutes to and from the source of their drinking water and 8 percent travelled 30 minutes or more to and from the source. By contrast, 28 percent of rural respondents spent less than 10 minutes in fetching water and 48 percent spent 30 minutes or longer. Eighty-nine percent of respondents report that they fetch water for their household, 86 percent of urban women and 90 percent of rural women (CSAE and ORC Macro, 2006).

A. Sources of water and its distribution at Addis Ababa

Addis Ababa as a capital city of Ethiopia and the site of AU must be obtained enough water. So it is access water from different source of water bodies. The main source of the city water is being extracted predominant from three surface water reservoirs called Legedadi, Gefersa and Dire supported with different wells and springs (Shimeles, 2011)

At present Gefersa Dam has a reservoir capacity of 6.5 million cubic meters and the maximum capacity of the treatment plant is 30,000 m^3 of water per day. Due to rapid growth of the population and expansion of the city from year to year, there is a serious shortage of water in different parts of Addis Ababa. To alleviate the problem Legedadi and Dire Dams were built in 1970 and 1999 at about 33 km east of Addis Ababa. The treatment capacity of Legedadi plant was upgraded from 50,000 m^3 to 150,000 m^3 of water per day. The Dire Dam supplies 42,000 m^3 of water per day for Legedadi plant, since 1999. In 1940 Aba Samuel Dam was built on the Akaki River, 30 km south of Addis Ababa. The dam has a storage capacity of 65 million cubic meters and an annual output of 23 million kilo watt hr (UN HABITAT, 2003) in cited (Berhane, 1982).

The reservoirs are fully allocated for water supply to Addis and all the available water is being used. In the last 15 years, little capital investments were made in urban water supply, As a result, water demand in Addis has remained suppressed, with a current supply demand gap of about 40-50percent (UN Habitant, 2003) in cited (Tekle, 2008). Almost all the households 98.8 percent obtain their water within one hour, a substantial proportion of them 90.5 percent collect their water within 15 minutes. A very small proportion of the households 1.2 percent require more than 60 minutes collecting water. However, most households in Addis Ababa 89.1 percent pay for water. Almost all the households 96.2 percent with improved water pay for it on a monthly basis. About one in five households spend more than 10 percent of their income to access improved water, which indicates that the water is too expensive for some of them. In other terms, less than three quarters 73 percent of households have access to improved water. Furthermore, when the quantity of water is taken into consideration, less than 50 percent of the households have access to sufficient and affordable improved water. The sub-city of Bole has the

highest level 69 percent of access to improved water, while Akaki Kaliti has the least 25 percent (UN Habitant, 2003).

According to AAWSA (2006) in cited Shimeles (2011) at present 324 km^2 out of 540 km^2 total area of the city (60 percent) are served with water. Water demand and Consumption One of the difficulties faced by the water authority is determining the accurate water demand of the city as the consumption during the past years that should have been used as a base is far below the actual demand due to the shortage of water. Consumption of water for the city is therefore estimated based on the amount supplied rather than the actual demand. For these reason estimate of the future demand by the water authority is found to be uncertain. People having in-house services that are estimated about 4% of the total population use water on average between 80 and 100 liters per capital per day, while the remaining populations with access to safe drinking water (94 percent) are served by yard connection and use 15 and 30 liters per capital per day. Non domestic uses excluding industrial and industries water use are about 25 liters per capital per day and 7 liters per capital per day respectively. From the water used by industries about 40% is provided by the water authority while the remaining amount is produced by the industries themselves from deep wells (Shimeles, 2011).

Water is one of the basic necessities of human life and supply of clean water is absolutely necessary for healthy life. In Addis Ababa, water both for household and industry consumption is provided by Addis Ababa Water and Sewerage Authority. In 2001, the authority has an average capacity of accessing 92 $mil.m^3$ of water to the city and this capacity has been increasing over the last five years. Distribution of drinking water by source for households is also considered as one of the indicators for various policy interventions. According to Addis Ababa food security and vulnerability study by UNICEF (2001), almost all households (99.6%) have access to safe water and only (0.4%) use unprotected water sources. Out of the safe water sources; 17% from piped water inside the house, 48% from piped water outside the house, 35% from a communal tap /bono/ (AACG, 2010).

B. Standard of water supply

A Households is considered to have access to improved drinking water if it is has sufficient amount of water (20 Liters/day/person) for family use, at an affordable prices(less than 10% of total household income). Available to household member without binge subject to extreme effort(less than 1 hour) a day minimum sufficient requirement, especially to women and children (UN Habit, 2003)in cited Welday (2005) on the other hand a minimum quantity of 25 liters of portable water per person per day provide at a minimum flow rat of not less than 10 liter per minuets with the source being availability within 100 meters from household and the supply not interrupt for more than seven day per year (i.e. water household be available 98% percent of time) is consider as a basic for south Africa cities domestic water supply (Wallingford, 2003)cited in (Welday, 2005).

According to Gleick (1996)cited in Brown and Matlock (20110) developed a water scarcity index as a measurement of the ability to meet all water requirements for basic human needs drinking water for survival, water for human hygiene, water for sanitation services, and modest household needs for preparing food. The proposed minimum amount needed to sustain each is as follows.

1. Minimum drinking water requirement: Data from the National Research Council of the National Academy of Sciences was used to estimate the minimum drinking water requirement for human survival under typical temperate climates with normal activity is about 5 liters per person per day.

2. **Basic requirements for sanitation:** Taking into account various technologies for sanitation worldwide, the effective disposal of human wastes can be accomplished with little to no water if necessary. However, to account for the maximum benefits of combining waste disposal and related hygiene as well as to allow for cultural and societal preferences, a minimum of 20 liters per person per day is recommended.

3. Basic water requirements for bathing: Studies have suggested that the minimum amount of water needed for adequate bathing is 15 liters per person per day Brown and Matlock (2010) cited (Kalbermatten *et. al*., 1982; Gleick 1993).

4. **Basic requirement for food preparation:** Taking into consideration both developed and underdeveloped countries, the water use for food preparation to satisfy most regional standards and to meet basic needs is 10 liters per person per day.

The proposed water requirements for meeting basic human needs gives a total demand of 50 liters per person per day. International organizations and water providers are recommended to adopt this overall basic water requirement as a new threshold for meeting these basic needs, independent of climate, technology, and culture (Gleick, 1996)cited (Brown and Matlock 20110). Both Falkenmark and Gleick developed the benchmark indicator of 1,000m^3 per capita per year as a standard that has been accepted by the World Bank (Gleick, 1995; Falkenmark and Widstrand, 1992).

According to MoFED (2010) Implementations of water supply throughout GTP schemes had been implement for sustainable supply of water depend on demand of societies. To ensure this plan use feasible technologies in order to improve the water supply coverage and its accessibility. Implement active management and operation mechanisms in existing water facilities before new schemes began construction. In addition, to that fulfill the basic households demand take care of the existing water accesses and ensure economic use of water which means give reward in the form of fee for supplier of water. Focus on capacity building at all levels of water resources management and give priority to low cost schemes when operating any water project. Implement such as cost recovery in urban water supply is would be done through implementation of GTP.

2.4.2. **Electricity supply in the world**

For decades, access to modern forms of energy has been a structural constraint to socioeconomic development in the developing world, thus recently, energy access has become a part of the global policy priority agenda. This policy prioritization seems to be informed by the realization that the achievement of development milestones are linked to access to energy services. The International Energy Agency (IEA) stipulates that to meet Millennium Development Goals (MDGs) by 2015, it will be necessary to extend access to clean energy to 395 million more

people, and clean cooking facilities to over 1 billion people worldwide. This will perhaps require an additional investment of $41billion per year between 2010 and 2015 (WEO, 2010) cited (UNECA, 2014).

Globally, over 1.3 billion people lack access to electricity, and 2.7 billion lack clean cooking facilities, concentrated largely (95 percent) in Africa and developing Asia, particularly (84 per cent) in rural areas. The IEA states that even with an investment of $14 billion per year between 2010 and 2030 for on-grid electricity connections, 1billion people will still be without electricity, and with population growth, billions will still live without access to clean cooking facilities by 2030. Some $48 billion per year would need to be invested from 2010 to 2030 to achieve universal access to modern energy, with the bulk of the investment going to Africa(WEO, 2011)cited (UNEA, 2014).

The International Energy Agency (IEA) estimates that 1.5 billion people lacked access to electricity in 2008, more than one-fifth of the world's population. Some 85 percent of those without electricity live in rural areas, mainly in Sub-Saharan Africa and South Asia. There are large variations in electrification rates across and within regions. Transition economies and countries belonging to the Organization for Economic Cooperation and Development (OECD) have virtually universal access. North Africa has an access rate of 99 percent, Latin America 93 percent, East Asia and the Pacific 90 percent, and the Middle East 89 percent. By contrast, South Asia has an electrification rate of 60 percent and Sub-Saharan Africa only 29 percent. The populations without electricity in these two regions account for 83 percent of the total world population without electricity. Sub-Saharan Africa has by far the lowest urban and rural access rates at 58 and 12 percent, respectively. This decrease is significant in all regions except Sub-Saharan Africa where the number increased by 18 million. Rapid urbanization in most regions is leading to rapid growth in the need for new urban connections, even in countries that already have high access rates (World Bank, 2010).

According to UNECA (2014) Energy has become mundane, and the service it provides is widespread in many parts of the world, although millions still live without it. Beyond providing basic services such as lighting and power to energy end uses, access to energy is redefining economic and social progress, which is a facet of transformation that is increasingly depending on energy availability, affordability and reliability. Discovering pathways to deliver energy to millions more, enabling them access to clean energy services, quality social services and enhanced economic opportunities constitutes the energy revolution. Energy access is important because the development and proper functioning of present day societies, which include their social affairs, economic exchange, information sharing, provision of public services and the overall quality of life depend on the availability and reliable supply of energy. Availability of energy has become central to global, regional and local systems and as such, its expansion and secure supply has long become a core goal of States.

The United Nations Rio+20 Outcome of Conference stated that since 1992, insufficient progress in sustainable development had been aggravated by the global energy crisis, particularly in developing countries, and urged countries to address challenges of access to sustainable modern energy services. The Conference further outlined that energy was a crucial component to development, since access to modern energy contributed to poverty reduction, improvement of health, and provision of basic human needs, making “reliable, affordable, economically viable and socially and environmentally acceptable energy” crucial for developing countries. Energy access is also an important consideration in envisioning socioeconomic transformation. Countries with lower levels of energy access and consumption have lower levels of economic development. Therefore, energy consumption and economic growth are interlinked. Based on a study during the 1980-2005 periods in the COMESA region, Nando and et.al, (2010) cited UNECA (2014) concluded that the long-run relationship between energy and GDP in the region showed a strong relationship, and that they tended to go together (UNECA, 2014).

A look at economic development and energy consumption globally reveals a similar trend, leading to a similar conclusion. A comparison of GDP per capita and primary energy consumption per capita, shown in Figure 8, indicates a strong and direct relationship between

energy and economic growth. This implies that economic growth requires access to increasing levels of energy, and therefore, lack of access to energy can act as a constraint to economic growth and poverty alleviation (UNECA, 2004). As countries strive to accelerate socioeconomic transformation, and as growth takes root in many parts of Eastern Africa, sustaining it with proper development of and accessibility to affordable energy is quite important. Energy accessibility is also crucial and goes beyond economic growth considerations, to broader social development UNECA (2014).

Since the provision of quality public services, such as health, education and clean water rely partly on the quality of accessible energy, poor development and provision of energy will hinder broader social capital development, and consequently economic transformation. In essence, energy input has become an ingredient, so to say, that enables economic development, and the achievement of the Millennium Development Goals (MDGs) (Modi and et.al, 2005, Nussbaumer, and et.al, 2011) cited in UNECA (2014).

2.4.3. **Electric supply at Addis Ababa**

Electricity the first sources of energy in Addis Ababa households', kerosene and fuel wood the second and the third respectively. According to AACG (2010) stated about sources energy in Addis Ababa households of the in 2001, the highest electric energy consumption was exhibited in the household sector, which consumed close to 45.3% of the entire electric utilization in the metropolis, and followed by commerce and industrial sectors, which accounted for 31% & 23%, respectively.

Tolon (2008) about 47% of the electricity consumed in Addis Ababa went to households between 1994 and 2004. Tolon (2008) cited (UN Habitat, 2007) Even the most dwelling units are connected to power grids, it is well known that poor and low income households do not enjoy the full benefits electricity in the some part of the city electric power that reaches residential units is simply too weak to enable house households major electrical appliances or even to bake the traditional pancake known as enjera during peak electricity consumption hours. The problem is worst in the squatter settlement, where the sharing of a single electric meter by several

households is widespread. Added to this the fact that street in such neighborhoods are often without any streetlights. Here, it is apposite to note that even tarred rods lack adequate streetlight in many part of the city. Streetlights were, on average, consuming only 0.76 percent of the electric power used in Addis Ababa between 1999 and 2004.

According to MoFED (2010) Electric Power Generation and Transmission Construction Program Stated those Implementations of GTP are not only promote energy mix by developing wind and geothermal renewable energy sources. Give priority for preventing power lose, promote proper utilization of energy and providing electric power to customer with affordable price. Delivering sufficient and reliable power supply at minimum power loses. Beside supply of electricity strategy also focus on minimizing power generation and transmission lines construction costs. In order to create healthy power distribution construct central power station (load dispatch center) to control power sources, transmissions and substations at one center. Moreover, make service delivery efficient, cost saving and reduce distribution power loses.

2.4.4. **Health services accessibility in Addis Ababa**

Ethiopian health care organized in to The four-tier system consists of primary health care units (a health center with five satellite health posts), primary hospitals, general hospitals, and specialized referral hospitals with catchment population of 25 000, 100 000, 1 000,000 and 5, 000,000 respectively. Health care is delivered mainly by the government. However, the private sector and voluntary organizations also play a significant role in general health care delivery. There are some 149 hospitals (82 FMOH, 67 NGOs), 1343 health centers (1332 FMOH, 11 NGOs), 1788 health stations/clinics (1717 FMOH, 271 NGOs) and 12, 488 health posts in the country.11The national health policy emphasizes the importance of achieving access to a basic package of quality primary health care services for all segments of the population via a decentralized state system of governance (WHO, 2010). Health is one of the fundamental social development indicators of a country. Getting health service is part of human right, and without it economic development of a country becomes inconceivable (BOFED, 1998)cited(AACG, 2010).

