# ADDIS ABABA UNIVERSITY

# COLLEGE OF BUSINESS AND ECONOMICS

# DEPARTMENT OF PUBLIC ADMINISTRATION AND DEVELOPMENT MANAGEMENT (PADM)


## FACTORS AFFECTING URBAN SERVICE AND INFRASTRUCTURE PROVISION IN SULULTA TOWN FROM MULTI STAKE HOLDERS VIEWS

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN PUBLIC MANAGEMENT AND POLICY (MPMP)**

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**Statement of Declaration**

I declare that the thesis entitled **"factors affecting urban services and infrastructure provision In Sululta town"** submitted for the partial fulfillment of the **M.A. Degree in Public Management And Policy (MPMP**) at Addis Ababa University is my original work and it hasn't been presented for the award of any other Degree, Diploma, or other similar titles at this or any other university or institution.

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**Statement of Certification**

I certify that the thesis entitled **"factors affecting urban services and infrastructure provision In Sululta town""** is the work of Mr.Hailu Negewo who carried out the research under my guidance and I certified that, to the best of my knowledge, the work reported here in doesn't form part of any other project report or dissertation on the bases of which a degree or other award was conferred on an earlier occasion on this or any other candidate.

Advisor: Jemal Abagissa(PhD): _____

Date: _____

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# COLLAGE OF BUSINESS AND ECONOMICS

## DEPARTMENT OF PUBLIC ADMINISTRATION AND DEVELOPMENT MANAGEMENT (PADM)

A Thesis Submitted to the Department of Public Administration and Developmental Management College of Business and Economics for the Partial Fulfillment of the Requirements for the Degree of (M. A.) Master in Public Management and Policy (MPMP)

BY

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**Abbreviations and Acronyms**

| | |
|---|---|
| ASCE | American Society of Civil Engineers |
| BLIS | Bangkok Land Information System |
| CSA | Central Statistical Authority |
| EEPCO | Ethiopian Electric Power Corporation. |
| FAUSIP | Factors affecting urban service and infrastructure provision |
| GDP | Growth domestic product |
| GIS | Geographic Information System |
| HPEC | High Powered Expert Committee HPEC |
| ICT | Information Communication Technology |
| NMP | National Mapping Agency |
| NGOs | Non-Governmental Organizations |
| NIPFP | National Institute of Public finance and Policy |
| NJUG | National Joint utilities Group |
| NRSW | New Roads and Street Works |
| ORG | Oromia Regional Government |
| OUPI | Oromia Urban Planning Institute |
| STPCO | Sululta Town Planning Communion Office |
| TCPO | Town and Country Planning Organisation |
| WDR | World Development Report |
| WB | World Bank |
| ULBs | Urban local bodies |
| UIAs | Urban Infrastructure Agencies |
| UIP | Urban Infrastructure Provision |
| UN | United Nations |

## *ABSTRACT*

*The main objective of this study is to assess factors affecting urban service and infrastructure provision in Sululta town Oromia special zone surrounding Finfinne. Both qualitative and quantitative methods were used in the study. In addition, primary and secondary data were collected and used for analysis. The primary data were collected using semi-structured questionnaire. The researcher used 180 samples of which 150 were dwellers and 30 employees/experts from 6 urban service provision sectors selected for the study based on what affects urban service and infrastructure provision. In addition, secondary data were collected from reports of sululta town planning commission, Sululta city administration and reports of other infrastructure provision sectors to undertake trend analysis for five years (2011/12 – 2015/16) on selected sectors. The data was analyzed using descriptive statistics and Microsoft Excel presented through tables, percentages and figures. Results of the study revealed that, shortage of coverage of infrastructures like water, road and drainage; electric power, health centers and schools affects urban services.*

*On the basis of the findings of the study it is possible to say that urban infrastructure provision is at its lower stage. Furthermore, there is investment opportunity in the town, but their contribution is at its low level and requires participating on urban infrastructure provisions.*

*Therefore, proper emphasis is expected to minimize the factors affecting urban infrastructure provision of the town and to enhance its coverage by coordination of the dwellers, different sectors and municipality together to attain their plan. This is because Coordination of the municipality between infrastructure provision sectors was not strong. This is one of the major areas which needed to solve factors affecting urban service and infrastructure provision overall in the town.*

*Therefore prospects of factors affecting urban service and infrastructure provision have to be given attention to solve out systematically and strategically by respective authorities given the existing supply gap and highly growing urban service and infrastructure demand in the town.*



***Keywords**: Infrastructure, Service, Infrastructure and Service Provision.*

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

Infrastructure services include public utilities (power, piped gas, telecommunications, water supply, sanitation and sewerage, solid waste collection and disposal), public works (major dam and canal works for irrigation, and roads), and other transport sectors (railways, urban transport, ports and waterways, and airports) and Social infrastructure, often encompassing education and health care (World Development Report 1993).

Providing infrastructure services to meet the demands of businesses, households, and other users is one of the major challenges of economic development. The availability of infrastructure has increased significantly in developing countries over the past several decades. In many cases, however, the full benefits of past investments are not being realized, resulting in a serious waste of resources and lost economic opportunities. This outcome is frequently caused by inadequate incentives embodied in the institutional arrangements for providing infrastructure services. While the special technical and economic characteristics of infrastructure give government an essential role in its provision, dominant and pervasive intervention by governments has in many cases failed to promote efficient or responsive delivery of services. Recent changes in thinking and technology have revealed increased scope for commercial principles in infrastructure provision (ibid).

According to (Cheyns'1996), the nature of infrastructure is providing equitable basic services such as water, sanitation; drainage, energy, and transport are key ingredients for the economic and social development of urban areas. They also sustain and improve the health, livelihood, and general living environment of urban residents. Equally important, basic services are the cornerstone for a government's compact with its citizens, and are the most tangible issue for which communities hold their elected officials accountable. Every day, almost 180,000 new urban dwellers need access to energy, water, sanitation, waste management services, healthcare, education, transport, and need to earn a living in cities in the developing world. To meet this growing demand, at least $70 trillion of global infrastructure investment is needed between 2016 and 2030.The rising demand for urban infrastructure has not been matched with a commensurate improvement in the financial and institutional capacity to manage urban infrastructure services. With large sections of the urban population living in informal settlements, the challenge is how to expand and upgrade these services to keep pace with urban growth, while ensuring access to an adequate and affordable level of services for the poor. There is also a need for a holistic

approach to the understanding of long term planning for infrastructure and basic services, as opposed to a short-term sector-based approach. A long term national infrastructure plan anchored to a development vision is needed along with the understanding of the interdependence of assets, knowledge, and institutions across, and between, all systems of infrastructure (ibid).

Urban services including infrastructure provision and urban expansion, the relationship between levels of infrastructure and land prices, and the mechanisms used to finance infrastructure services—including power, transportation, telecommunications, provision of water and sanitation, and safe disposal of wastes—are central to economic production and urban growth. It is commonly agreed that infrastructure plays an important role in stimulating urban land development and private economic activity (Démurger 2001; Gramlich 1994). The adequacy of infrastructure— which can contribute to diversifying production, expanding trade, coping with population growth, reducing poverty, or improving environmental conditions—helps determine a country's success (WB 2004) by accommodating economic and urban growth (Calderon and Serven,WB2004).

One of the important uses of infrastructure is to stimulate the growth of human settlements in many urban areas. Policy makers and planners will have use infrastructure systems to attract private investments for housing and economic development.

Despite this, the link between infrastructure and urban growth remains understudied, and infrastructure research has developed in isolation from the large literature on urban growth. Generally speaking, infrastructure is essential for the sustainability of human settlement. Today, it is no longer arguable that the imbalances in the provision of rural infrastructure when compared with that of the cities have negatively impacted cities' sustainability. In fact, the rural-urban imbalance in development provides an explanation for the unprecedented growth of urban centers and slums. Therefore improving accessibility to basic services such as safe water, electricity, sanitation, and social infrastructural facilities for residents has been acknowledged as one of the principal ways of promoting sound human settlements, good health, and appropriate and decent living conditions little wonder why many people today migrate to the cities as a result of the attractions of the infrastructure elements that are found there. Okora for Humphery Kalu(2014)

Infrastructure has an indispensable, positive role in development. The World Development Report 1994 correlates a 1 percent increase in gross domestic product with a 1 per cent increase in infrastructure stock across all countries (World Bank, 1994b).Developing countries invest a

total of $200 billion a year in new infrastructure. Infrastructure services can have the beneficial effect of increasing households 'real income and quality of life. The provision of urban infrastructure is a lengthy process involving financing, construction and maintenance that may involve a multitude of players. The traditional wisdom has been that urban infrastructure provision should be the responsibility of the public sector, assuming that it involves large externalities and high costs. In reality, governments in developing countries own, operate and finance nearly all infrastructures. But with the tightening of public-sector financing and an often-poor record of public provision, increasing number of governments have begun handing out responsibilities to the private sector (ibid).

Sululta town is characterized by rapid population growth caused by natural increase and migration from rural and other urban areas. Such rapid increase in population together with its rapid expansion of the town has increasing the demand of infrastructure provision and urban service. In Sululta town, the provision of infrastructure is inadequate and poor and its development is lagging behind the population growth rate. Poor provision of infrastructures can lead to exposition of urban populations to health risks, limiting productivity through service cuts, increase in household and investor costs through property damage and increasing production costs through congestion,

In general, the challenges occurred in infrastructure provision are categorized under physical and technical factors, economic and financial factors, institutional and structural factors. This leads to, poor delivery of urban service in the study town. But what are the major factors in the context of Sululta town and what prospects do they have to ensure improved welfare for its dwellers and to increase urban service? Questions of this sort need critical analysis through studies. Hence, this study strives to evaluate major factors affecting urban service and infrastructure provision such as water, road and drainage, power utility, health center and school in Sululta town.

## 1.2 Statement of the Problem

The importance of studying factors affecting urban services and infrastructure provision is due to the fact that, half of the world's population lives in urban areas. In 2030, the global urban population will number 4.9 billion people, i.e. 60% of the population. Almost all global population growth will be in the cities of the South, where population will double from two to four billion people. Taking in two billion new urban dwellers means building and providing for the equivalent each year of seven new cities of ten million inhabitants, that is seven "Shanghai's" or "Jakarta's", or ten "London's" per year. In countries of the South, urban population growth is five to eight times faster than in industrialized countries (UN, 2007). There is no precedent in history for such rapid growth, at least not on this scale: it took one hundred and thirty years for London to grow from one to nearly eight million residents. It only took forty-five years for Bangkok, thirty-seven for Dhaka and twenty-five for Seoul to achieve the same demographic leap forward (UN-HABITAT, 2004).

One billion people live in informal settlements without access to basic services. With the urbanization of poverty, delivering services to poor people who live in towns and cities in developing countries. Political and governance factors affect the delivery of public goods and services in urban areas as stated by Professor Diana and Hamish Nixon (2015).

The level of urbanization and infrastructure of Ethiopia, compared to other African countries, was about half of that of Kenya, a third of that of Nigeria and 57% lower than the average for sub-Saharan Africa as a whole, roughly during the same period (ibid).

The Ethiopian urbanization service illustrates unbalanced distribution of urban population. Industrial activities and infrastructural facilities are concentrated in the capital city, Addis Ababa, which is the main administrative, economic, and financial Centre. This situation attracts migrants to Addis Ababa and creates a single primate city, making up 30% of the country's urban population (ibid).

In spite of the low level of urbanization in Ethiopia, which is the lowest in African standard, urban poverty is very high and it has been manifested through existence of a large proportion of population in slums and squatter settlements. The urban poor live in these precarious settlements, which are located in most parts of Addis Ababa, underpinned by immense threat from poverty and environmental degradation. In Sululta, for instance, almost more than half of the population lives below the poverty line and about 60% of the city is considered as slum area (ibid).

Sululta town is one of the fastest growing towns in Oromia special zone surrounding Finfinne in terms of population and infrastructure expansion. This Population influx mainly resulted from

dynamics of change such as natural increase (birth and death) and migration (rural to the town, small urban areas to the town, large urban areas like Addis Ababa to the town) which increases the population growth of the town (OUPI, 2016). The growth of high population and expansion of the town towards neighborhood rural areas resulted the town to re-structure its urban plan and area as stated from the town municipality (2019).Such rapid increase in population and expansion of the town has produced increasing greater urban service and infrastructural demand. In Sululta town, the demand of infrastructure and urban service is high the number of industries, commercial centers, hotels and resorts in the town are increasing.

However the coverage of infrastructure and urban service is not more than 55% according to the data of sululta town municipality. The current approach of sululta town infrastructure provision offices goes as similar as the traditional infrastructures provision processes. This has an adverse effect on day-to-day activity of the dwellers and other stake holders in Sululta town, Oromia Special Zone Surrounding Finfinne, Oromia, Ethiopia. To assist in achieving effective and efficient urban service and infrastructure provision, it is therefore, imperative to assess and identify the major factors affecting urban service and infrastructure provision. As the knowledge of the researcher, no study has done on Sululta town why the provision of urban services and infrastructure is still low.

So, gaps exist with respect to understanding the problems facing infrastructure provision in Sululta town. Therefore, the intent of this study is to identify the factors affecting the provision of infrastructure provision in the study town. Hence, basic questions to be addressed in this research will be:

## 1.3 Research questions

1. What are the major factors affecting urban services and infrastructure provision in Sululta town?
2. What are the practices and techniques used to provide urban services and infrastructure in the town?
3. What are the opportunities for the availability of infrastructure provision in the town?
4. What are the recommend alternative solutions to the provision of urban service and infrastructure in the town?

## 1.4 Objectives of the study

### 1.4.1 General Objective

The general objective of this study is to assess factors affecting urban services and infrastructure provision in Sululta town and to recommend alternative solutions.

### 1.4.2 Specific Objective:-

The specific objectives of this study are the following:

1. To assess major factors affecting urban services and infrastructure provision in the town.
2. To assess the current situation of urban services and infrastructure provision in the town.
3. To show and analyze the opportunities for the availability of infrastructure provision in the town.
4. To recommend alternative solutions to the problem of urban service and infrastructure provision in the town.