Besides, improved health status of society in fact has an affirmative effect in enhancing the quality of life and promoting social development. If equitable and sustainable development is to

be achieved, an initial step may be to give adequate emphasis for health as a means of identifying priorities in urban development endeavors. This would enable the urban development agenda to be guided by the long-term goal of human well-being rather than the short-term goal of economic wellbeing. In this regard, the Ethiopian government has operational prevention based health strategy. Consequently, the health sector development program is mainly focusing on the establishment of primary health care services and capacity building. In line with this the prevention of contagious diseases has been given attention. Health related indicators are manifested in a number of ways. Few of them may include status of different health services coverage, health professionals to population ratio, and HIV/AIDS prevalence. In 2001, doctors to population and nurse to population ratios were 1:5007 & 1:3894, respectively. Moreover, HIV prevalence was 8.5% in 2001 while status of the health coverage based on the government's total number of health centers was only 36%. But this did not take in to account the service being provided by the private health institutions. In relation to mother-child health services, ante natal care service coverage showed an increase to 108% in 2001. Generally, the health indicators of the city have shown progresses. By and large, the above portrayed indicators imply that more and more efforts have to be executed by the concerned organizations to bring about an equitable distribution of health services in the city. In other words, the effectiveness of basic health care and supporting services as well as inter sartorial interventions largely rely on the extent of the entire stakeholders (the public sector, the private sector, the community, others) participation at all stages in realizing the aimed goal of equitable health distribution (AACG, 2010)

According to FEDB and PACSP (2010) stated, about the distribution of health professionals the most mid- and high-level health professionals are located in urban areas, the health workforce density (i.e. the number of health workers per 1000 population) is higher in urban areas than in rural areas. The majority of the physicians serve the urban population which is only 16% of the total population. People in urban areas thus have more benefit compared to those in rural areas in terms of access to mid- and high-level health professionals. However, quite a large health workforce of HEWs entirely serves the rural population which makes the health worker density 0.5 per rural 1000 population.

FEDB and PACSP (2010) demonstrate that, Addis Ababa consist 2,738,240 people. For thus provide 35 health post, 36 health center 359 clinics and 42 hospitals. Moreover, Addis Ababa has divided in to 10 sub city and Health care also distribute in each sub city. Bole one of Addis Ababa sub city and It have 308,714 total populations with 9 kebele and have 6 total health posts, 2 health center, 44 clinics and 8 hospitals.

According to MoFED (2010) stated that, implementations of GTP these had been practice from 2010-2015 health services. In order to strengthening and scale up of HEP, accelerate construction, expansion and strengthening of health centers and hospitals (expansion of specialized hospitals). On the other hand renovation, maintenance and fulfilling of necessary inputs of HPs and HCs had been conducted to provide the quality health service. Plus to that, to make sure quality health services implement regulation of licensing and inspection. Health care financing system and health insurance are also strengthening, implementing and expanding all over the country. Ensuring women's participation, engagement and involvement in the health service delivery. Strengthening Private, public partnership and government scale up the implementation of harmonization and alignment with stakeholders such as privet owner. Improve community participation and ownership; adapt evidence based decision making by harmonization and alignment; promote regulatory system, Pharmaceutical Supply and Services. Improve health infrastructure by expanding, equipping, furnishing, maintaining and managing health and health related facilities. Hospital and health center improve its emergency preparedness and responses means that they are coup up with necessary equipment including professional man powers in order to give quality service to community.

2.4.5. **Accessibility of road transport in Addis Ababa**

Public transit (also called public transport or mass transit) includes various services that Provide mobility to the general public, including shared taxi, vanpools, buses, trains, ferries and their variations. It can play important and unique roles in an efficient and equitable transport system by providing basic mobility for non-drivers, efficient urban travel, and a catalyst for more efficient land use development. It can therefore have diverse impacts (benefits and costs) including many that are indirect and external (they affect people who do not currently use transit services (Litman, 2014).

Transportation infrastructure significantly contributes to a nation's prosperity by facilitating workers' access to employers, consumers' access to shopping and leisure activities, and firms' access to capital, labor and potential customers. The public sector has generally provided the vast amount of a nation's infrastructure roadways, waterways, railways and airways and expanded it to satisfy users' growing demand for transportation. But as demand has increased and ageing infrastructure facilities have required ever-greater funds for maintenance and new construction, capacity has become increasingly strained and travelers and shippers have experienced more congestion and delays. Policymakers have tried to find new sources of money to finance projects to expand capacity; but congestion and delays have persisted (Winston, 2014).

There are many ways we travel in cities and towns. Different modes of travel suit different purposes but all are part of our urban transport systems. Cars are ideal for a wide range of purposes, including travelling long distances, carrying multiple passengers or heavy loads, and when other modes of transport are not available. When everybody drives however, whether by choice or through lack of options, the roads in our cities become congested, with wider negative effects on productivity and live ability. Public transport is ideal for transporting large numbers of people to key activity centers without using as much space for road lanes and parking. Most public transport journeys involve a walk to and from the bus stop or train station. Well-placed walking and bicycle riding networks can extend the catchment of public transport systems (CWA 2013). Walking works best for short distances up 20 minutes (two kilometers) and is more likely to occur in Locations with convivial streetscapes; good access to public transport; and a wide range of destinations nearby such as shops, schools, workplaces, recreational activities and services like the post office or library. Most Australians walk at some stage in their day: at least four out of ten people regularly walk for transport purposes other than to work or study(ABS, 2009)in cited (CWA, 2013).

Road transport is the most dominant mode of motorized transport in Africa, accounting for 80 percent of the goods traffic and 90 percent of the passenger traffic on the continent. African countries together have about 2.06 million km of roads in 2001, resulting in a road density of 6.84 km per 100km^2. Whereas the average road-to-population ratio for the whole continent is 26

km per 10,000 inhabitants, there is a large sub regional variation. Central Africa and Southern Africa have the highest road distribution, with 49.5 km and 56.3 km, respectively, for every 10,000 population. In 2005, only 580,066 km or 22.7 percent of the total African road network was paved. Most African countries face huge costs associated with transportation. In accessing foreign markets, on average, Africa's transport and insurance costs represent 30 percent of the total value of exports, which compares unfavorably with 8.6 percent for all developing countries. Although most share the problem of high transport costs, landlocked countries face the most excessive transport costs recorded on the continent (UN, 2009).

Ethiopia is one of land locked county. Almost all transport system depend road transport. According to UN (2009) currently Ethiopian road transport cover 44.4 km per 1,000km^2, the road density in Ethiopia is still very low, even when compared to neighboring countries. Under GTP, GoE's objective is to improve the efficiency of transport sector operations, provide access to all Kebele (sub-districts) centers and develop capacity for construction and maintenance. The Road Sector Development Program (RSDP) entails ETB 125 billion for construction and upgrading of 97,000 km of roads. World Bank support has focused mainly on major road corridors, particularly trunk roads linking areas of high agricultural potential (e.g. coffee) to markets and trade (including regional) corridors. This thrust will be maintained during the CSP period, to further improve interconnectivity and help diversify Ethiopia's access routes to the seaports. Bank Group lending will be complemented by technical assistance and advisory services to improve transport and trade facilitation, including harmonization of customs procedures and transit management systems.

Road construction plays a significant role in realizing economic development and for the expansion of investment. The role of construction of roads is crucial for sustainable development. Road development is also essential with the perspective of saving of time, minimizing traveling expenses and improving services in trade, education and health sectors. For the realization of sustainable social and economic development, building new roads, maintaining and upgrading of the existing ones is vital. In Addis Ababa, road networks are the main bloodlines of everyday activities. The total road network coverage of the city of Addis Ababa in

2001 was 25.8 km^2. The total length of road in the city has increased from 2,200 km in 1997 to 2,814 km in 2001. Of which 1,280 km (45.5%) was asphalt roads and the rest 1534 km (54.5%) was gravel roads. From the total length of roads, roads with pedestrian walkway & drainage facilities cover about 12.76% & 47.57% respectively in 2001 (AACG, 2010).

2.4. Literature Gap

Public services have great importance for growth and development in the form of economic, social and political aspect. Many authors wrote about public services provision in different part of the world. A lot of researches were took place in all over the country mainly in the city of Addis Ababa. But, the studies were done was took place on selected public services means water, electricity, health and transport. Moreover, no one researcher did any comprehensive research on public services provision at Summit Condominium Housing Site. The researcher was observing about the challenges of public services provision at Summit Condominium Housing Site. Therefore, he incites to do study on the title of analysis of the accessibility of urban household to selected public service at Summit Condominium Housing Site.

The researcher motive was to do study on selected public services. Public services covered very wide but this research did on four major public services which are water, electricity, transport and health services. They are interrelated and interconnected one another.

The research is on analyzing the accessibility of household to public services at Summit Condominium Housing Site. The researcher understands well the real availability of public services and attempts to find out the accessibility of water and electricity per household in the form quantity; health services provision analysis is based on proportion of population with professional health center. Transport accessibility is analyzed in the form of number of passengers and vehicles, distance of station, how long they wait and time taken to reach station from their house. In addition, assess the availability of physical infrastructure of public services.

In addition, figure out the challenge of water, electricity, health services and transport provisions for dwellers; Identify which public services are well organized and which are not well performed

for accessibility; understand physical infrastructure of each public services. Eventually, bring advanced solution for problem of each public service at Summit Condominium Housing Site.

Based on the analysis the success and fail of public services provision already are identified at Summit Condominium Housing Site. After clearly interpreting the gap, the possible solution is forwarded for concerned body. The Possible solution is not only recommended to government sector of water, electricity, health and transport, but also forwarded to dwellers and NGOs which show the way of how to solve the inefficient deliver of public services. At the end, the study will narrow the gap between demand and supply of public services delivery. In general, this study recommends a solution forward to dwellers government and dwellers in order to take every concerned body their responsibility.

CHAPTER THREE: DESCRIPTION OF THE STUDY AREA AND THE RESEARCH METHODS

3.3. Description of the Study Area

Addis Ababa city is as old as 127 years since it is founded in 1887 as capital city of Ethiopia. It is located almost in the center of Ethiopia and its altitude lies between 2200and 2500 meters above sea level, the city lies at the foot of the 3,000 meters high Entoto Mountains. It surrounded by hills and mountains. Addis Ababa is one of the fastest growing cities in Africa the in the past two decades. It has a total area of about 540 square kilometers of which 18.2 Km^2 is rural (www.ethiopia.gov.et/state addis ababa/ issued, 2015).

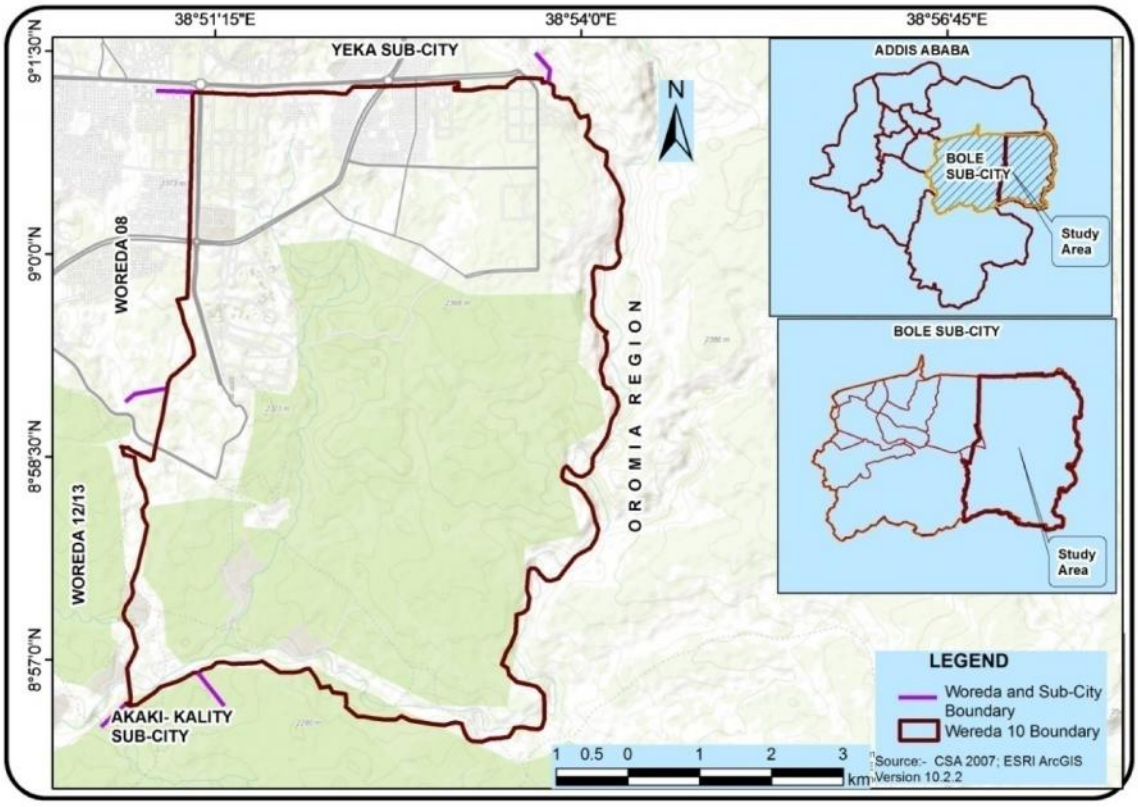

Figure 1.1: Location of Summit Condominium Housing Site and Bole sub-City in Addis Ababa (Source: CSA 2007, ESRI Arc GIS Version 1022)

UN-Habitat (2007) the total population of Addis Ababa is estimated 4 million people, the life expectancy is 62.8 for males and 66.5 for females. Addis Ababa is the diplomatic capital of Africa. More than 92 embassies and consular representatives cluster in the city. It is the seat of United Nations Economic Commission for Africa (UNECA) and the Africa Union (AU) that makes it the capital of Africa (Tolon, 2008).

Addis Ababa`s location is 9^0 1′ 48′′ N latitude and 38 ^{0} 44′24′′ E altitude. According to the 2007 census report, Bole has a total population was 308,714, from which 145,057 are males and 163,657 are females. Thus, females comprise 53 percent and males 47 percent of the total population. This constitutes 11.27 percent of the entire Addis Ababa`s population. This makes Bole ranked 4thin population cover from the 10 sub cities (AACA, 2014).

The land area covered by Bole sub-city is 11,849.49 hectares. This constitutes 22.8% of the total land area of the city which makes it 2nd next to Akaki in land area coverage from the ten sub-cities. Among these fourteen *woredas,* the largest area is covered by *woreda* 10 with 2752.31 hectares that is 23.23% of the total land area, and *woreda* 02 covers the smallest land area of 117.22 hectares which is 0.99% of the sub city land area (AACA, 2014).Among that fourteen one is Summit Condominium (*Woreda* 10), which is located at eastern part of Bole sub-city, a new settlement area. Populations that live in Summit Condominium Houses are estimated more than 30,000 people within 11,430 households (informed from woreda 10).

3.4. Methods and Materials

3.4.1. Data type and sources

The data used for this study were two types: primary and secondary Primary which are both qualitative and quantitative in nature. Primary data were collected from the customers of water, electricity, and transport and health center at Summit Condominium House and also from expert. These secondary data were gathered from previous reports, books, manuals, websites, and project publications. Most of the secondary data were obtained from EEU, Road and Transport Authority of Addis Ababa, AAWSA Addis Ababa Health Bureau, Bole Sub-City Health office

and Summit Health Center. While collecting data, ethical considerations were seriously taken in to account to ensure the protection of individuals' security.