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## 1.5. Significance of the Study

Understanding factors affecting urban services and infrastructure provision in Sululta town can be seen from two important perspectives. First, it addresses policy makers, governments (federal, regional and zone), NGOs, and other stakeholders – to design/apply/ targeted policies and programs that will be helping them to support, encourage, and apply it practical Second, the study will help as a source and input for researchers and academicians as secondary sources to undertake further researches.

## 1.6. Scope of the Study

Now a days the issue of urban services and infrastructure provision is currently hot and interesting throughout the county and there are possibility of using various tools, designs, wide geographical areas with many variables and large sample size, this study is delimited due to time, energy and financial resources required to accomplish the study. The scope of this study is to analyses urban service and infrastructure provision specifically on the water, power, road and drainage, health and education in five sectors in Sululta town, using descriptive research design through questionnaire and interviews**.** Hence, this study did not consider the other aspects of urban infrastructure such as the transport infrastructure and telecommunication infrastructure system etc…in the town**.** Dwellers and employees/experts who live 5 years and above (2011/12 – 2015/16) in the city administration was included by the researcher in the study town.

## 1.7 Limitation of the Study

This study has faced some challenges: Challenging in getting document for review on time, some respondents are not provided accurate information, Unwillingness of the respondents to fill the questionnaire that is due to busy office work and absence of the residents at their home.

With these challenges, the researcher overcomes to get the real data and to analyze all facts by concentrating on the issues.

## 1.8 Organization of the Paper

My research paper was organized into five sections. The first charter give emphasis on the background of the study, statement of the problem, objectives of the study, research questions, scope and significance of the study. Chapter two deals with review of related literature and the third chapter is about the methodology used for data collection, compilation, analysis, sampling and data collection techniques, limitation of the study, and organization of the study. Discussion and analysis of the data and its interpretation is presented in chapter four. The last chapter summarizes the findings of the study and provides conclusion and recommendations.

# CHAPTER TWO: LITRATURE REVIEW

## 2.1 Theoretical Literature Review

This part of the research describes some of the definitions and the theoretical basis for factors affecting urban infrastructure provision and major related empirical articles studied by authors in the field. Hence part one consists of the theoretical literatures and the second part deals with an overview of what has been done so far on the specific area of the research interest at hand.

### 2.1.1 Overview of Urban services and infrastructure provision

The importance of infrastructure and urban service for urban development contributes to economic development by increasing productivity and providing amenities which enhance the quality of life. The services generated as a result of an adequate infrastructure base will translate to an increase in aggregate output. Infrastructure generally has to do with the fixed provision of tangible assets on which other intangibles can be built on. Not limited in scope, it revolves the provision of Housing, Power (electricity), Transport, Education, Communication, and Technology. Infrastructure and urban service is the basic physical and organizational structures needed for the operation of a society like industries, buildings, roads, bridges, health services, governance and so on. It is the enterprise or the products, services and facilities necessary for an economy to function. Infrastructure can be described generally as the set of interconnected structural elements that provide framework supporting an entire structure of development (Fulmer, Jeffrey 2009).

Infrastructure and urban service is the means of achieving an objective or set of objectives and also includes the objectives. It is an important term for judging a country, region or state's and individual's developments/status. The term typically refers to the technical structures that support a society, such as roads, water supply, sewers, electrical national grids, telecommunications, and so forth, and can be defined as "the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions". Viewed functionally, infrastructure facilitates the production of goods and services, and also the distribution of finished products to end-users (markets), as well as basic social services such as schools and hospitals; for example, roads enable the transport of raw materials to a factory (ibid).

The challenges facing urban infrastructure over the past 20 years have been shaped by a number of factors. These include an increase in the scale of urbanization with growing urban informality, a rising demand for services, the increasing unit costs of infrastructure provision associated with

the sub-optimal expansion of cities, a legacy of under-investment in asset replacement and infrastructure extensions, poor operational management and maintenance, high and inefficient consumption of services among middle and high income consumer classes, slow inclusion of a green infrastructure approach, inequitable distribution of services and infrastructure, which continues to exacerbate the spatial and socio-economic segregation in cities. Moreover, the effects of the continuing reliance on outdated and inappropriate policies and business models have been compounded by the effects of climate change on services such as water supply, wastewater management, hydro-electric power generation, storm-water management and flood protection (Zuo C., Birkin M. 2015).

Some of these challenges are not new, but their scope and complexity have been exacerbated by the rapid urbanization of the past 20 years and continuing weaknesses in understanding infrastructure and its associated governance and regulation, resulting in a lack of comprehensive long term demand-based infrastructure planning. The rising demand for infrastructure services is directly related to the increasing population, GDP growth and rising per capita usage of infrastructure services associated with increasing incomes. The gap between demand and supply, and the inaccessibility and unaffordability of services and infrastructure to segments of the population, represents a major weakness in policy, planning approaches and institutional capacity. The sectorial approach to infrastructure planning, investment and management also poses a constraint with increasing problems in achieving effective inter-sectorial coordination and communication aligned with a weak or non-existent understanding of the linkages between infrastructure planning and urban planning at the city level (UN, Habitat III, 2016).

The rising demand for urban infrastructure has not been matched with a commensurate improvement in the financial and institutional capacity to manage urban infrastructure services. For example, revenue generation for services such as solid waste management, water and electricity, typically lag behind the cost of service delivery. Thus, there is a need for more innovative and inclusive business models, especially models which can more effectively mobilize finance for investment and which can involve the private sector and community groups in the financing and management of services (ibid).

In Sululta town currently lack of urban service is due to lack of provision of different infrastructure. The coverage of infrastructure compared to expansion of the town and population size is not proportional.

### 2.1.2 What is infrastructure?

There are currently as many definitions infrastructure as there are authors working on the concept. There are two general types of ways to view infrastructure, hard or soft. Hard infrastructure refers to the physical networks necessary for the functioning of a modern industry. This includes roads, bridges, railways, etc. Soft infrastructure refers to all the institutions that maintain the economic, health, social, and cultural standards of a country. This includes educational programs, parks and recreational facilities, law enforcement agencies, and emergency services (Elizabeth Gasiorowski-Denis, 2015).

The word infrastructure has been used in English since 1887 and in French since 1875, originally meaning "The installations that form the basis for any operation or system". The word was imported from French, where it means subgrade, the native material underneath a constructed pavement or railway. The word is a combination of the Latin prefix "infra", meaning "below" and many of these constructions are underground, for example, tunnels, water and gas systems, and railways. The army use of the term achieved currency in the United States after the formation of NATO in the 1940s and by 1970 was adopted by urban planners in its modern civilian sense (ibid).

According to American Society of Civil Engineers (ASCE, 2005) infrastructure is the combination of fundamental systems that support a community, region, or country. It includes everything from water and sewer systems to road and rail networks to the national power and natural gas grids. Perhaps there will be a hydrogen grid in the future as well. Biggest challenge that government faces with a growing population is provision of good housing. In comparison with the urban middle class income groups the growing cost of houses has made it impossible for the lower income groups to afford such new houses. India can encounter the task by setting up some policies and funds which can bridge the gap between the price and affordability (ibid).

Many of them are deprived of very basic needs of water and sewage. There needs to be a strong improvement in availability of water, because with the current insufficiency of cleaning drinking water the situation will only get worse. Practicing water treatments and reuse can be the one solution. Sanitation and garbage disposal in the urban areas, mainly in slums and unofficial colonies of urban areas is another miserable feature. In many areas the drainage system does not exist or are in a bad state, causing an obstacle of waste water. This all situation leads to many diseases and creates poor health conditions (ibid).

Infrastructure is the physical and related organizational structures needed for society to operate. In the UK, 'National Infrastructure' is described as 'the foundation for economic productivity and human wellbeing' (Hall et al., 2012, p.1). It provides the energy and water resources that society needs to function, and enable people, information and goods to move efficiently and safely. Infrastructure is most often categorized in terms of the services it provides. For the purposes of this report, it includes the physical aspects of the sectors that are covered in UK infrastructure policy (summarized from Hall et al., 2012, and HM Treasury, 2013).

In terms of the services they provide the following are the category of infrastructure. These are; the energy sector: which includes electricity, gas, solar, wind, other renewables and all their ancillary 'hardware', transport sector: includes road, rail, air, cycling and walking and all the supporting facilities, water supply sector: includes all infrastructure needed to supply domestic and nondomestic users with water at appropriate quality and quantity, with facilities that source water from rivers, estuaries, coasts and ground water sources through a system of water treatment plants and pipes to end users. The other important one is Solid waste sector: infrastructure required processing and/or disposing of domestic and non-domestic waste, including the system of transfer stations, recycling and other processing facilities, land fill sites, and incinerators, information and communication technologies (ICT): comprises all communication and computation systems, including: fixed and mobile telephony, broadband, television, navigation systems, data and processing hubs, with the associated 'hardware' of: wired and wireless networks (cables, masts, satellites), broadband, voice, data, positioning and broadcast services. Cultural and social infrastructure sector: comprises facilities needed to keep the population healthy, educated, and with access to culture. This includes education facilities (e.g. schools, colleges and universities), health facilities (e.g. doctors' surgeries and hospitals) and cultural facilities (e.g. museums, galleries, community venues) and 'green' and 'blue' infrastructure: the interconnected networks of land and water that support species, maintain ecological processes, sustain air and water resources, and contribute to the health and quality of life of communities and individuals (Olofs dotter et al., 2013).

### 2.1.3. Urban Infrastructure and Urban Services

According to the Government of India's High Powered Expert Committee (HPEC), approximately $640.2 billion is needed until 2031 for investment in urban infrastructure and services if India is to maintain and accelerate economic growth .The investment required for the eight major sectors of urban infrastructure (roads, transport, traffic support, street lighting, water supply, sewerage, storm water drains and solid waste management) is estimated at $506.3 billion. Approximately half of that amount is needed in Class IA and IB cities alone; Class IC cities require 30% and Class II–IV+ cities 20%. An additional $67.0 billion will be needed for renewal and redevelopments of certain urban areas, particularly slums, and $16.3 billion will be required for capacity building of urban local bodies (ULBs) to ensure the availability of sufficient skills to plan, develop and manage the required infrastructure projects. Given the fact that the public sector is in no position to bankroll investments of this magnitude, a significant funding gap clearly exists for the Government of India for the required investment in (urban) infrastructure. The HPEC estimates the funding deficit at 0.15–0.39% of GDP per annum for the period 2012–2031, which amounts to a funding gap of $80– 110 billion. In contrast, the Planning Commission's Working Sub-Group on Infrastructure estimates the funding gap in infrastructure in general to be $238.4 billion for 2012–2017. Obviously the time periods, the assumptions and the scope of infrastructure are different in the two approaches. Yet, both estimates reveal that significant private investment is required to satisfy India's infrastructure needs.

Living standards and business operations have been negatively impacted by India's inability to provide universal access to and continuity of basic urban services. In 35 municipal corporations, the average under spending on capital investments necessary to meet minimum standards of services is 76 % (World Economic Forum, 2015).

According to the HPEC, the current deficit in urban infrastructure and service provision can be attributed to a combination of factors such as chronic neglect of urban planning and infrastructure development by state governments, the Government of India's lack of leadership, fragmented and/or overlapping institutional responsibilities, and low recovery of operating and maintenance costs by utilities (ibid).

### 2.1.4. Provision of Urban Infrastructure

The notion of urban infrastructure is a general concept, covering a range of structures required for the continuation of urban life. In an overall classification, urban infrastructure can be categorized into Green Urban Infrastructure and Built Urban Infrastructure. In contrast with built urban infrastructure the concept of green urban infrastructure has been coined. Green urban infrastructures are urban natural life support system- an interconnected network of river, woodlands, wetlands, and other natural areas; greenways, natural parks and other conservation lands; farms and ranches; and other open spaces that support native species, maintain natural ecological processes, sustain air and water resources and contribute to the health and quality of life for communities and citizens (Benedict & McMahon, 2006).

Built urban infrastructure, in turn, can be classified into two Main categories, social urban infrastructure and physical urban infrastructure. Social urban infrastructure includes education, health, security, bank, law and order, firefighting, financial institution, housing and other services (Love et al., 2011; Flora, 1998). The term social (urban) infrastructure was first used by Swanson (1996). This term implies that this kind of urban structures operates in a parallel way to physical urban infrastructure. On the other hand, physical urban infrastructure, or most familiar as "urban infrastructure" are combined and interconnected networks that provide essential public services such as public utilities (power, piped gas, telecommunications, water supply, sanitation and sewerage, and solid waste management), municipal works (roads and drainage) and transport sectors (public transit, ports and airports) (World Bank, 1994; Hudson et al., 1997; Rinaldi et al., 2001).

Urban infrastructure systems provide the foundation for economic growth and quality of life. Feldman et al. (1988) points out that a robust and vibrant urban infrastructure is vital to the continued prosperity of any urban community. In the other words, in the absence of urban infrastructure, land has no potential for any kind of urban developments. In the line with this, Porter (1986) argues that infrastructure is a pivotal factor for any development, because without it development will not occur. Engel-Yan et al. (2005) stress that to achieve sustainable urban design at any level; those involved in urban design process must consider the unique role of urban infrastructure in urban shaping. Therefore, it can be purported that provision of urban infrastructure is prior to any urban development activities.

The provision of urban infrastructure is highly complicated and extremely intricate process (Sözüer&Spang, 2012). The complex nature of urban infrastructure provision (UI)-provision can be derived from several factors. These kind of urban sub-systems are interconnected and

mutually dependent in complex ways (Rinaldi et al., 2001; little, 2002; Heller, 2001; Amin, 2002). In the other words, what occurs to one of urban infrastructures can directly and indirectly affect other infrastructures. Another factor caused complexity in the provision of urban infrastructure is involving of a multitude of players (Wu, 1999) in multi-level of decision making. Various stakeholders involved in infrastructure provision make the process of the provision of them too intricate. According to Sözüer and Spang (2012), provision of urban infrastructure can be affected by deficiencies resulting from organizational shortcomings including coordination and communication problem among administrative units. Thus, considering interdependency between urban infrastructure systems and pertinent organizations is one of the key issues in improving urban infrastructure provision.