3.4.2. Sample size and sampling techniques

Determining an appropriate sample size is crucial in any research as samples where too large data may waste resources; while too small samples may hardly represent the population and lead to erroneous findings and recommendations. Sample size is determined by several factors such as homogeneity or heterogeneity of population, precision and confidence (Messay, 2012). In this study the sampling techniques were used to determine the appropriate respondents from Summit Condominium Housing Site dwellers based on Israel (1992) a simplified formula to compute sample sizes. This formula was used to calculate the sample sizes as shown below. A 95% confidence level and P = 10% are used in this Equation.

$$n = \frac{N}{1 + N(\mathrm{e})^2}$$

Where *n* is the sample size, *N* is the population size, and *e* is the level of precision. When this formula is applied give the following sample size.

$$n = \frac{N}{1 + N(e)^2} = \frac{11{,}430}{1 + 11{,}400(0.1)^2} = 99.132$$

From the equation we get 100 samples sizes were estimated from 11,430 households. Hundred respondents (men or women who are the head of household) have 360 people under them. Therefore, 100 respondents were selected by systematic random sampling technique. Systematic random sampling technique was employed to select survey respondents from Summit Condominium Housing Site dwellers. But only 87 respondents were properly answering back the question other were refused (some were not properly fill). From these respondents, data were gathered about the availability of water, electricity, transport and health services and their satisfaction on services provision.

In addition, Purposive sampling technique was used to ten appropriate key informants were selected who were the source of qualitative data and not need more than 10 informant because of have similar data among expert. Related ten professionals/experts in Addis Ababa such as

Ethiopian Electric Utility (EEU) and East Addis Ababa Region (EAAR*)* Marketing and Sales District Customer Services Centre No9 of electricity; Addis Ababa Water and Sanitation Authority (AAWSA) and AAWSA Gured Shola Branch; Health Office of Bole Sub-City and Health Center of Summit; Addis Ababa City Administration Transport and Road Authority, and Bole Branch Transport Bureau. The informants are experts on the accessibility of public services for Addis Ababa Summit Condominium Housing Site.

3.4.3.Techniques of data collection

A. Questionnaire survey

The research questionnaire was designed based on the literature. The questionnaire used to collect data from households about the accessibility of public services such as water, electricity, health and transport which are provided for summit condominium householders. The questionnaire had closed- ended and open-ended items to gather data about accessibility and satisfaction of customers. The close ended types of questions were prepared in English language and then were translated in to Amharic to maximize comprehension. This instrument was employed to gather data from the dweller.

B. Key Informant Interview (KII)

The interview employed to collect the desired data from responsible experts of water, electricity, health and transport center. The interviews provide the opportunity to have a deep understanding about the most important issues on provision of public services. Accordingly, in depth interviews were made to investigate the status of public services provision for households. Structured and semi-structured interviews were employed to collect the desired data from electricity services expert, water and sanitation authority expert, transport officer and health center administrator.

C. Document Analysis

Apart from the data gathered through questionnaires and interviews; document also analysis used to obtain additional data by reviewing the different documents and records of the services delivery. Both published and un-published documents were reviewed to obtain background information on the services delivery and its customers. Based on the document analysis, the

researcher identified and reviewed document of projects and annual reports about the delivery of services.

D. Observation

In addition, the above listed techniques observation also gave additional data. This technique gave additional data for researcher in the quality of physical infrastructures such as road, health center, and electricity pole. The observation also gave an insight about transport accessibility in type of vehicle and location of transport station. The researcher visited two phases. The first observation simply for observations physical structure of public services and land form of Summit Condominium Housing site and in the second observation comparison was made between physical infrastructures and the documented data.

3.4.4. Data analysis

The study uses qualitative and quantitative types of data. This means the study employs mixed research approach: Fully mixed concurrent equal status designs quantitative and qualitative phases occur at approximately the same point in time, with both phases being given approximately equal weight and mixing occurring within or across the data collection, analysis, and interpretation stages (Powell et al. 2008). To analyze the qualitative data, thematic analysis technique was employed. In doing so, the following tasks were carried out step by step. Initially, the researcher organized and prepared the data for analysis. These involved transcribing interviews, typing up observation notes, describe questionnaire response, and sorting and arranging the data in two different types depending on the sources of the data (customers and provider of services). The next task was reading through all the data so as to obtain a general sense of information. Coding is the process of organizing the materials in to chunks or segments of text before bringing meaning to information (Cresswell, 2009) cited in (Ross man and Rills, 2004). Then, the acquired information was narrated. Finally, interpretations and the findings were compared with information obtained from the theories /literature. Then, the quantitative data were revised, coded, tabulated and analyzed.

Descriptive statistics was used to analyze the data. This was done by using descriptive statistics, such as frequency, percentage and mean and standard deviation. The mixing of the data from the

two methods (qualitative and quantitative) was mainly accomplished in the discussion section of the study.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1. Water Supply at Summit Condominium Housing Site

4.1.1. Water Pipeline

According to UN-Water (2014), everyone has the right to water and sanitation services that are physically accessible within, or in the immediate vicinity of, their household, workplace and educational or health institutions. According to AAWSA (2010) in Summit Condominium housing Site the network of pipes which makes up the distribution system may be sub divided as primary, secondary, and small distribution main; they all are designed based on the peak hour demand. The primary main goes from the reservoir down to the network of pipes. The small distribution mains are that forms grid over the entire service area supplying water to every users. All lines made valve at all branching points so that failure in one branching line doesn't require shutting off the other. The system also provided with blow off valves at low points and with air and vacuum relief valves at higher points.

Total length of pipe that used to distribute the water supply system in Summit Condominium Housing Site is about 18,520m. Material types designed to be used for the system are UPVC with PN 10 for 600mm-150mm diameter, and HDPE with PN 10 for 40mm-160mm diameter. To balance the demand of the scheme 4,222.06m^3 reservoirs is required (AAWSA, 2010).

Therefore, AAWSA Gurd Shola Branch expert informed to the researcher, pipeline of water is laid to each household in area. The pipeline of water made up of plastic cannot be easily damaged. Moreover, the researcher understood from discussion and field observation common yards had not constructed in that Site which gives services while there is water interruption at home.

As the researcher was informed from the expert, the main challenge of physical accessibility of water pipeline was road and building construction. For instance, in 2010 the water pipeline was

laid and immediately the road construction was started and by this deed the water pipeline was destructed. In return, the water pipeline was again repaired. As a result, AAWSA was exposed for extra expenditure and water interruption was also happened in site until repaired.

Figure 4.1 indicates that physical infrastructure of pipeline has contribution on water interruption i.e. it contributes for water loss.

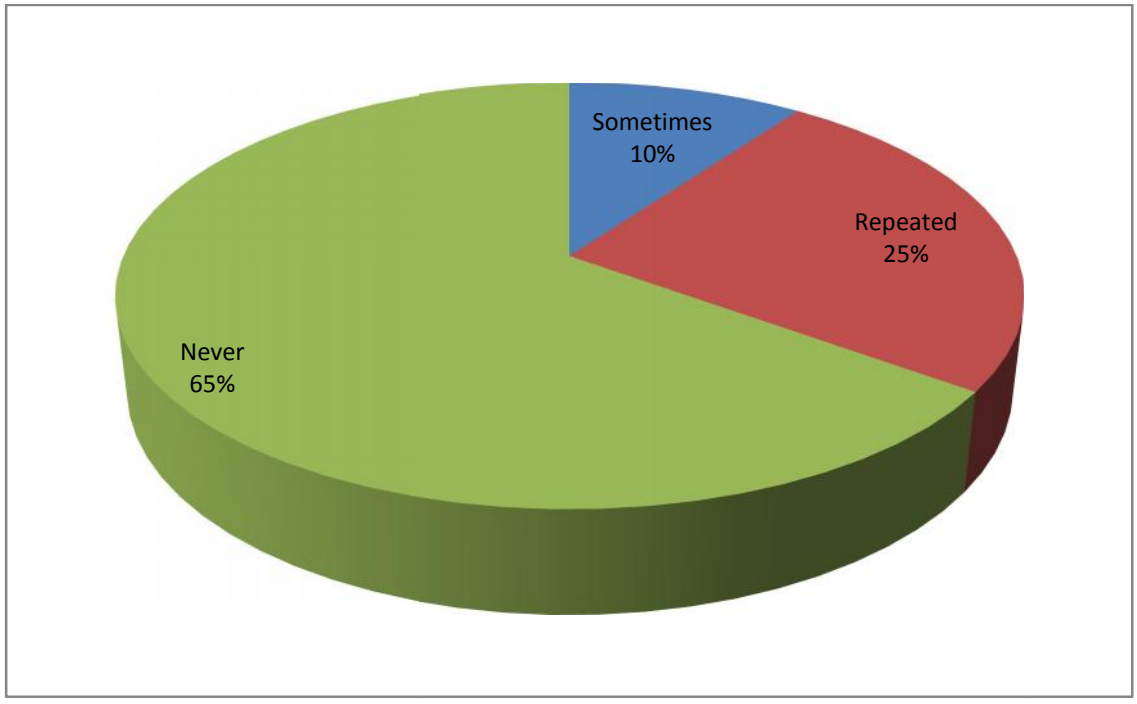

Figure 4.1: The strength of water pipeline at Summit Condominium Housing Site. (Source: own survey, April, 2007)

4.1.2. Water Supply at Summit Condominium Housing Site

AAWSA (2015) report shows, it has great responsibility to produce quality water, and distribute for each and every household, business center, industry and other customers within Addis Ababa. For that reason, AAWSA with Addis Ababa City Administration and other stakeholders highly participate to assure customer demand. As a country and as well as a city, AAWSA is engaged to make development and good governance following the five years Growth and Transformation Plan (GTP). According to AAWSA GTP (2015) report, at the end of five years plan it would be expected to produce 584,000m^3 but at the end of the year could not fulfill its expectation; it only supplied 466,000m^3 (78%) without including water loses. water lose is one of the main problem and decreases the amount of water which supplied to consumer. currently 40% of water production lose without giving expecting services. In order to accomplish the plan, a lot of budget allocated and fund raised from City Administration, donors and long term credit (AAWSA GTP, 2015).

As AAWSA Gurd Shola Branch expert informed and the researcher also checked from their document, that the numbers of population live in Summit Condominium Housing Site is estimated 30,000 within 381 blocks; one block has 30 households and total households are 11,430. But, water is available for only 8693 households, other are not transfer to the owner of the house. In other hand, CSA (2014) stated that urban (Addis Ababa) household size averages 3.6 persons. Therefore, when we compute the number of population must be considering 3.6 persons per household which gives total population of 31,295. But the data found from AAWSA under estimated the number of population and it only provides for 30,000 persons.

In Addis Ababa, the standard laid for water access is 110 liters (0.11m^3) per day per person was planed (AAWSA, 2010). As it is mentioned above 3.6 persons live in one household who are accesses 110 liters per day per person that mean 396 liters per day per household.

WHO (2006) has a standard on accessibility of water per person, when water is piped in to the home, access is optimal and at least 100 liters per person per day is to be ensured. AAWSA also has domestic standard access of water 110 liters per person. Therefore, the national standard is more than the least requirement of international standard.

The interruption of water is common in Addis Ababa. The consumer of water responded on the interruption of water. As it displayed on figure 4.3, sixty four percent of respondents agreed it happens sometimes and thirty six percent of the respondents replied it happens usually. Thus, ensuring interruption of water is one of the problems in that area. In addition, data obtained from AAWSA Gurd Shola office and through field observation, there is no other alternative source of water like common yard which gives services during the interruption of water at home.

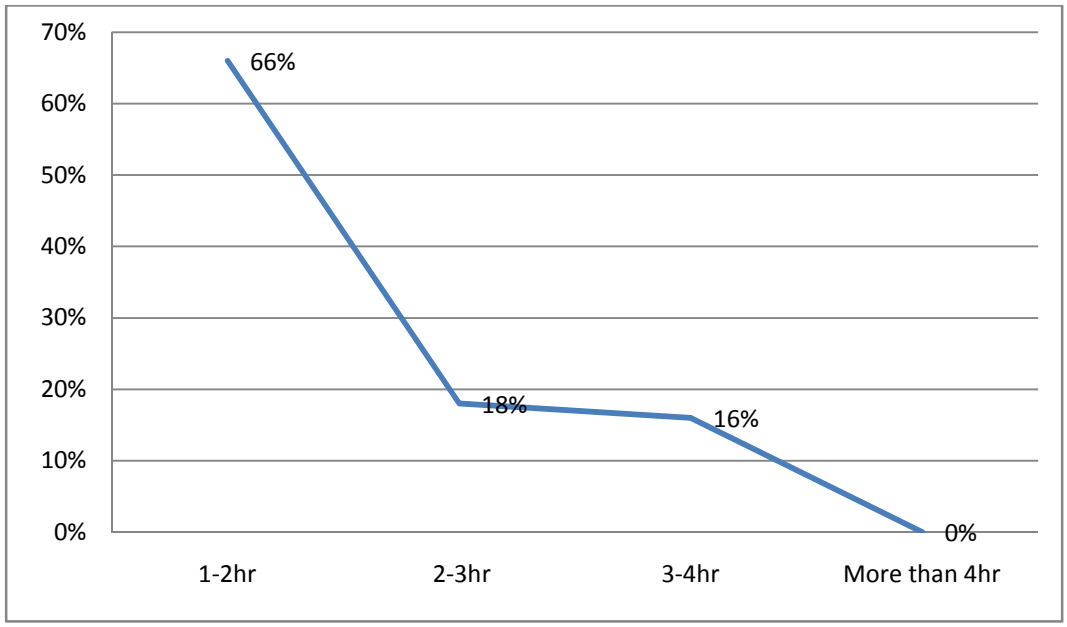

Figure 4.2: Time taken to fetch water when water interrupts at home. (Source: Analyzed based on questionnaire survey)

According to consumer responses, eighty three percent replied water access from private yard and seven percent replied there is no source of water when water is absent at home. Figure 4.2 displays, time taken to fetch water from private yard: Sixty six percent respondents replied it takes 1-2hr; eighteen percent of the respondents replied it takes 2-3hr and sixteen percent also responded as it takes 2-3hr. Therefore, when water is absent at home it consumes the family's

time to fetch water so the interruptions of water have great impact on time utility and income generation.

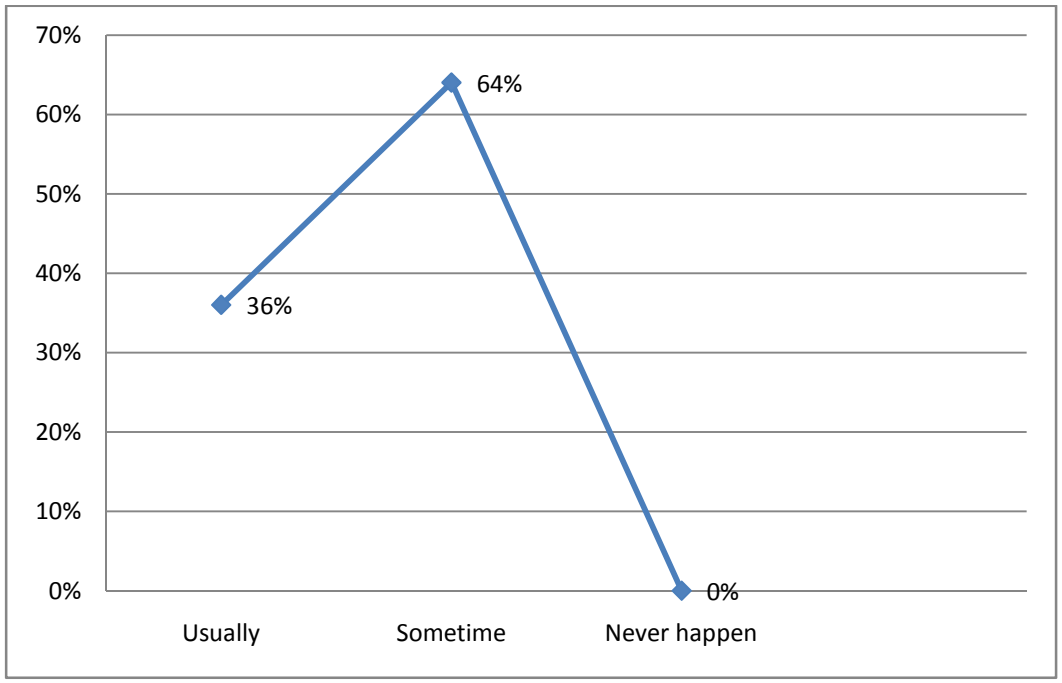

Figure 4.3: Repetition of water interruption at Summit Condominium House. (Sources: Analyzed based questionnaire survey, 2015)

Usually refers at least once interruption per week and sometimes refers two times interruptions per month.