The provision of urban infrastructure, on the other hand, is a prolonged and time consuming process. Wu (1999) argues that UI-provision a lengthy process involving financing, construction and maintenance that may involve a multitude of players. The life cycle of urban infrastructure projects covers a long-lasting period of time from the conception to utilization. In German, for instance, given the scale of these projects, the UI-provision can last up to 12-20 years (Sözüer&Spang, 2012). In line with this, Herder et al. (2011) argue that urban infrastructure projects are implemented over several years, sometimes decades. However, several factors make UI-provision to be a prolonged process. These factors can be enumerated as complexity of planning regulation and approval process; hardly manageable regulations; organizational shortcoming including lack of coordination and cooperation among and between different government agencies; land acquisition and etc.

Provision of urban infrastructure, moreover, is a high cost process and often suffering from deficiencies in cost recovery (Wu (1999). According to Word Bank report (1991) scarcity of financial resources and low technical capacity has resulted in widespread insufficiencies in urban infrastructure provision. These shortcomings impose extensive burdens on urban activities; inter alia, industry, commerce, residential and recreational activities. In light of this, Sohail et al. (2005) stress that one of privilege constraints for UI-provision is lack of resources, including money, skills, technology, trained personnel and so forth. Moreover, the final project cost of the majority of urban infrastructure projects, worldwide, exceed the anticipated cost. It is identified that only 40% of all projects, including urban infrastructure projects, achieve their stipulated cost and 50% of these projects exceed their budgeted costs by 40% to 200% (Hartmann &Ashrafi, 2004). Financing of urban infrastructure projects, however, is one of the main concerns of experts and scholars who are involved with UI-provision.

With respect to the significance of financial aspects in UI-provision, various financing methods pertained to infrastructure provision have been presented by urban scholars. Azizi (1995) identifies three different ways to urban infrastructure investment, including traditional public expenditure; private-sector participation; and user-pay system. It is assumed that user-pays policies play significant roles in enabling dwellers in new residential areas to benefit from urban infrastructure (Azizi, 2000). Researches show that urban infrastructure is expected to be more cost-effective and has desirable impacts on urban milieu when it is subject to user charges based on provision cost and readiness to pay (Kessides, 1993). In the line with this, Wu (1999) points out that user charge systems are essential to guarantee efficient use of urban infrastructure. Furthermore, the absence of such user-pay systems often leans to trim down the quantity and quality of UI-provision. However, Pethe and Ghodke (2012) stress on finding new financial methods like "municipal-bonds"forfinancing urban infrastructure. Likewise, they argue that the success of this initiative instrument is subject to the existence of a thick and secondary market in the urban infrastructure section. Parenthetically, it is indispensable to insure that all costs pertinent to UI-provision are affordable for the target groups (Cotton &Francey, 1994).

Hence, because of high investment and technical expertise needed for UI-provision; the prolonged project life-cycle; the difficult legal problems of acquiring rights-of-way across private lands; and the considerable economies of scale present in large-scale construction projects, nearly all analyses of UI-provision demonstrate that UI-provision is better to be performed in public sectors (see, for example, World Bank, 1994; Ostrom, 1996). Almost in all countries, all around the world, these public responsibilities and authorities are dispersed among divers government agencies. Therefore, with respect to the interconnected nature of urban infrastructure (Engel-Yan et al., 2005; Benedict & McMahon, 2006), there is a substantial need for coordination between and among different government agencies involved in UI-provision. That is why, in the absence of inter organizational coordination, in the context of UI-provision, numerous problems would occur, inter alia, overlap and duplication of activities; failure in meeting project deadlines; increase in the cost urban infrastructure projects; creates chaos, confusion, discord and friction among urban infrastructure agencies (UIAs); and so forth (Panday&Jamil, 2010; Khan, 1997). In the following section, an overview of coordination is presented.

### 2.1.5. Urban Infrastructure Challenges

According to the American Society of Civil Engineers (ASCE) 2013 Report, 76 percent of the U.S. population lives in cities, and that number is expected to increase. Infrastructure that reliably provides energy, water, transportation, waste management, and access to food and manufactured goods is vital to the well-being of these urbanites. In addition, it provides the foundation for innovation and economic growth by supporting the ability to interact, communicate with ease, and share ideas. To ensure that urban centers will thrive, we need to think differently about how infrastructure is planned, designed, built, and managed so that it creates and connects communities in a sustainable and resilient way.

By all accounts, we are not making the grade with our current level of infrastructure investment. The ASCE 2013 Report Card for America's Infrastructure estimates it will take about $3.6 trillion to upgrade the current infrastructure in the United States to satisfactory levels. When we consider the aftermath of the growing number of "super storms," we must move from our thinking of building back to building better. Sustainable infrastructure is not only a matter of resilience, but also a reflection of the community's social, economic, and environmental values. By developing sustainably, we can be assured that we will preserve essential resources for future generations. The infrastructure industry has an opportunity to better plan, design, build, and maintain the cities of the future by looking at its own practices and leveraging technology for better outcomes.

### 2.1.6. Infrastructure: achievements, challenges and opportunities

Infrastructure services including power, transport, and telecommunications, provision of water and sanitation, and safe disposal of wastes are central to the activities of households and to economic production. This reality becomes painfully evident when natural disasters or civil disturbances destroy or disable power stations, roads and bridges, telephone lines, canals, and water mains. Major infrastructure failures quickly and radically reduce communities' quality of life and productivity. Conversely, improving infrastructure services enhances welfare and fosters economic growth (Word Development Report 1993).

Providing infrastructure services to meet the demands of businesses, households, and other users is one of the major challenges of economic development. The availability of infrastructure has increased significantly in developing countries over the past several decades. In many cases, however, the full benefits of past investments are not being realized, resulting in a serious waste

of resources and lost economic opportunities. This outcome is frequently caused by inadequate incentives embodied in the institutional arrangements for providing infrastructure services. While the special technical and economic characteristics of infrastructure give government an essential role in its provision, dominant and pervasive intervention by governments has in many cases failed to promote efficient or responsive delivery of services. Recent changes in thinking and technology have revealed increased scope for commercial principles in infrastructure provision (WDR,1993).

Lack of urban infrastructure is a good catalyst for squatter formation and worsening housing conditions in urban districts. In other words, the presence or absence of these essential facilities is one major difference between a slum dweller and non-slum dweller areas (Otegbulu&Adewunmi, 2009). To this end, it is important to provide adequate infrastructure to inhabitants, especially in the housing area. In line of this, Abrams (1964) points out that housing is not just shelter; it depends upon many facets of economic activity, industrialization, and urban infrastructure development. Urban infrastructure can affect growth through many channels (Agénor& Moreno-Dodson, 2006). For instance, one percent increase in infrastructure stock result in one per cent increase in Gross Domestic Product (World Bank, 1994). In addition to its function of raising the Gross Domestic Product (GDP), infrastructure contributes to the welfare of households and quality of life (Kessides, 1993; Sanford Bernhardt &McNeil, 2008). Moreover, there is an undeniable relation between provision of urban infrastructure and social justice. In confirmation of this notion, Calderón and Servén (2010) point out that increasing the quantity and quality of infrastructure results in reducing social inequality.