The above figure shows, repetition of water interruption in the study area as can be seen from the figure: sixty four percent of respondents were answer back happen sometimes and thirty six percent respondents were replies happen usually. This data assured the existence of interruption of water in that area. Therefore, this makes food preparation and keeping sanitation difficult because of water interruption in unexpected time.

Table 4.1: Households water consumption per m^3 per month of Summit Condominium dwellers

No	x	$(X-\bar{x})^2$	No	x	$(X-\bar{x})^2$	No	x	$(X-\bar{x})^2$	No	x	$(X-\bar{x})^2$
1	10	9	26	14	49	51	8	1	76	4	9
2	17	225	27	7	0	52	8	1	77	0	49
3	1	36	28	1	36	53	4	16	78	3	16
4	0	49	29	3	25	54	14	39	79	3	16
5	5	4	30	30	529	55	7	0	80	4	9
6	8	1	31	4	9	56	0	49	81	1	36
7	5	4	32	5	4	57	0	49	82	12	16
8	15	64	33	4	9	58	2	25	83	6	5
9	13	36	34	6	1	59	10	9	84	5	4
10	6	1	35	8	1	60	13	36	85	2	25
11	14	49	36	11	16	61	6	1	86	7	0
12	8	1	37	7	0	62	7	0	87	3	16
13	10	9	38	2	25	63	3	16	88	24	289
14	2	25	39	7	0	64	10	9	89	2	25
15	13	36	40	19	144	65	0	49	90	3	16
16	11	16	41	8	1	66	7	0	91	2	25
17	9	4	42	3	16	67	4	9	92	3	16
18	3	16	43	8	1	68	0	49	93	7	0
19	6	1	44	16	81	69	7	0	94	9	4
20	20	169	45	8	1	70	3	25	95	9	4
21	6	1	46	14	49	71	3	36	96	5	9
22	2	25	47	3	16	72	3	25	97	3	16
23	9	4	48	30	529	73	5	4	98	2	25
24	6	1	49	7	0	74	0	49	99	1	36
25	10	9	50	5	16	75	7	0	100	14	49

Sources: Analyzed based on data obtained from AAWSA Gurd Shola Branch office

$$\sum x = 704$$

$$\bar{x} = \frac{704}{100} = 7.04 \cong 7$$

$$S = \sqrt{\frac{\sum(x-\bar{x})^2}{n-1}} = \sqrt{\frac{(3571)}{100-1}} = \sqrt{\frac{3571}{99}} = \sqrt{36.07} = 6.005 \cong 6$$

Where X is water consumption per household per month and S is standard deviation

According to the above computation, monthly mean water consumption is $7m^3$ per households per month (7000 liter per household per month). Daily mean of water consumption is $0.2333m^3$ household per day (233.3 liters per household per day) and in other word individual access 64.8 liters per person per day.

According to AAWSA (2010) was plan the households should be access 110 liters per person per day, international standard also suggests at least 100 liter per day should be accessed for individual, but the above data show that the actual accessibility is 64.8 liter per person per day. This data indicates. The accessibility of water at Summit Condominium Housing Site is less than from national and international standard by 45.2 liter and 35.2 liter respectively.

Standard deviation also shows that accessibility of water for every household is more than or less than 6 m^3 from the mean (7 m^3) of water consumption. Therefore, there are great differences among households of water consumption at Summit Condominium Houses.

Table 4.2: Water interruption and reaction of the AAWSA at Summit Condominium Housing Site

S/N	Items	Alternative	Count	Percent
1	the cause of water interruption	Shortage of water production	59	68
		Problem of water pipeline	28	32
2	Announcement about water interruption	Yes	25	29
		No	28	32
		Sometimes	34	39
3	The response of the stockholder asked by consumer when the water interruption was happened	Fast and complete	17	20
		Slow and complete	50	57
		No response	20	23

Source: Computed from questionnaire survey

Table 4.2 shows that the cause of water interruption is shortage of water supply replied by 68 percent of respondents and the remaining respondents i.e. 32 percent replied that the problem is water pipelines (physical infrastructures). Moreover, AAWSA 2015 report shows, the causes of water interruption are shortage of water coverage at Addis Ababa (recorded 78% of water coverage) and water loss reduced amount of water supply by the cause of physical infrastructure. So that, the main cause of water interruption is shortage of water supply and the second one is a challenge of physical infrastructure.

According to Addis Ababa Water and Sanitation Authority (AAWSA) the 2015 report indicates that water loss is one of the challenges of the water interruption in Addis Ababa. This leads to insufficient accessibility of water at Summit Condominium Housing Site.

Does the AAWSA warns (announces) before interruption of water: thirty two percent respondents replied no who are well understand warning that message is not for only Summit Site; twenty nine percent of respondents replied yes and thirty nine percent of respondents replied sometimes before interruption of water. They are replied yes and no they may be consider for summit when warning transmit to all or some part of the city but not only for that area.

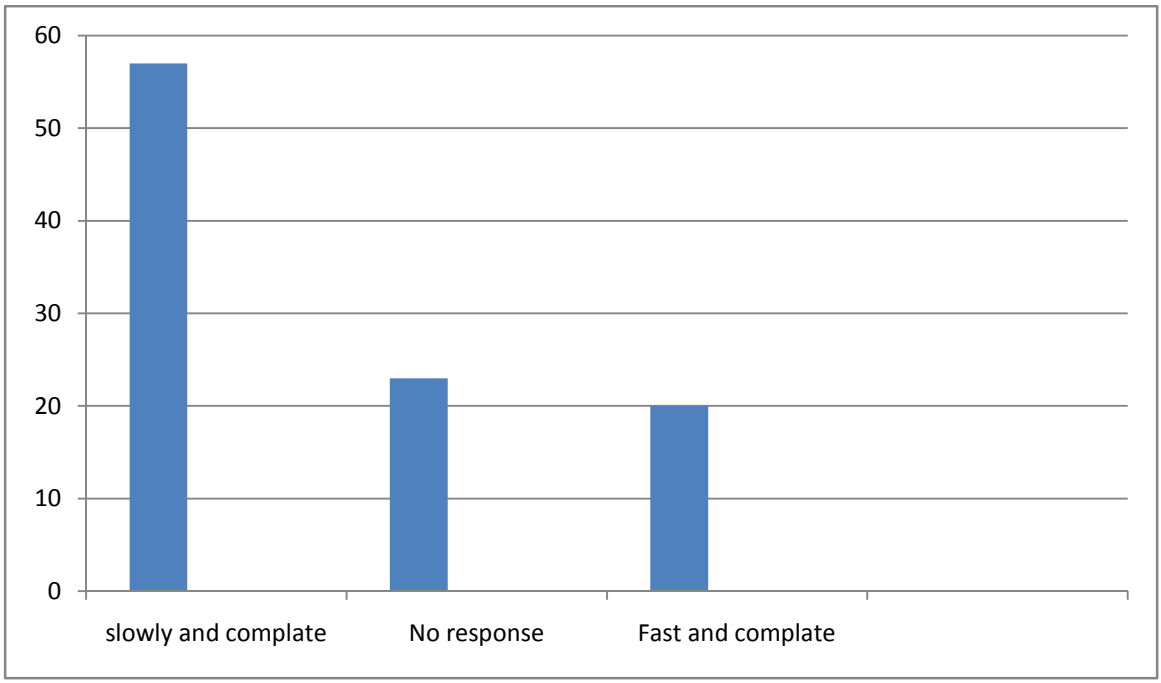

Figure 4.4: The response of stakeholder when asked by customers the cause of water interruption (Source: from questioner survey)

Moreover, the response of stakeholder when asked by customers the cause of water interruption: fifty seven percent respondents replied slowly and complete i.e. gave full information after delaying at least three day. Twenty three percent answers back there was no response, and twenty percent responded there was fast and complete. AAWSA Gurd Shola officer explained about the announcement (warning) before interruption of water as following.

> AAWSA has responsibility to announce before the water interruption and its reason. Most of the time, it was announced through FM 98.1 radio for only city or sub city water interruption rather than for worda level water interruption which means not announcement when water interrupts only in Summit Condominium House.

The above questionnaire and interview response ensured that, AAWSA makes announcement (warning) through mass media such as FM 98.1 radio station when there is water interruption on main pipeline rather than minor water pipeline. Therefore, the AAWSA doesn't announce when water is interrupted only at Summit Condominium Housing Site by the cause of shortage of water supply and other reasons.

4.2. Electric Supply at Summit Condominium Housing Site

4.2.1.Network Girding of Electricity

Data obtained from EEU Meri Branch office shows, there are 11430 households; among those electric network connections were done for 8693 households at Summit Condominium Housing Site. In addition to that, eight blocks need two transformers. Nevertheless, actually, one transformer gives service for more than eight blocks. Regarding to physical infrastructures of electricity, the interviewed Electric technician responded as the follows:

> Most of the Poles are made of wood and some are made of steel. Concerning about transformer, some are repaired and others are below standard with made by METEC. Most transformers and Fuses are below standard. Most of electric equipment spare parts are imported from abroad and are assembled by METEC as domestic product which are low quality standard.Plus, in Summit Condominium Housing Site requires two standardized transformers for eight blocks but actually only one transformer serves for more than eight blocks.

This indicates, low standard of electric equipments were produced by METEC and these are planted by EEU all over the country including Summit Condominium Housing Site. The other challenge is shortage of transformers. If not improved the quality and quantity of electric equipments, it is difficult to sufficiently access electric power for consumers.

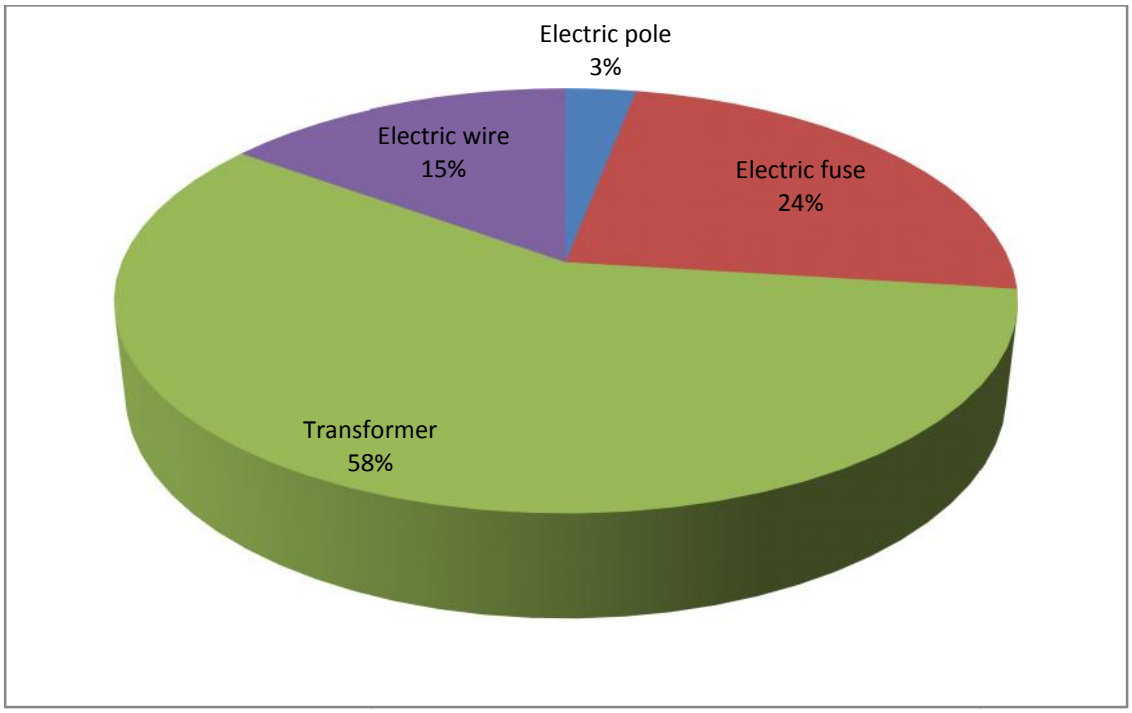

Figure 4.5: The electric equipments as cause of electric power interruption (source: Analyzed based on data obtained from questionnaires survey)

The above figure indicates physical infrastructure of electricity has a trouble. According to the respondents 58 percent of them replied it has mal function on transformer, 24 percent responded fuse mal function, 15 and 6 percent responded the mal function is on wire and electric pole respectively.

In the study area there are physical infrastructures problems or low standard electric equipment which was approved by interviewee and questionnaire survey. On the other hand, Ethiopian Electric Utility (2014) reports estimated the current power loss status was 25% all over the country because of challenges which include unavailability of adequate skilled manpower while implementing best operation and maintenance practices. Lack of automation, like unavailability of automated outages management system, leads to sluggish information flow and monitoring of breakdown maintenance. Therefore, low standard of electricity equipment, lack of skilled man

power and automation have great contribution in power loss and frequency of electric power interruption.

Figure 4.6: Planted transformer and fuse at Summit Condominium Housing Site (Source: photo taken by researcher from Summit Condominium Housing Site in April 06/05/2015

4.2.2.Electric supply

Data accessed from EEU Meri Branch office about electricity supplies indicated that a household can utilize up to 5kilowatt per hour and business center 11kwh per day for. The study focused on household supply of electric power. Hence, there are 8693 households which are allowed access 5kwh at Summit Condominium Housing Site, but the other houses are not transfer to the owner of the house.

Table 4.3: Electric power interruption at Summit Condominium Housing Site

S/N	Items	Alternative	Count	Percent
1	Electricity power interruption happen in household	Yes	87	100
		No	0	0
2	Warning by EEU before interruption	Yes	25	29
		No	42	48
		Sometimes	20	23
3	Cause of electricity power interruption	low standard of electric equipment(transformer, fuse, wire, pole)	38	44
		Shortage of power	49	56
4	Electric power interruption per month	5-10hr	24	28
		11-15hr	26	30
		16 -20hr	28	32
		21-25hr	9	10

Sources: Electric power interruption analysis based on questionnaire survey

Table 4.3 indicates that all of the respondents agreed on interruption of electric power in their households. This is also common all over the country and specifically at Addis Ababa including Summit Condominium Housing Site.