Urban infrastructure systems are complex, geographically dispersed, and interacting with each other and as well, with human beings as users, constructors, and operators (Amin, 2002). Urban infrastructures are more than just an aggregation of constituents; a collection of elements which are interacting with one another and the surrounding environment. Axelrod and Cohen (1999) point out that all urban infrastructures have one common property; they are all complex aggregations of interacting elements in which changes often happen as a result of their interaction. To date, several scientific authors hypothesis and claim that urban infrastructures are complex systems (Brown et al., 2004; Sanford Bernhardt).

Complex systems could not be illustrated by a single role and also their features cannot be limited to one level of explanation. They reveal attributes which come into light from the interaction of their components and which cannot be forecasted based on the properties of their

individual subsystems. Bak (1996) points out that these kinds of systems exhibit “emerge behaviors “resulting from the interactions among system components that cannot be explained exclusively by the sum of the individual component behaviors. For instance, water supply system does not function as an isolated system, but rather as networks (providing potable water for consumers) are interacting with other urban infrastructure, like electric grids as well as with human beings as constructors, operators and users. These networks also exhibit significant variability in the context of service quality, inter alia, water pressure, water quality, and quantity of supply. In consistence with this notion, Amin (2002) emphasizes that a major source of complexity in complex systems is the interdependency between its subsystems, as such the interdependence of the power grid and the telecommunication networks.

Infrastructure is important for ensuring that growth is consistent with poverty reduction, a topic covered extensively in (W.D.R.1990) Poverty. Access to at least minimal infrastructure services is one of the essential criteria for defining welfare. To a great extent, the poor can be identified as those who are unable to consume a basic quantity of clean water and who are subject to unsanitary surroundings, with extremely limited mobility or communications beyond their immediate settlement. As a result they have more health problems and fewer employment opportunities. The burgeoning squatter communities surrounding most cities in developing countries typically lack formal infrastructure facilities, a condition arising from their non-permanence of tenure. In India the proportion of the urban population living in slum areas grew during 1981-91, while the share of the population living in poverty (estimated using traditional poverty measures based on income and food consumption) declined. The lack of access to infrastructure is a real welfare issue.

Different infrastructure sectors have different effects on improving the quality of life and reducing poverty. Access to clean water and sanitation has the most obvious and direct consumption benefits in reducing mortality and morbidity. It also increases the productive capacity of the poor and can affect men and women differently. For example, the Poor women in particular must commit large shares of their income or time to obtaining water and fuel wood, as well as to carrying crops to market. This time could otherwise be devoted to high priority domestic duties, such as childcare, or to income- earning activities. Such gender-specific effects need to be considered in the evaluation of proposed projects (ibid).

Access to transport and irrigation can contribute to higher and more stable incomes, enabling the poor to manage risks. Both transport and irrigation infrastructure has been found to expand the

opportunities for nonfarm employment in rural areas, often in indirect ways. A seeming development dilemma is that while rural poverty reduction requires higher incomes, raising farm gate food prices could make urban poverty worse. By raising the productivity of farms and of rural transport, both an increase in the incomes of rural workers and a reduction in food prices for the urban poor can be achieved. The benefits of transport and communications include the access they provide to other goods and services, especially in cities. Where the poor are concentrated on the periphery of urban areas, as in many developing countries, the costs and availability of public transport become key factors in their ability to obtain employment. Access to secure and reliable public transport has been identified in household surveys in Ecuador as influential in determining the ability of low-income girls and women to participate in evening training classes. The construction and maintenance of some infrastructure especially roads and water works can contribute to poverty reduction by providing direct employment. Civil works programs (as carried out in Botswana, Cape Verde, and India), which often involve the provision of infrastructure, have also been important in strengthening famine prevention and providing income (ibid).

Rebuilding and enhancing urban infrastructure faces problems beyond the search for engineering solutions. Various policies and political barriers must be addressed and overcome. Funding for infrastructure projects has been hopelessly inadequate in many areas, as the American Society of Civil Engineers (ASCE, 2005) "report card" documented. And the practice of letting infrastructure wear out before replacing it, rather than incorporating technological improvements during its lifetime, only exacerbates the problems. And so, a major grand challenge for infrastructure engineering will be not only to devise new approaches and methods, but to communicate their value and worthiness to society at large.

### 2.1.7 Level of Urban Service and infrastructure development

According to (TERI, 2009) massive urban growth has led to complex problems of inadequacy of basic urban services and infrastructure. About 21 percent of urban population fined their room in squatter settlements where access to the basic services is very poor or very substandard. About 80 percent of population living in urban areas though has access to safe drinking water but there are severe deficiencies in regard to equitable distribution of water. As per estimates about 46 percent of household have water borne toilet while only 36 percent are connected with public sewerage system. Almost half of the solid waste generated in towns & cities remain uncollected. The town roads are inadequate to meet the growing traffic demand which in turn leads to traffic

congestion. The infrastructure development could not keep pace with rate of urbanization.The Municipal Corporations are unable to cope up with the increasing demand of providing quality urban services in towns and cities due to lack of resources (TCPO, 2003). The escalating demand for basic services, coupled with the widening socio-economic divide between the rich and the poor has resulted in a serious deterioration of access and service quality across all urban service sectors. India's growing cities and towns face major challenges in creating adequate infrastructure including the transportation, communication solid waste, water, and power sectors (World Bank, 2006). A recent survey conducted by the National Institute of Public finance and Policy (NIPFP) shows that in a sizeable number of urban centers, the availability of water is even less than 100 liters per capita per day, as only 2.7 percent of sample municipalities are reported to supply over 100 liters of water per capita per day (NIPFP, 2000).

All these theories show that infrastructure provision could not keep pace with rate of urbanization. This impact resulted in the challenges of coverage of infrastructure service in the towns. In Sulult town, lack of drinking clean tap water, low coverage of electric power, low coverage of road and drainage, lack of social infrastructure like education and health are the main issues occurred in the study town.

### 2.2. Empirical Literature Review

#### 2.2.1 Urban Infrastructure Provision in Developed Countries

The successful development of (Bishop, et al., 2000) spatial information infrastructures in developed countries has partly been due to much of the data being available in digital form or there being a political will and financial backing to build the required data sets.

In addition to this, the National Mapping Agency (NMP) of these countries "has a common practice" in data standards, fixed scales and definition of digital map based national data accuracy. Their digital mapping systems were built from well-established manual map systems which have often evolved over decades and sometimes centuries (ibid).

However, the successful development of spatial infrastructure information in developed countries has partly been due to much of the data being available in digital form or there being a political will and financial backing to build the required data sets (Bishop, et al., 2000).

For example, in England and Wales the utilities operate under statutory rights and obligations conferred by the... Parliament acts (NJUG, 1995). As it is described from the same source the (NRSW) New Roads and Street Works Act (1991) controls and coordinates work carried out in

the street by statutory undertakers, including all the utilities when exercising their various legislative functions. As such, before carrying out any work involving the installation, maintenance or alteration of underground services utilities are required to give notice to the street authority.