As indicated the Table 4.3 and approved by interview from EEU Meri branch expert, 66% of respondents believed that the causes of electric power interruption is shortage of electric power and 44% percent of them replied low standard of electric equipment such as transformers, wires,

fuses and poles. This comprises both shortage of electric power and low standard of electric equipment for the interruption of electric power.

Above the EEU announcement (warning) before the interruption of electric power 48% of respondents responded as to there is no warning before interruption, twenty nine percent of respondent gave response there is announcement made by government before interruption and twenty three percent respondents gave response there is announcement sometimes before interruption. This fact is also supported by interviewee who replied that the government announced or gave warning when there was main line electricity interruption rather than minor line interruption of electricity. Therefore, the respondents who replied there was an announcement before interruption might be considering the announcement made for mainline interruption (Table 4.3).

On the same table the repetition of electric interruption per month was: twenty eight percent of respondents replied 5-10hr per month; thirty percent respondents answered back 11-15hr per month, thirty two percent of respondents responded 16-20hr per month and 9 percent of respondents replied 21-25hr per month electric power interrupted. Generally, almost half of the respondents replied that there was more than11hr per month interruption of electric power which is difficult to prepare food such as pancake or enjera, cooking and other household activities with insufficient supply of electric power at Summit Condominium housing Site. Therefore, the consumers are disturbed when electric powers go off accidentally because they were not ready to use other option. As a result, the consumers were exposed for money, time and energy.

Regarding the accessibility of electricity on site one of EEU East District electrician gave interview as follows:

> The electric power services are managed by Indian company. This company cannot solve electric power interruption that is happened by problem of distribution system and shortage of electric power supply. In addition, most electric connection took place with old electric equipments such as transformers, fuse, and others.

Interviewee data indicates the shortage of electric power supply is one of the major causes of electric power interruption. The problem of power distribution system and low standard of

electric grid equipment are having impact on adequate supply of electric power to site. Therefore, the sluggish distribution system, insufficient supply of electric power and low standard of equipments were the causes of electric interruption.

Table 4.4: Electric power consumption in kilo watt per households per annum at Summit Condominium Housing Site in 2014

No	X	$(X-\bar{x})^2$	No	x	$(X-\bar{x})^2$	No	x	$(X-\bar{x})^2$
1	6479.35	2852096.104	34	7078.53	5280610.97	68	1134.9	13363703.81
2	51.33	22460064.03	35	6264.29	2171953.8	69	11850.07	49837034.42
3	2391.23	5756664.483	36	3335.88	2116021.169	70	4680.45	12118.70723
4	1777.89	9076029.896	37	208.47	20995319.66	71	7038.08	5051458.527
5	2392.23	5751866.873	38	18594.15	190539787.1	72	2758.07	4130913.976
6	1276.6	12347739.18	39	2889.74	3613021.632	73	3704.9	1178603.353
7	4210.02	336997.6652	40	1671.27	9729814.14	74	6264.29	2171953.8
8	6877.36	4354838.581	41	5949.43	1336093.251	75	7078.53	5234921.12
9	2423	5605221.976	42	5570.43	608236.211	76	3335.8	2116253.92
10	6735.23	3781838.643	43	1428.29	11304691.44	77	111.73	21891216.23
11	9449.98	21710427.71	44	2012.02	7720145.605	78	18594.15	190539787.1
12	5396.43	367108.751	45	2507.24	5213892.726	79	1589.29	10247969.55
13	7427.9	6955694.143	46	5278.41	238022.0156	80	1671.27	9729814.14
14	1278.94	12331299.44	47	4751.01	1562.225625	81	5949.73	1343733.048
15	4205.75	341973.4962	48	641.78	17212168.05	82	5570.43	608236.211
16	2808.39	3928898.801	49	2162.78	6905096.34	83	14281.29	90074430.47
17	3748.23	1086399.713	50	2654.27	4561342.633	84	2012.02	7720145.605
18	12163.47	54360170.51	51	11236.61	41551882.91	85	2507.24	5213436.057
19	10418.04	31668812.53	52	1108.03	13558854.60	86	5278.41	238022.0156
20	3982.8	652435.8302	53	4858.58	3605.40	87	4751.2	1547.242225
21	3399.63	1934616.719	54	1278.78	12332423.18	88	641.84	17211670.2
22	17929.73	172638445.2	55	4205.57	342184.05	89	2161.75	6910510.576
23	3043.55	3051956.59	56	3847.23	889824.32	90	2654.27	4563628.15
24	2356.23	5925840.833	57	12163.47	54360170.51	91	11236.61	41551882.91
25	2721.48	4280988.593	58	9500.43	22183110.91	92	3108.03	2830823.075
26	4287.23	253315.923	59	4300.21	240418.61	93	4858.89	4672.406025
27	6203.98	1997826.768	60	3724.76	1135876.351	94	2370.07	5858650.816
28	2431.33	5565848.232	61	20929.73	260473615.25	95	29.04	22671834.64
29	1134.9	13363652.63	62	3043.55	3051963.578	96	190.85	21157102.1
30	11850.07	49837034.42	63	2653.23	4568072.663	97	4798.5	63.441225
31	4680.45	12118.70723	64	2721.48	4280988.593	98	6203.98	1997826.768
32	7038.08	5051458.527	65	4287.27	253275.6602	99	2431.33	5565848.232

33	2350.08	5953551.2	67	5924.74	1286420.982	100	2010.74	7727260.242

Source: Compute based on data obtained from EEU Eastern Addis Ababa Region

$$\sum x = 479053.5$$

$$\bar{X} = \frac{479053.5}{100} = 4790.535$$

$$S = \sqrt{\frac{\sum(x-\bar{x})^2}{n-1}} = \sqrt{\frac{(1744410772)}{100-1}} = \sqrt{17620310.83} = 4197.7$$

Where X is electric power consumption per household per yearand S is standard deviation

The mean consumption of electric power in the site is 4790.535kw per households per year (Table 4.5). Each household is allowed to consume up to 60kw per household per day which means they can use up to 21,600kw per year. The actual consumption of electric power is low compared with maximum utility of electricity.

The standard deviation also shows that every household's consumption of electric power is more than or less than 4197.7kw from the mean (4790.535kw) of electric power consumption per year. Therefore, in the area there have been great differences among households in electric consumption.

4.3. Summit Health Center

4.3.1. Physical Facility at Summit Health Center

According to the Ethiopian standard (2012) Health centers shall have building systems that are designed, installed and operated in such a manner as to provide for the safety, comfort and well being of the patient. For instance, the health center shall have and maintain an accessible, adequate both as to volume and pressure, safe and potable supply of water. The health center shall dispose all sanitary wastes produced in the health center through connection to a suitable municipal sewerage system or through a private sewerage system if applicable. Natural airflow shall move from clean to soiled locations and air movement shall be designed to reduce the

potential of contamination of clean areas. The health center shall have an electrical system that has sufficient capacity to maintain the care and treatment services; the health center shall have fire extinguisher for safety protection; The health center shall have an electrical system that has sufficient capacity to maintain the care; The health center shall have a separate toilet at delivery rooms and a common toilet rooms with hand-washing sinks and treatment services and others facilities includes in health center.

The Summit Health Center has lunched delivery of services to the dweller since June 2013 in one building as indicated in Summit Health Center document. The compound of the health center is new and attractive. But, the internal part is sewerage system problem, insufficient water and electricity supply problems. The head of the health center was interviewed regarding the physical infrastructures of health center and he given the following response:

> In our health center almost all health facilities are fulfilled. But there are some challenges to provide quality services. For example, Sewerage installation problem, it is difficult to use toilet within the building so that we built other toilet out of main building for patient; Insufficient supply of water and electricity. In addition, Shortage of administration bureau is another problem to solve this problem temporarily we changed a toilet to office at top of the building storey.

The above interview demonstrates that, the sewerage system was not properly installed during construction. This forced to use toilet out of building and that adds other pain to patient because of the distance from the building. Lack of adequate water access, inadequate electricity supply and shortage of offices for administration services made difficult to provide standard services.

Health Center

Toilet

Figure 4.7: Physical feature of Summit Health Center and toilet (Source: Taken photo by researcher in April 06/05/2015)

4.3.2. Accessibility of Health Center service for dwellers

Staffing plan shall be developed collaboratively by the different service units and management, which identifies the number and types of the staff. The total number and types of staff needed for the health center as a whole and for each service unit, the total number and types of staff should be available for the health center as a whole and each service unit, the qualification, skills, knowledge, and experience required for each position (Ethiopian standard, 2012).

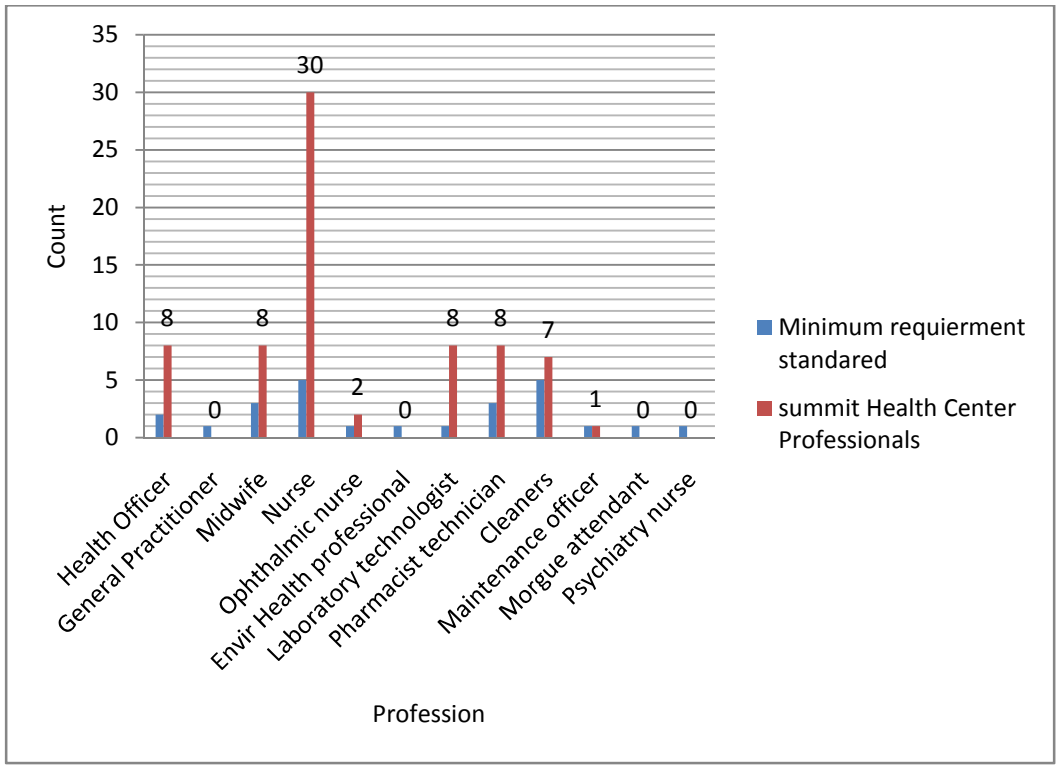

Figure 4.8: Comparison of national standard and Summit Health Center in professionals (sources: analyzed based on data obtained from Health facility standard and summit Health Center)

Summit Health Center employed all professionals more than the minimum requirement of national standard except general practitioner, psychiatry nurse and morgue attendant professionals. However, their number is more than the least requirement in most of staff; some positions had not even one professional person. Therefore, absence of professionals in some staff made difficult to provide the complete services for customers. General practitioner, environmental health professional, psychiatry nurse and morgue attendant in Summit Health Center were not employed.

According to Summit Health Center 2015 report, healthcare system provides promotional, preventive, curative and rehabilitative outpatient care including basic laboratory and pharmacy

services. Thus, Summit Health Center annually delivers services for 11,976 dwellers per year (this data acquired from 2015 annual report).

Table 4.5: The accessibility of health services for customers at Summit Health Center services

S/N	Question	Alternative	Count	Percent
1	Did you get a service in Summit Health Center?	Yes	57	66
		No	30	34
2	If your answer is no what is you reason?	Choose private health services	10	33.3
		No facing health problem	10	33.3
		No quality services	10	33.3
3	If your answer is yes in question number one, are you satisfied with the health service?	Yes	34	60
		No	23	40

Source: Analyzed based on data obtained from questionnaires survey

The responses of Summit Condominium Housing Site dwellers on the access of health services: sixty six percent of the respondents replied that they get services from health center, from the total who acquired services 60 % of them were satisfied by health services and, forty percent were not satisfied. On the other hand, thirty four percent never gone to the health center preferring private health services do not face health problem and could not believe they get access quality services. This data indicates, most of the peoples either went to health service center or not satisfied. In addition, the respondents were in doubt on the ability and experiences

of professionals; so they preferred privet health services. Thus, the Health Center in some extent has a limitation because of the worker`s incapability of discharging their responsibility like those in private health services worker and some necessary facilities were not adequate. Some workers argue that the blame should be on the government in related salaries as private health services. Unless there is cooperation happens between the workers and government, the challenges will become aggravated gets sever.

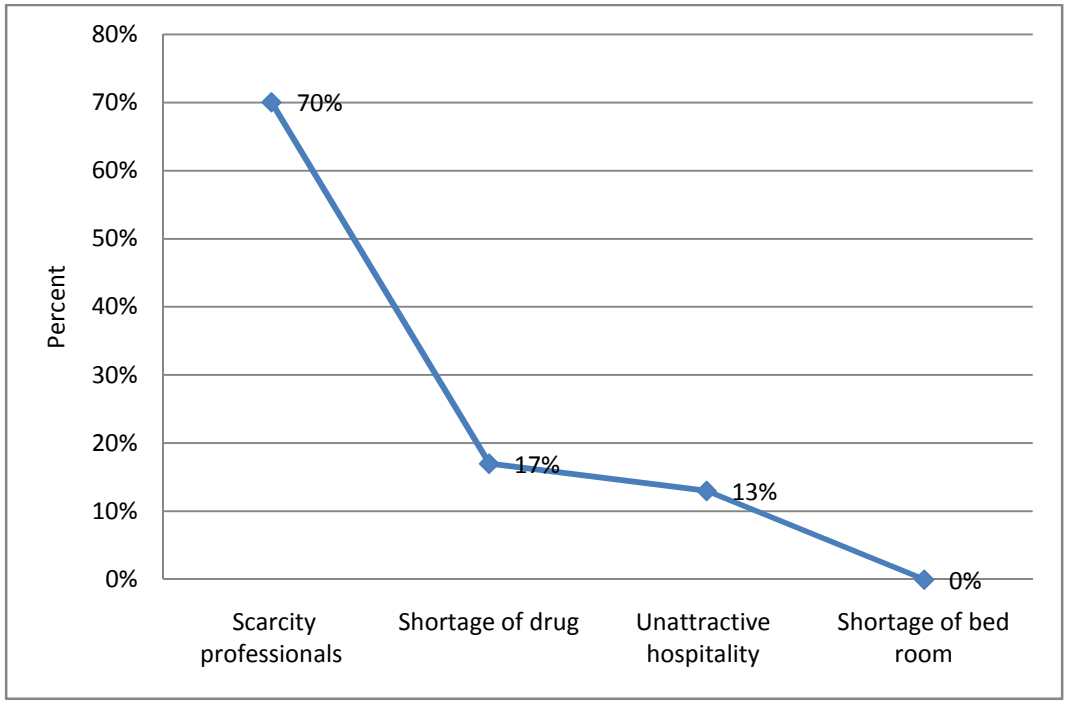

Figure 4.9: Challenges of health services at Summit Condominium Housing Site (source: own survey, 2015)

Table 4.4 question number three shows that, forty percent of dwellers were not satisfied with services delivery. In the same manner, it is conveyed on Figure 4.3 the first reason of dissatisfaction for 70% of respondents was scarcity of professionals. The respondents wrote on the remark that they doubt and have not trust on the professionals 'capacity most of the workers are young and not experience. Other reason is unattractive hospitality next to shortage of drug as

replied by thirteen and seventeen percent of respondents respectively. Thus, many of the clients were not satisfied with the service.