### 2.2.2. Urban Infrastructure Provision in Developing Countries

Developing world cities (Bishop, et al., 2000) are expanding at a much greater rate than in developed countries, these cities are usually the engines of economic development in the respective countries, their infrastructure and quality of life is "often deteriorating". Addressing these issues in cities of the developing world is one of the great challenges facing "all" societies in the next millennium.

The authoritative power of these infrastructure provisions might mandate to a range of authorities or partially to a single but comprehensive. The patterned and long lasting provision of infrastructure is very much affected by the highly influenced by the nature of the landscape, the street networking and the settlement patterns which influences the scheme of the infrastructure provision. On the other hand availability of spatial information for cities in these countries is "poor or nonexistent". Still in these countries, most of the land ownership and utility infrastructure information are experienced in separate department only in the hands of some key personnel. While, the design and implementation of a workable spatial infrastructure data is often "a dream for the future" (ibid).

For the general adoption and use of GIS and other technologies from the developed world cities, countries first need to know the wide-ranging contribution of this technology in the process of urgent infrastructure issues resolution in the developing world. On the other hand, as in developed world the successful implementation and use of urban spatial utility infrastructure information in developing countries is "highly depend on" political, institutional and managerial support of the system. Moreover, municipalities and utility agencies of developing world (Pickering, et al., 1993) cities need to work together to promote awareness by nominating one of their members to coordinate and encourage activities in this direction.

In general, the process of urban utility infrastructure planning and management in developing countries cities is "so workable" because of their low city size, minimal urban land market price and low pace of life style. In these conditions, co-ordination between staff is possible and there is time (Bishop et al, 2000: 9) to negate long term based planning, political urgency and to share spatial information so as to overcome anomalies. Consequently as Cairo's Utility Data Center

(UD the Bangkok Land Information System (BLIS) will be a good exemplary strategy to develop appropriate utility infrastructure provision standards in cities and towns of developing countries (Pritchard, 2004 and Bishop et al, 2000).

### 2.2.3. Current Indian Infrastructure

According to Ashish Shakuniya (2016) India is a growing economy. Therefore currently, infrastructure is the main priority of Indian Government. 'It is estimated to be the third largest economy by 2050. Because of the GDP growth and more emphasis on infrastructure growth, from roadways to airways, ports to airports and power production facilities, Indian infrastructure segment is vital for the development of the nation.' A stepping stone for a stable and productive society; the planning of infrastructure presents unique challenges but also brings opportunities for private and public sectors in the field of construction.

'India's urban population will reach a figure close to 600 million by 2031, which is not simply a shift of demographics. It places cities and towns at the center of India's development trajectory. In the coming decades, the urban sector will play a critical role in the structural transformation of the Indian economy and in sustaining the high rates of economic growth. 'India cannot afford to get its urban strategy wrong, but it cannot get it right without bringing about a fundamental shift in the mind-set which separates rural from the urban (ibid).

### 2.2.4 African cities and infrastructure

According to Foster and Briceño-Garmendia, (2010), African cities are chronically short of built capital of all sorts in the stock of housing, in structures devoted to commercial and industrial use, and in the form of public infrastructure. Up to 80 per cent of the population in many cities lives in informal housing. This is likely to take the form of single-storey shacks, with only limited access to water sanitation, and electric power. The settlement may be illegal (breaching building and other land-use regulations) and tenure may be insecure. Co-existing with this informality are modern houses, often quite large and serving the elite. The striking gap is in the middle: the provision of formal-sector, decent-quality low-income housing is largely absent in many cities.

Informality is also prevalent in employment, with around 60 per cent of urban employment taking the form of casual labour and activities such as street trade. Of formal-sector employment, much (at least in the capital city) is in the public sector. Private-sector activity is oriented to production of non-tradable, generally taking place in very small firms. Again, there is a striking gap: the formal-sector employment in the industrial sector that drove much urbanization in Europe and in Asia is largely missing. Turning to infrastructure, the provision of public services.

The inadequacy of power supply is widely documented; whereas Africa had three times more generating capacity per person than South Asia in 1970, it now has just half as much (Foster and Briceño-Garmendia, 2010). Infrastructure for connectivity will be our focus for most of this article, and the picture is again one of severe under-investment. The density of paved roads in Africa is less than one-quarter of that in other low-income regions (Foster and Briceño-Garmendia, 2010). Within cities, roads are inadequate. For example, roads constitute only around 10 per cent of the land area of several large African cities, whereas in a well-connected large city the figure would be around 30 per cent. Freetown is an extreme instance: during a period of state breakdown the city's population grew to over a million as a result of violent disorder in rural areas, but still has little more than the colonial road network designed for a town of 35,000. As a consequence, the few roads become highly congested as private users of cars ignore the negative externalities they generate. Crucially, these externalities are not just on other car users, but on buses.

### 2.2.5 Infrastructure provision in Ethiopia

According to Garretson, (2000), in Ethiopia for the first time an innovation of pipe water supply was introduced in Addis Ababa city 15 years later after the establishment of the City by emperor Menelik II (Addis Ababa millennium secretariat, 2007).During this period masonry ducts were constructed and laid along the sources of Kebena River at the top of Entoto where water was carried down to the desired destinations in the city through the advisory of the Swiss engineer Alfred Ilg to the emperor. Latter important pump was fitted to drive water uphill trough connected pipes to the palace.

Gradually, construction of small dams on rivers was expanded and tap water was being supplied to quite a number of the residents in different areas of the city. The Gafresa dam as the main source of the city water supply was built during the Italian occupation and then it was rehabilitated in 2009(Garretson, 2000).On the other hand, initially an electric power supply in the city as well as in the country was started in Menelik's II grand palace in 1897 using a small diesel generator which was given to the emperor by the Germany government. Latter other generators were brought to the country for different purposes: in 1903 for money printing, in 1911 for the establishment of bullet factory, 1926 for the establishment of abujedea textile factory. According to EEPCO (1999 E.C) report, during the period of Italian occupation some towns in the country start to use generators as means of electric power generation.

However; the use of hydroelectric power is started in 1911 on Akaki River, in 1959 on koka dam, in 1963 on Tis Abay (EEPCO, 1999 E.C). On the other hand different hydroelectric power stations were established and being in establishment in different areas of the country. Historical establishment of electric power authority proclamation, the first was the Ethiopian electric light and power authority was enacted in 1955, latter this proclamation was renamed as Ethiopian electric power corporation in 1996.

The history of telecommunication in the country "goes back" more than one hundred years with the establishment of the first long distance telecommunication link was made between Addis Ababa and Harar in 1894,Dawit Bekele(1996), but the first telephone service was started as the electric power in 1897(Addis Ababa millennium secretariat, 2007). After the result of Adwa war in Ethiopian victory, from Addis Ababa to Asmara 880 km telephone line project was started in 1902 and completed in 1905 through an agreement of the Ethiopian government and Italian counterpart and this line was connected most towns along corridor (Dawit Bekele,1996).Between 1905 and 1913 telephone connections were farther expanded from Addis to Gondar, southern and western Ethiopia, Dire Dawa and Djibouti.