4.4 Public Transport at Summit Condominium Housing Site

4.4.1 Road Infrastructure

Addis Ababa Road and transport Authority (2015) report shows that coverage of road in 2014 was 17.5% and at the end of the GTP (2015) road coverage should be raised to 19.5 percent from total land of Addis Ababa. As a plan road coverage of city would be 30 percent from total land of area. Therefore, Addis Ababa left 10.5% to meet the intended standard of road coverage.

The road infrastructure in the interior part of the site is physically well constructed with asphalt and cobblestone standards. Data obtained from observation, some roads within inside the site are made from asphalt and other are from cobblestone. The main road that is connected with the center of the city is narrow, began eroding, and it has low standard compared with the internal one (Figure 4.7). As a result the main road aggravates the wearing away unless it is immediately maintained, repaired, expanded and constructed other alternative roads that connect the center of the city.

When pedestrians coexist with dense and high speed traffic, segregated pedestrian lane (footway) protected by a barrier (railing) with end treatment having protection for both pedestrians and vehicles are recommended. Such one pedestrian lane shall not be less than 1.5 m wide. A pedestrian walkway should permit two pedestrians to meet comfortably, which translates to 2x0.6 m width plus 0.3m clearance equals 1.5m. For safety considerations, the height of the pedestrian railings along the footways shall be 1m by means of a top rail made of steel pipes and the height of the traffic railing shall be 0,8m by means of a steel rail or concrete barrier. Traffic railing shall be as per ERA standard detail drawing B34 and B35 or another approved railing. Pedestrian railing shall be designed to resist a specified vertical and transversal load weight. Minimum value for weigh shall be 800 N/linear meter (AACRT 2002). Summit Condominium Housing Site asphalt roads have pedestrian lane which fulfills minimum requirement of width

(1.5m). But, there is no traffic railing or barrier main road from pedestrian lane. On the other hand, the researcher observed that road transport the only transport system is the system in the site.

Main road served as station

Interior part of condominium

Figure 4.10: Road at Summit Condominium Housing Site (Source: photo captured by researcher in 06/05/2015

4.4.2 Transport Accessibility

In the area public transport service is provided by government and privet transport actors. Types of public transport services are categorized in to two: the first one Anbesa Buses which are delivered by government. Six Anbesa buses mobilize passengers from summit to three different destinations. The second transport actor is the private transport actor. The taxi owners were organized under Neser Association. Bole Transport office has allocated specific destination for each taxi. Neser association delivers 33 mini buses to Summit dwellers to mobilize passengers from Summit to Megnagna terminal. On the other hand, there are 123 mid buses registered under Bole sub city. They are mobilizing passengers from different corner even out of Bole sub city.

Among them fifteen mid buses mobilize passengers to and from Summit (Bole Transport Office, 2015).

Table 4.6: Accessibility of privet transport at summit Condominium Housing Site

Type of transport	Seat	Number of passenger	Average No of passenger	Number of buses	Frequency of travel per day	Total No of Travel per day
Mini Bus	12	12-20	16	33	10	10560
Midi bus (Higer Bus)	23	24-50	37	15	4	4440
Total	-	-	-	48	7.5	15000

Sources: Source from Bole Transport office

Table 3.5 shows that 10560 passengers travel by mini bus and 4440 passengers by travel mid bus (higer bus) and modified ISUZU. As displayed on (table 4.6) private transport about 15,000 passengers mobilized from and to Summit Condominium Housing Site per day by private transport actors. The majority of the population prefers and uses private transport system particularly mini buses.

Table 4.7: Anbesa buses transport services from summit condominium house to others three destination

S/N	Identity No	No of bus	Destination	Frequency Traveling per bus per day	Total ferquency per day	Total passengers per day
1	22	2	Leghar	4 times	8	3600
2	79	2	4kilo	4 times	8	3600
3	119	2	Megenaga	5 times	10	4500
Total		6		13 times	26	11700

Source: Analysis based on data obtained from Anbesa Bus Head Office

The carrying capacity of the largest bus is 135 and the smallest (oldest) is 90 and two Anbesa buses (the big and small) give transport services from Summit to one of the three destination. Table4.5 shows that 6 Anbesa buses mobilize 11700 passengers to and from Summit Condominium Housing Site per day. The passengers are not only the dwellers but also who came from different parts of the city for many purposes. Moreover, as informed from Anbesa bus head officer, most of the time buses delay because of traffic congestion, nature of road, carelessness of the driver and other factors. Therefore, their frequency is less than four or five times.

Generally, public transport (Anbesa bus, midi bus and mini buses) mobilizes 26700 passengers per day. Eight six percent of passengers preferred public transport system (Table 4.8). There are 31,295 people live in that area. These data show that the number of public services could not match with the passengers demand. In addition, the researcher observes that, at the morning travelers from summit and at the night to Summit large number of peoples keeps for minutes Therefore, demand and supply of public transports are not much.

Table 4.8: Transport accessibility at Summit Condominium Housing Site

S/N	Items	Alternative	Count	Percent
1	Transport type preference	Privet	2	2
		Public(Minibus, Higher bus, Anbesa bus)	75	86
		Civil services	10	12
		Others		
2	Distance between dwellings and transport station	0 .5km	24	28
		1km	35	40
		2km	22	25
		3km and more	6	7
3	Time taken to arrive transport station	5min	13	15
		10min	14	16
		20min	39	45
		30min	12	14
		40min or more	9	10
4	Waiting time to transport	5-10 minute	18	20
		10-20minute	13	15
		20-30 minute	21	25
		30-40 minute	9	10
		Above 40 minute	26	30

Source: Computed raw data from questionnaire survey

Eighty six percent of the dwellers are mobilized by the Public transport such as mini bus, higher bus, and anbesa bus; 12 percent are mobilized by means of civil services transport; the rest 2 percent are mobilized by their private transports means. Therefore, most of the people use public transport.

Distance from home to transport station: 28 percent of respondents are far from the transport station by 0.5km; 40 percent of respondents are far-away from transport station by 1km; 25

percent replied they are 2km distant from the station and 7 percent of respondents are far-away by 3km or more. In addition, the time take to arrive transport station is: 76 percent of respondents replied, it takes 5-20 minutes and 24 percent responded it takes 30-40 minutes. Therefore, up to 20 minute walk is fair but more than 20 minute walk will be changed to work, tire some and consume time. Walking is best for short distances up 20 minutes (two kilometers) (Commonwealth of Australia 2013) in cited (ABS 2009).

With regard to the frequency and speed of vehicles 60 percent of respondent replied would wait for 5-30 minutes, 40 respondents answered as to they wait for 30-59 minutes. This numerical expressions show that much time is consumed from the schedule of the passengers. The ratio of passenger and transport delivery does not match. Therefore, the passengers were waiting for a long period of time which tiresome and boring. Finally, they didn't accomplish their work within the schedule which may result in economic, social and political problems.

CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. SUMMARY

The purpose of this study is to examine the accessibility of urban households to public services in Summit Condominium Housing Site. The study mainly focuses on selected public services of accessibility to households such as water, electricity, health services and transport, and its physical availability in the area. The study has figured out the gap and success of provision of public services to households in study area.

The research used both qualitative and quantitative data which means the study employed mixed research approach: Fully mixed concurrent equal status designs quantitative and qualitative phases occur at approximately the same point in time, with both phases being given approximately equal weight and mixing occurring within or across the data collection, analysis, and interpretation stages.

The sources of data used are both primary and secondary. Primary data were collected from the customers of water, electricity, health center and transport at Summit Condominium Housing Site and also from stakeholders. The secondary data were gathered from previous reports, books, manuals, websites, and project publications. Most of the secondary data were obtained from EEU, Road and Transport Authority of Addis Ababa, AAWSA, Addis Ababa Health Bureau, Bole Sub-City Health office and Summit Health Center. While collecting data, ethical considerations were seriously taken in to account to ensure the protection of individual's security.

To determine an appropriate sample size the research used a simplified formula to get 100 sample sizes (Israel, 1992). After determining the number of sample size, 100 respondents were selected by systematic random sampling techniques to gather qualitative and quantitative data. Moreover, Purposive sampling technique was used to select appropriate key informants to obtain qualitative data for the study from stakeholders. ten related professionals/experts were selected

from Addis Ababa and Bole sub-city, namely from Ethiopia Electric Utility, Addis Ababa Water and Sanitation Authority (AAWSA) Bole Branch, Summit Health Center and Transport Office of Bole Branch. In general, the data were gathered by questionnaire survey, key informant survey, document analysis and observation.

To analyze the data, descriptive statistics were used such as frequency, percentage and mean. In addition, inferential statistic particularly standard deviation was employed to analyze water and electric power consumption.

The researcher understood from the finding the study is that water pipeline infrastructures are available to households; sometimes the water pipelines were distracted by road and building construction; plus to that, there is no common yard which serves when there was water interruption at home.

As international standard, when water is piped in to home, access should be optimal and at least 100 liters per person per day. As national standard, 110 liter per person per day is accessed. But the data shows that actual accessibility at Summit Condominium Housing Site is 64.8 liter per person per day. Even there is great variation among household consumption. AAWSA current water coverage is 78% without including water loss before arriving consumption area. Consequently, the main causes of water interruption are scarcity of water supply and problem of physical infrastructure.

Physical infrastructures of electricity are available at Summit Condominium Housing Site. Almost all are fabricated (assembled) by METEC. To some extent, there is problem in quality and quantity of electric equipments production like transformers and fuses. These problems have been aggravating the interruption of electric power with the shortage of electric power supply.

Interruption of electric power is common at Addis Ababa as a whole and at Summit Condominium Housing Site in particular. The causes of interruption are shortage of electric power and low standard of electric equipments. The government does not announce interruption of power before it occurs at only Summit Condominium Housing Site.

If there is no interruption of power each household can consume up to 21,600KW per year. But now, the actual mean consumption of electric power is 4,790.535kw per year. The actual consumption of electric power is very low compared with maximum supply of electric power. Even among consumers, there is a great difference in electric power by more or less than 4197.7kw from the mean (4,790.535kw per year) of electric power consumption. Therefore, there is great difference among households in electric consumption.

Summit Health Center fulfills minimum standards and houses all the facilities required to render the services contemplated in the application for license. But internal parts have problems such as sewerage system, shortage of office for administration and insufficient supply of water and electricity. Even though, Summit Health Center is constructed by Ethiopian Health Center standard, there was installation problem. The problem of sewerage installation forced to build a separate toilet house out of building that adds another pain for patient because of distance.

At Summit Health Center, professionals are employed and give services for Summit dwellers. Health Center has employed all professionals more than the minimum requirement of national standard except General practitioner, Psychiatry nurse and Morgue attendant professional. However, most of the staff have professionals, some of are also had not even one professional.

Forty percent of dwellers that acquired services were not satisfied. The reasons of dissatisfaction were: Seventy percent of respondents replied the scarcity of professionals. The respondents wrote on the remark that they doubt and do not trust the professional ability of workers because the clients believed most of the professionals had no much experience due their young age. The second reason is shortage of drugs and the third one is unattractive hospitality as replied by seventeen and thirteen percent of respondents respectively. Generally, many of the clients were not satisfied by the delivered services due to the scarcity of professionals, shortage of drugs and unattractive hospitality.

The main roads are made from asphalt and the internal village road is constructed by asphalt road and cobblestone at Summit Condominium Housing Site. The widths of pedestrian lanes are more than the minimum requirement of its length (more than 1.5m one lane or footway). The main road is begun to erode because it serves not only as a highway but also as a station of bus, mini bus and higher bus and it has narrow width compared with other roads in that area.

Public transport is provided by government and private sectors. 15,000 passengers were mobilized per day by private transport scheme and 11,700 passengers were mobilized per day by government transport scheme i.e. Anbesa Buses. Both private and government mobilize around 26, 5000 passenger per day. Anbesa Buses usually delay from arriving time by the cause of traffic congestion, nature of road, careless driver and others factors. Eighty six percent of the dwellers were mobilized by the Public bus such as minibus, Higer bus, and Anbesa bus; 12 percent were mobilized via civil services buses; 2 percent use their own private transport means. We can conclude that most of the people use public transport.

5.2. CONCLUSION

On the basis of the data collected and the analysis made above the following conclusion is made. Assessment has been made on four infrastructures (water, electricity, health center and transport) in the research. Therefore, there are found that there is limitation on quality and quantity of service delivery at the study area. Concerning water pipeline, the main challenge of physical accessibility was a construction of road and buildings. As a result, AAWSA was exposed for extra expenditure and water interruption. Regarding the girding of electric power, low standard of electricity equipment has great contribution for power loss. Consequently, this frequency of electric power interruption was high. With reference to Summit Health Center, the sewerage system was not properly installed during construction of Summit Health Center. That forced to build toilet out of the main building and adds other pain to patients because of the distance from the building. On the subject of the road: the main road that connects with the center of the city is narrow, eroded, and is in poor standard compared with the internal part of the road. The internal part of that road has asphalt and cobblestone that has more quality than the main road. This main road gives many services as a main pass over and as a station.

AAWSA is insufficient in accessibility of water. There is scarcity and interruption of water supply in the area because of shortage water production, problem of physical infrastructure and loss of water. Regarding the electricity access, it is too frequently interrupted. The major factors for the interruptions power are scarcity of electricity power supply, backward distribution system and low quality of electric equipments like transformer, wire and fuses.

Concerning the health Center, the service provision is good as it began recently, but, it is faced with certain challenges such as shortage of professionals in same staff namely psychiatry nurse, general practitioner, morgue attendant and environmental health specialist. In addition, specialist could not stay stable long because the Health Center is located at the periphery of the city. Plus, the professional staffs didn't have full workers and they did not have well organized file and documentations. With reference to transport; there is the shortage of government and private transport services. Public transports services are not proportional with the number of passengers.

In general, the data indicate there is limitation in physical infrastructure and shortage of public service delivery in that study area. Therefore, the data indicates administration gave low attention for the quality and quantity of public service infrastructures. In addition, public service stack holders were not gave immediate response when any problem happened on public services.

4.3. RECOMMENDATION

Water is very essential for every activity. Currently, water coverage in Addis Ababa (without including the amount of water loss) is 78 percent. When water is piped into the home, household should be accessed at least 110 and 100 liter per person per day as national and international standard respectively. Of course, the analysis of data shows that, households access 64.8 liter per person per day at Summit Condominium Housing Site. AAWSA should solve shortage of water supply by through developing additional projects which should be done considering the future population growth rate.

The water lose in Addis Ababa is currently rise to 40 %. Therefore, the AAWSA should be regularly maintained and when accidentally cracked or broken water pipeline immediately repaired.

Integrated (comprehensive) plan is necessary for interrelated sectors to connect physical infrastructure in order to avoid wastage of resources and provide quality services for clients. Specially, at new expansion area integrated plan and implementation is so very essential. The water pipeline and electricity girding are connected following the line of road. When preparing comprehensive plan it must consider the different sectors plan and should take in to account order of construction procedure to minimize risk and waste of resources. Therefore, Addis Ababa City Administration must establish one independent institution which discharges such kinds of responsibility.

Ethiopian Electric Utility (EEU) should sufficiently supply electric power. Even if domestic production is appreciable the researcher recommends METEC to improve the quality and quantity of electric equipments production.

Well understand the problem of sewerage system, shortage of office and file documentation. Therefore, it should be repaired and installed again the sewerage system, additional office for

administration staff is essential and should be built. The administration staff should get continuous training to empower how to handle files and documents handling.

Summit Health Centre has enough area. So it is not necessary to build more than one storey of a building for patient favour. At least the future building should consider the capability of patients, they got services at ground and administration office can useupper storey.

The government gives incentive and tax reduction for private transport investors like other sector. The government should provide additional public transport to mobilize summit society. When public services are provided by the government, it should not be for the sake of profit maximization rather to satisfy society. Summit Condominium Housing Site has additional road outlet to central city of Addis Ababa. The government shall construct multi directional and short cut distance outlets to and fro summit condominium housing Site.

At Summit Condominium Housing Site, there is only one mode of transport system which is road transport. In order to bring sustainable solution for transport problem, that is the need to develop additional mode of transport like railway.

Public services directly or indirectly depend on one another. For instance, Health Center without adequate supply of water and electric power is difficult to deliver quality services. To provide comprehensively and adequately all the public services to customers, comprehensive plan shall be prepared and implemented.

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Annex 1: Key InformantInterview Guide

Dear respondent,

My name is Aziz Tsehay. I am a postgraduate student at Addis Ababa University, Department of Geography and Environmental Studies, specialization of Urban and Regional Development Planning. Currently, I am writing my thesis on analysis accessibility of urban households to public services in Addis Ababa: a case study from summit condominium housing. You have been selected purposively from different experts in Water and Sanitation Authority, Electricity Power Corporation, Health Authority and Transport Authority of Bole branch. The responses you give are valuable and will be held in utmost confidentiality and will be used only for the analysis of this research. You will not be identified by name in any case. If you accept to participate in this research, you will be doing so voluntarily and there will not be any monetary returns. You are also free to refuse to respond to any questions if you do not feel comfortable answering or to withdraw from the research all together.

Thank you in advance for your cooperation

Interview Guide: To be the response by Administrator of water and Sanitation in Bole Branch.

1. Is there available water pipeline infrastructure in any house at summit condominium?

   _____

   _____

2. Where the sources of water are provide for summit condominium house?

   _____

   _____

3. How much the volume of water consumes in summit condominium liters per day?

   _____

   _____

4. Can you tell me the numbers of household's obtainable water?

   _____

   _____

5. How much the average accessibility water to each liter per household per day? Is that adequate?

_____

_____

6. Average access of water in summit condominium litters per person per day require for basic need of water for drinking, bathing, sanitation and food preparation?

_____

_____

7. Do you have standards to measure the accessibility of water in order to put low, medium and high?

_____

_____

8. Is there equal distribution among Blocks and from first floor to fifth? If not pleas briefly explain the reason.

_____

_____

9. What they are main goal of Growth and Transformation of Planning (GTP) and Millennium Development Goal (MDG) in water physical infrastructure and accessibility?

_____

_____

10. What do you do to achieve Growth and Transformation of Planning (GTP) and Millennium Development Goal (MDG) according to goal of it's?

_____

_____

11. Can you tell me the growth rate of water accessibility from 2010/11 to 2013/14 in summit?

_____

_____

12. Can you tell me duration of maintenance physical infrastructure (pipe line) of water?

_____

_____

13. Do you give inform before interruption of water for consumer? If you answer is yes by which communication methods inform them by poster, TV, Radio, text message, oral

_____

_____

14. What is another option of dweller when water interrupts or absent at home? How long far from their home?

_____

_____

15. What are the causes of water interruption?

_____

_____

Thank you in advance for your cooperation

Interview Guide: To be respond by Administrator (expert) of Electricity Power Corporation (EPC) in Bole Branch.

1. Do you did fully accomplished the physical infrastructure or girding of electricity at Bole summit condominium house area?

_____

_____

2. Is there enough girding of electricity at summit condominium house?

_____

_____

3. Can you tell me the numbers of household's obtainable electricity?

_____

_____

4. How much electricity access *Daily* Kwper day in summit condominium?

_____

_____

5. How much the average electricity access to every household kilo watt per daily, kilo watt per monthly and kilo watt per annually?

_____

_____

6. Is that proportional the supply of electricity and demand of electricity power at Bole particularly summit condominium house?

_____

_____

7. Do you evaluate your organization by national and international standard such as Growth and Transformation of Planning (GTP) and Millennium Development Goal (MDG)?

_____

_____

8. What they are mine goal of Growth and Transformation of Planning (GTP) and Millennium Development Goal (MDG) in electricity grading and accessibility?

_____

_____

9. How much is fulfilling Growth and Transformation of Planning (GTP) and Millennium Development Goal (MDG) the access of electricity to household?

_____

_____

10. What was subsequent annual growth rate of electricity from 2010/11 to 2013/14 year?

_____

_____

11. What is your response to people when electricity interrupts? Do you announce before interruption of electricity?

_____

_____

12. How many hours electricity interrupt or disappear?

_____

_____

13. In what duration of time does you maintenance electricity line as regularly and how fast during emergency interruption?

_____

_____

Thank you in advance for your cooperation

Interview Guide: To be reposed by Administrator (expert) of Health Bureau Bole Branch.

1. Can you elaborate about physical infrastructure of health services at summit condominium house? If there is no any clinic in that area, which is their destination.

   _____

   _____

2. Is that available others complimentary infrastructure like transport, water, electricity and other in services area of health in summit condominium house?

   _____

   _____

3. Which health care system founded at summit condominium house system or near summit?
   A. primary health care units
   B. general hospitals
   C. specialized referral hospitals

   Other_____
4. Can you explain the internal input material (facility) at health services centre?

   _____

   _____

5. Can you mention the proportion of population with professional each health centre in summit condominium area or near summit?

   _____

   _____

6. Where is the level of health centre when measured by national and international standard?

   _____

   _____

7. What are the Maine goals which are share from Growth and Transformation of Planning (GTP) and Millennium Development Goal (MDG) in health services accessibility?

   _____

   _____

8. How much is fulfilling Growth and Transformation of Planning (GTP) and Millennium Development Goal (MDG) the access health services?

   _____

   _____

9. What do you get when measured by goal of Growth and Transformation of Planning (GTP) and Millennium Development Goal (MDG)?

   _____

   _____

10. How much Growth rate of health services in summit condominium from 2010/2011 to 2014/15?

    _____

    _____

11. Is that satisfying every society by provision of health services in summit condominium house or near to summit?

    _____

    _____

ቃለ-መጠየቅ

እኔተማሪአዘዘፀሐይ የአዲስአበባዩንቨርሲቲየጅኦግራፊእናየአካባቢጥናትትምህርትክፍልየድህረምረቃተማሪስሆን፡፡በአሁኑ ሰአት ጥናታዊጹህፌን **የማህበራዊ አገልግሎትለ ከተማኑሪዎች ተደራሽነተን መገምገመ** (Analysis accessibility of urban households to public services in Addis Ababa: a case study from summit condominium housing). በሚል ርዕስስሚት ኮንዶምኒየምቤቶች ላይ እየሰረሁ ነው፡፡ስለሆነም ከኤሌክትሪክ፣ ከጤና ተቋማት፣ ከትራንስፖርት እና ከውሃ እና ፍስሽእርስዎም ባለ ሙያወችለቃለ-መጠየቅ ተመርጠዋል እርስዎም በዚህ መከንካከለ አንዱ ነዎት፤የሚሰጡኝ መረጃበቀጥታ የሚውለውም ለጥናታዊ ጽሑፍ ብቻ ነው፡፡ በጥንታዊጽሑፍውስጥለመሳተፍፈቃደኛከሆኑእያንድዳንዱንጥያቂበጥንቃቂበማንበብተገቢውንመለስይመልሱልኝ፡፡ በቅድሚያቃለ-መጠየቁንለመመለስ ፈቃደኛስለሆኑአመሰግናለሁ፡፡

የቃለ-መጠየቁመመሪያ፡ጥያቄዎችየሚመለሱት የቦሌ ክፍለ ከተማ ጤና ጽፈትቤ/ት ባለሙያው ነው፡፡

ነ. በሰሚት ኮንዶሚንየም ቤቶች ያለውን የጤና ጣቢያ መሰረተ ልማት ሊገልጹልኛ ይችላሉ? የጤና በጣቢያ በሰሚት ኮንዶሚንየም ከሌለ የአካባቢው ሰዎች የት ነው የሚጠቀሙት?

_____

_____

2. መጋቢ የሆኑ መሰረተ ልማቶች እንደ ውሃ፣ ኤሌክትሪከክ፣ ትራንስፓርት እና ሌሎች በሰሚት ኮንዶሚንየም በጤና ጣቢያ ተደራሽ ሆኖአል?

_____

_____

3. የየትኛው ጤና ጥበቀ ስርአት ነው በሰሚት ኮንዶምንየም ቤቶች ላይ ወይም አካባቢ ተግባራውይ የሆነወ የተኛው ነው ?

ሀ. የመጀመርያ ጤና ጣቢያ

ለ. ጠቅላላ ሆስፒታል

ሐ. ስፔሻላዝድ ሪፈራል ሆስፒታል

ሌላ ካለ_____

4. የጤና ጣቢያው የውስጥ የቁሳቁስ አደረጃጀት ሊገልፁልኝ ይችላሉ?

_____

_____

5. በሰሚት ኮንዶሚንየም ጤና ጣቢያ የነዋሪዎች ተጠቃሚው ብዛት ከባለሙያዎች ጋር በንጽጽር ሊገልጹልኝ ይችላሉ?

_____

_____

6. ጤና ጣቢያው በአለም አቀፍ እና አገር አቀፍ መለኪያዎች ሲመዘን ደረጃውን የት ለይ አገኛችሁት?

_____

_____

7. ከምዕታመቱ የልማት ግብ እና፤ ከእድገት እና ትራንስፎረሜሽን እቅዱ የተጋራችኃችኃቸው በጤና ጣቢያው የሚተገበሩ ዋና ዋናዎቹ ግቦች የትኞቹ ናቸእው?

_____

_____

8. ምን ያህል ከምዕታመቱ የልማት ግብ እና፤ ከእድገት እና ትራንስፎረሜሽን እቅድ በጤና ጣቢያው አገልግሎት አሰጣጥ አሰአከአችሁ?

_____

_____

9. ከምዕታመቱ የልማት ግብ እና፤ ከእድገት እና ትራንስፎረሜሽን እቅድ ጤና ጣቢያው ሲለካ ምን ደረጃ ላይ ይገኛል?

_____

_____

10. ከ 2010/10-2013/15 የጤና ጣቢያ አገልግሎት በስንት % እድገት አሳይቷል?

_____

_____

11. በሰሚት ኮንዶሚንየም ጤና ጣቢያው የሚሰጠው አገሎግሎት ሁሉንም ማህበረሰቡ የሚያረካው ነው?

Thank you in advance for your cooperation

Interview Guide: To be the respond by Administrator (expert) of Transport Authority of Bole Branch.

1. Can you explain about the status of infrastructure transport in summit condominium house?

_____

_____

2. Is there any gap transport infrastructure accessibility at summit condominium house?

_____

_____

3. Can you tell me rod coverage of Bole sub city and summit condominium house at the present day?

_____

_____

4. How much the total area rode area out of total area of Bole and summit condominium house respectively?

_____

_____

5. What was the goal of your sector at the beginning of GTP and MDG in Bole sub city, particularly summit condominium house?

_____

_____

6. This year is the end of GTP and MDG so that what about the level of your activity evaluate as its goal? Do you achieve it or not the goal of GTP and MDG?

_____

_____

_____

7. What was Consecutive five2010/2011-2014/15 year growth rate of transport in Bole and summit condominium?

_____

_____

8. How many vehicles namely city bus, medium bus, and minibus provide for summit condominium societies'?

_____

_____

9. How much passenger transport every day from and to summit condominium house?

_____

_____

10. Is there any standard measurement to evaluate transport availability to public?

_____

_____

11. How long time is taken to reach transport station in average?

_____

_____

12. What is the ratio of main road with pedestrian?

_____

_____

13. If you have additional information related with transport please tell me?

_____

_____

Annex 2:Questionnaire

Dear respondent,

My name is Aziz Tsehay. I am a postgraduate student at Addis Ababa University, Department of Geography and Environmental Studies, specialization of Urban and Regional Development Planning. Currently, I am writing my thesis on analysis accessibility of urban households to public services in Addis Ababa: a case study from summit condominium housing. You have been selected randomly among dwellers of summit. The responses you give are valuable and will be held in utmost confidentiality and will be used only for the analysis of this research. You will not be identified by name in any case. If you accept to participate in this research, you will be doing so voluntarily and there will not be any monetary returns. You are also free to refuse to respond to any questions if you do not feel comfortable answering or to withdraw from the research all together. Thank you in advance for your cooperation.

QuestionnaireGuide: To be the respond by summit condominium dweller

Water

1. Is that easily split the water pipe line?
   A. Reputedly C. Never
   B. D. Sometimes
2. Is there any interruption of water in your village?
   A. Yes
   B. No

3.What do you think the cause of water interruption?

   A. Shortage of water production
   B. Problem of water pipeline

4. Are announces by government before interruption of water made?
   A. Yes
   B. No
5. Where is the source of water when interrupt in your village?
   A. Common yard C.Hole
   B. Privet yard D. No source
6. If your answer is “B” how long distance does you travel to fetch water when the pipeline is interrupted?
   A. 1-2hr C. 3-4hr

B. 2-3hr D. More than 4hr

6. How was the response of the concerned bodies when interruption happens?

A. Fast (with in one day) and complete C. No response

B. Slow (more than one day) and complete

7. Have you any other idea about water accessibility in village write down?

Electricity

1. Do you think the electric grading is having problem?
   A. Yes
   B. No
2. If your answer is “yeas” what are is the problem
   A. Electric wire C. Fuse
   B. Transformer D. Electric pole
3. Is there any interruption of electricity happen in your household?
   A. Yes
   B. No
4. Does the government announce before interruption?
   A. Yes
   B. No
5. What do think the interruption of electricity
   A. Electric girding problem
   B. Shortage of power
6. How much time interrupts electricity per month?
   A. 5-10hr C. 16 -20hr
   B. 11-15hr D.21-25hr

Health

1. Did you get service in Summit Health Center
   A. Yes
   B. No
2. If your answer is no what is you reason?
   A. Choose private health services
   B. No facing health problem

3. If your answer is yes in question No 1, are you satisfied with the health service?
   A. Yes
   B. No
4. If your answer is no what is the reason?
   A. Scarcity professionals
   B. Shortage of drug
   C. Un attractive host
   D. Shortage of bed room

Transport

1. Which transport system do you commonly use?

   A. Privet

   B. Public(Minibus, Higher bus, Anbesa bus and Baggage)

   C. Civil services

   D. Others

If your answer is 'B" continues to fill your answer and if it is "A" or "C" stops to fill the answer below questions.

2. How long your home far from transport station?

A. 0 .5km C. 2km

B. 1km D. 3km

3. How much time it takes to reach to the station?

   A. 5min C. 20min

   B. 10min D. 30min E. 40min

4. How much time do you wait at station to get transport?

   A. 5-10min C. 20 -30min

   B. 10 20min D. 30-40min E. 40min-1hr

መጠየቅ

እኔ ተማሪ አዘዘ ፀሐይ የአዲስ አበባ ዩንቨርሲቲ የጅኦግራፊ እና የአካባቢ ጥናት ትምህርት ክፍል የድህረ ምረቃ ተማሪ ስሆን፡፡ በአሁኑ ሰአት ጥናታዊ ጹህፈን **የማህበራዊ አገልግሎት ለከተማ ኑሪዎች ተደራሽነተን መተንተን** (Analysis accessibility of urban households to public services in Addis Ababa: a case study from summit condominium housing). በሚል ርዕስ በሰሚት ኮንዶምኒየም ቤቶች ላይ እየሰረሁ ነው፡፡ስለሆነም እርስዎም ለመጠየቅ ተመርጠዋል፤ የሚሰጡኝ መረጃ በቀጥታ የሚውለውም ለጥናታዊ ጽሑፍ ብቻ ነው፡፡ በጥናታዊ ጽሑፍ ውስጥ ለመሳተፍ ፈቃደኛ ከሆኑ እያንድዳንዱን ጥያቄ በጥንቃቄ በማንበብ ተገቢውን መልስ ይሙሉ፡፡ በቅድሚያ መጠየቁን ለመሙላት ፈቃደኛ ስለሆኑ አመሰግናለሁ፡፡

የመጠየቁ መመሪያ፡ ጥያቄዎች የሚሞሉት በሰሚት ኮንዶሚንየም ናዋሪዎች ናቸው፡፡

ሀ. የዳራ መረጃ

በመረጡት ከፊት ቦታላይየ(√)ያስቀምጡ

1. ጾታ፡- ወድ..... ሴት.....
2. እድሜ፡-_____
3. የትምህርትደረጃ.፡- ነኛደረጃ___2ኛደረጃ_____መሰናዶ____ዲፕሎማ___ድግሪ_____2ኛድግሪ_____ሌላአካለ _____
4. ቤተሰብ ደረጃ፡- አባወራ___እማወራ___ልጅ___ዘመድ____
5. የሚኖሩበትፎቅ፡- ምድርቤት ___ ነኛፎቅ__ 2ኛፎቅ___ 3ኛፎቅ___ 4ኛፎቅ__ 5ኛፎቅ___

ለ. የመጠየቁ ዋና ክፍል

የመጠየቁ መመሪያ፡ የመረጡትን ፊደል ያክብቡ

ውሃና በተመለከተ

1. መግስት የዘረጋቸው የውሃ መስመሮች በቀላሉ ይሰበራሉ(ይሰነጠቃሉ)?

   ሀ. በተደጋጋሚ ለ. አልፎአልፈሉ ሐ. በፍጹም አይሰነጠቁም

2. የውሃመቆራረጥ(እጥረት) በስፈራችሁበተደጋጋሚይከሰታል?

ሀ. በተደጋጋሚ ይከሰታል ለ. አልፎ አልፎ ሐ. አይከሰትም

3. ውሃ መቆራረጥ ምክንት ምንድን ነው ብለው ያስባሉ?

   ሀ. የውሃ እጥረት ለ. የውሃ መስመሮች ችግር

4. ውሃ መቆራረጥ ከመከሰቱ በፊት የሚመለከታቸው የመንግስት አካላት ያሳውቃችኃል?

   ሀ. ያሳውቃሉ ለ. አንዳነደዱ ሐ. አያሳውቁም

5. ውሃ መቆራረጥ ሲከሰት(ሲጠፋ)ውሃ ከየተኛው ታገኛላቸሁ?

   ሀ. የጋራቦኖ ሐ. ከጉድጋድ

   ለ. ከግለሰብ ቦኖ መ. አናገኝም

6. መልስዎ ከ 'መ' ውጭ መልስዎ ከሆነ፣ ምንያህል ርቀት ተጉዘው ይደርሳሉ

   ሀ. 30ደቂቃ-1ሰዓት ለ.1-2ሰዓት ሐ.2-3ሰዓት መ.3ሰዓት ላይ

6. የመቆራረጡን ምክንያት የሚመለከታቸው አካላትን በምትጠይቂበት ጊዜ ምን አይነትምላሽ ተስጠህ/ሺ?

ሀ. ፈጣንናቀልጣፋ ለ. የዘገየናያልተማላ ሐ. ምላሽየለም

7. ተጨማሪ ሀሳብ ካለዎት ይፉልኝ

_____

_____

ኤሌክትሪክ በተመለከተ

ነ. ኤሌክትሪክ መስመሮች ችግር አለባቸው ብለው ያስባሉ

ሀ. አዎ ለ. አይደለም

2. መልስዎ አዎ ከሆነ የየትኛው ችግር ነው ብለው ያስባሉ

ሀ. የኤሌክትሪክ ገመድ ሐ. የፊውዝ

ለ. የትራንስፎርመር መ. የኤሌክትሪክ የፖሎች

3. የኤሌክትሪክ መቆራረጥ(የሃይልእጥረት) በስፈራችሁበተደጋጋሚይከሰታል?
ሀ. ይከሰታል
ለ. አይከሰታል
4. የኤሌክትሪክ መቆራረጥ ከመከሰቱ በፊት የሚመለከታቸው የመንግስት አካላት ያሳውቃችኃል?

ሀ. ያሳውቃሉ ለ. አንዳነደዴ ሐ. አያሳውቁም

5. የመብራት መቆራጥ ምክንያቱ ምንድን ነው ብለው ያስባሉ

ሀ. የኤሌክትሪክ መስመሮች

ለ. የሃይል እጥረት

6. ምንያህል ግዜ በወር የመብራት መቆራጥት ይከሰታል

ሀ. 5-10 ሰዓት ሐ.16 -20 ሰዓት

ለ. 11-15 ሰዓት መ.21-25 ሰዓት

7. ተጨማሪ ሀሳብ ካለዎት ይፉልኝ

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የጤና ጣቢያ አገልግሎት

ነ. በሰሚትኮንዶምንየምቤቶች ጤና ጣቢያ ተገልግለው ያውቃሉ?

ሀ. አዎ ለ. አይደለም

2. መልስዎ አይደለም ከሆነ ምክንያትዎ ምድን ነው?

ሀ. የግል ጤና ተቋም ስለሚመርጡ

ለ. የጤና ችግር ስላላጋጠመዎት

ሐ. የተማላ አገልግሎት ስለማያገኙ

3. ጥያቄ ፣ ላይ መልስዎ አዎ ከሆነ በአገልግሎቱ ረክተዋል?

ሀ. አዎ ለ. አይደለም

4. መልስዎ አይደለም ከሆነ ምክንያቱ ምንድን ነው?

ሀ. የባለሙያ እጥረት ለ. የመድሃኒት እጥረት ሐ. የመስተንግዶ ችግር መ. የአልጋ እጥረት

8. ተጨማሪ ሀሳብ ካለዎት ይፉልኝ

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ትራንስፖርትን በተመለከተ

ነ. የትኛውን የትራንስፖርት አይነት በዋንነት ይተቀማሉ

ሀ. የግልዎን ሐ. የሲቨል ሰርቨስ

ለ. የህዝብ ትራንስፖርት (ሚኒባስ፣ ሀይገር፣አበሳ በስና ባጃጅ) መ. ሌላ

2.ቤትዎ ከትራንስፖርት ጣቢያ ምን ያህል ርቀት አለው?

ሀ. 0 .5 ኪሜለ.ለ.1ኪሜ ሐ.2ኪሜ መ.3ኪሜ

3.ከትራንስፖርት ጣቢያው እስከ ቤት ምንያህል ሰአት ይወስዳል ርቀት

ሀ. 5ደቂቃ ለ.10ደቂቃ ሐ.30ደቂቃ መ.40ደቂቃ

4. ምን ያህል ሰዓት ትራነንስፖርት እየጠበቁ ይቆያሉ

ሀ. 5-10ደቂቃሐ.20 -30ደቂቃ

ለ. 10- 20ደቂቃመ. 30-40ደቂቃሠ.40ደቂቃ-1ሰዓት

5. ተጨማሪ ሀሳብ ካለዎት ይፉልኝ

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Information Sheet

Title of the study: analysis of Urban Households to public services in Addis Ababa: a case study at sum condominium housing.

The general object of this study is analyzing the actual accessibility of public services namely water, transport, health and electricity. Public services also measures its accessibility by National and International standards which are provide for summit condominium households, Bole-sub city, Addis Ababa, Ethiopia.

Procedure: You have been selected purposively from different experts in Water and Sanitation Authority, Electricity Power Corporation, Health bureau and Transport Authority of Bole branchesIf you are willing to participate in this study, you will respond my interview questioners. The completion time is about 20 to 30 minutes.

Risks and benefits of the study: By participating in this study, and answering my questions, you will not receive any direct benefit or there will not be any monetary returns. However, you will help to increase my understanding on the accessibility of health services in summit condominium hose dweller. I hope that the results of the study will improve and make more acceptable the services currently available to dweller. Your participation in this study will not involve any risks to you.

Right: You are also free to refuse to respond to any questions if you do not feel comfortable answering or to withdraw from the research all together.

Confidentiality: The responses you give are valuable and will be held in utmost confidentiality and will be used only for the analysis of this research. You will not be identified by name in any case.

Informed consent form

I am informed all about the purpose of the study and my rights to decide not to participate or discontinue my participation at any time in the process of the interview, and I have volunteered to participate in this study. Interview has agreed.

01. Yes 02. No

Name of the interviewer_____ Date_____ Signature_____

Thank you very much for your cooperation! For any question or more clarification or any problems you can contact principal investigator.

If you have any question you can contact the principal investigator at any time convenient for you using the following address:

Name: Aziz Tsehay

Address: Ababa Addis, Ethiopia

Phone number: 0922022976

E-mail: aziz.tsehay@yahoo.com

Amharic version Information Sheet

<u>የመረጃገፅ</u>

<u>የጥናቱ ርዕስ</u>፡-የማህበራዊ አገልግሎት ለከተማ ኑሪዎች ተደራሽነትን በአዲስ አበባ መገምገም በሚል ርዕስ ስሚት ኮንዶምኒየም ቤቶች ::

የጥናቱዋናአላማ፡-የጥናቱ ዋና አላማ ነባራዊ የማህበራዊ አገልግሎት ማለትም የውሃ፣ትራንስፖርት፣የጤና እና የኤሌክትሪክ ተደራሽነትን መገምገም ነው::እንዲሁም የሰሚት ኮንዶምኒየም ቤቶች የማህበራዊ አገልግሎት ተደራሽነተን በሀገራዊ እና በአለም አቀፋዊ ስነ-ልኮች መለካት ይሆናል::

<u>አላማ፡-</u> እርስወ የተመረጡት እሆን ተብሎ ከቦሌ ክ/ፍ ከተማ ቅርጫፍ ከውሃና ፍሳሽ ባለስልጣን፣ መብራት ሃይል ኮርፖሬሽን፣ጤና ጣቢያ ጽ/ቤት እና ትራንስፖርት ባለስልጣን ባለሙያወች መካከል አንዱ ሁነው ነው :: በዚህ ጥናታውይ ጽሁፍ ለመሳተፈ ፈቅደኛ ከሆኑ፤ የቃለመጠቁን ጥያቄ መልስ ይስጡ :: የቃለመጠቁን ጥያቄች ለመመለስ ከ20- 30 ደቂቃች ይወስዳል::

የጥናቱ ጉዳት እና ጥቅም፡- በጥናቱ ውስጥ በመሳተፍዎ እና ጥያቄዎችን በመመለስዎ ምንም አይነተ ቀጥተኛ ጥቅም ወይም ገንዘብ አያገኝዎም::ቢሆንም የርስዎ መልስ ለኔ በሰሚት ኮንዶሚንየም ያለውን የጤና አገልግሎት ተደራሽነትን እንድገነዘብ ይረዳኛል:: እርግጠኛ ነኝ የጥናቱ ውጤት ጠቃሜታ እና ተደራሽነትን አሁን ካለው በተሻለ አልግሎት ለናሪው ለማቅረብ ይረዳል:: እርስዎ በዚህ ጥናት ውስጥ በመሳተፍዎ ምንም ዓይነት ጉዳት አይደረስብዎም::

<u>መብት፡-</u> እርስዎ ማንኛውንም ጥያቄ በነጻነት የመመለስ ያለመመለስ ነጻነት አለዎት:: እርስዎ ጥይቄዎች ጥሩ ስሜት ከሰጥዎት መመለስ፣ ጥሩ ስሜት ካልተሰማዎት ሙሉ በሙሉ ከትናቱ የመውጣት መብትዎ የተጠበቀ ነው::

<u>ምስጢራዊነቱ፡-</u>እርስዎ የሚመልሳቸው ጥያቄዎች ዋጋአላቸው እና የሚውሉትም ለጥናታውይ መተንተኛ ብቻ ነው:: ምስጢራዊነቱ በከፍተኛ መጠን የተጠበቀኘ ነው::

Amharic version Consent sheet

<u>የስምምነት/ፍቃደኝነት ቅጽ</u>

የስምምነት/ፍቃደኝነት ቅጽ ለዚህ ጥናት አሊማ እና በጥናቱ ላይ የመሳተፍም ሆነ ያለመሳተፍ ወይም በማንኛውም ሰአት ቃለመጠይቁን ማቆም እንደምችሌ ተገሌጾልኛል። እናም በቃለመጠይቁ ለመሳተፍ ፍቃደኛ ነኝ። በቃሇመጠይቁ ሊይ ለመሳተፍ ፍቃደኛ ነዎት?

01, **አዎ**02, **አይደለሁም**

የመላሹ ፊርማ _____

የጠያቂውስም_____**ቀን**_____ **ፊርማ** _____

ስለትብብርዎ በጣም አመሰግናለሁ፡፡ለማንኛውም ጥያቄ ወይም ለበለጠ መረጃ ወይም ለማንኛውም ችግር አጥኝውን ማግኘት ይችላሉ፡፡

ለማንኛውም ጥያቄ ቢኖርዎት አጥኝውን በማንኛውም ሰዓት በሚከተለው አድራሻ ማግኘት ይችላሉ፤

ሥም፡- አዝዝ ፀሐይ

አድራሻ፡- አዲስ አበባ ኢትዮጵያ

ስልክቁ.ጥ፡- 0922022976

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