According to the Ministry of Works and Urban Development (August 1998 E.C.) policy document clearly put the vision of Ethiopian urban centers. The need of planned and internationally competent urban development is the basic concept for the vision statement. The water supply, street networking, telecommunication and electric light infrastructures are the prioritized policy directions under urban infrastructure provision. But, the mandate of integrated urban infrastructure provision is given for the city/town administrations besides to this; the importance of an integrated urban utility infrastructure provision is not addressed by the document. However; the Ministry of Construction and Urban Development (January 2004 E.C.) integrated urban infrastructure strategic document stated some of the important urban infrastructure provision problems. The document also indicated the need of integrated infrastructure development strategy, the policy gaps, the direct relationship between some utility infrastructures with the street network and infrastructure provision experiences of South African and Indonesian urban centers.

While the Ministry of Construction and Urban Development (2004: 73) has specified the general consecutive arrangements and minimum horizontal distances between utility lines. The arrangement is required to begin from the sides of streets and then need to end on the side of individual property lines as in the order of: drainage line - electric power distribution line-

telecommunication transmission lines and then at the end the water supply distribution system with the minimum required distances of 0.50-1.0 meters between two consecutive utility lines.But after an enlightenment of the general requirements of the standard for each authorities respondent, they individually criticized the standard as follows: where the electric distribution systems may affected by an overflow of the drainage systems (unless it is far enough from the drainage lines), the standard is seen as so workable for the city's telecommunication authority, the water supply pipes need to be far enough from individual property lines so as to prevent water pollution.

### 2.3 Conceptual Framework

The conceptual model used in this study shows, budget, qualified personnel, urban expansion, migration and Population growth has a direct effect on infrastructure provision and lack of water, road, power, school and health affects the Service.

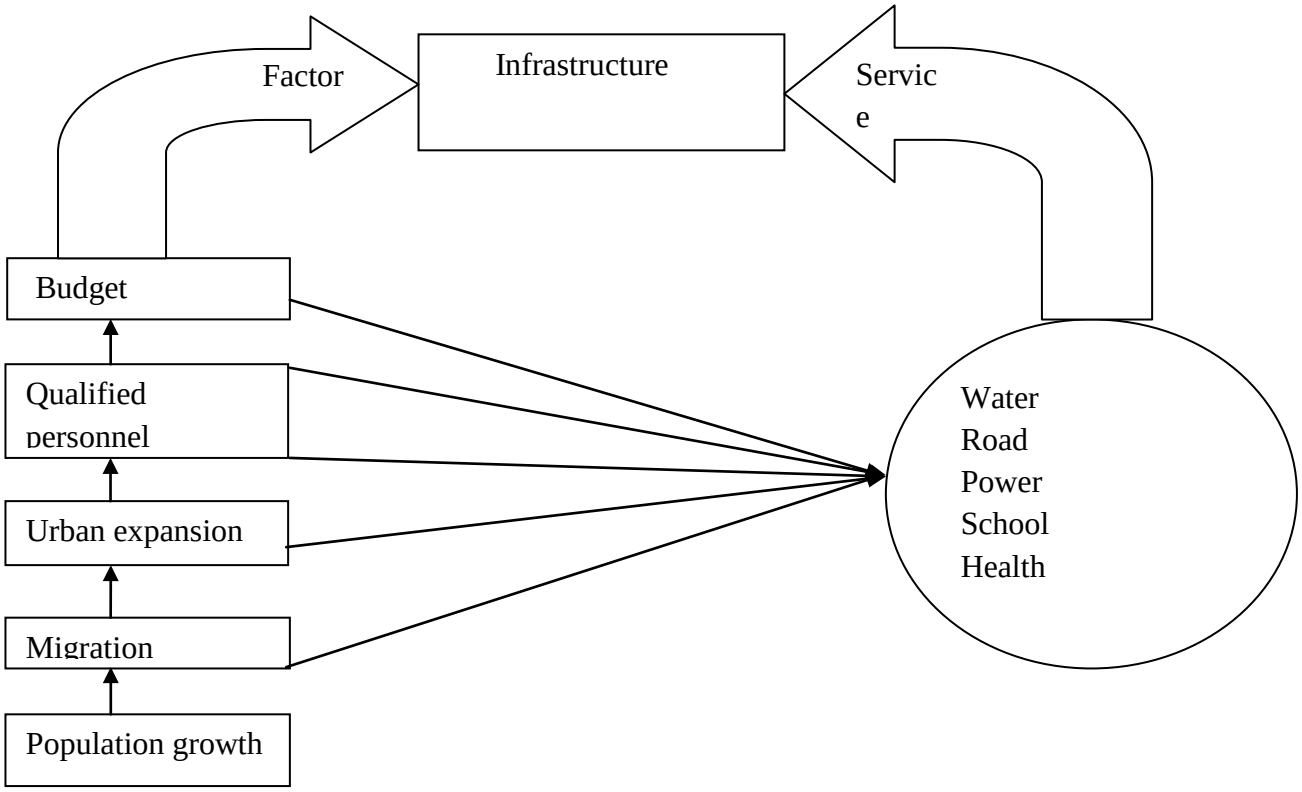



Figure 2.1 Conceptual Model

# CHAPTER THREE METHODOLOGY

## 3.1 Study Area

Sululta town is one of the fastest growing towns of those 19 cities found in Oromia special zone surrounding Finfinne. According to Sululta town planning commission (2019) the town is established in 1929 E.C.As the City reform of Oromia regional state proclamation No.65/1995 E.C, indicates the municipality was begin in 1999 E.C It is one of the urban centers of Oromia Special Zone Surrounding Addis Ababa, Oromia National Regional State, Ethiopia. The town is situated at 23km to the north of Addis Ababa along Fitche road. The area10, 424ha and it has 8 kebeles.But according to (STPLO) studied in 2019; the distance is 18 km from Addis Ababa. The astronomical location of Sululta Town is 905' - 9012'30'' N Latitude and 38043' - 38050'30'' ELongitude.Relatively, Sululta Town is found to the north of Addis Ababa, to the south of Chancho Town, to the south-west and to the South East of Sululta District, to the East of Walmara District. Lamessa Kenate(2017)

### 3.1.1. Climatic Conditions

The climatic condition of Sululta town is temperature and rainfall. The monthly and annual temperature data is found from National Meteorology Service Agency obtained from 2004 to 2015. The analysis of mean monthly and mean average annual temperature of the town shows that the town has experienced a cold temperature that can be categorized in the temperate climatic zone. Sululta town area is categorized under the thermal zone range of < 10-200C, which is cool temperature sensation. Lamessa Kenate( 2017)

Thermal zones are mainly based on the relationship between altitude and temperature and hence are function of altitude. Thus, the mean average annual temperature of the town (14.30C) is closer to the cool temperature sensation category. Therefore, Sululta Town has a cool temperature that to a lesser extent needs room heating intervention whenever the temperature tends to fall below 100C.Sululta town gets rainfall almost throughout a year. The pattern of rainfall varies on monthly basis throughout the year. The average monthly rainfall ranges from 3.4mm in the month of December up to 332.7mm in the month of July. From 2004 to 2015, the town has got average annual rainfall of 1232.3mm which enables the town to be categorized under big rainfall places of the country. Heavy rain is received in summer (June to August) and light rain is in spring season, December to February (ibid).

But according to Sululta town planning commission office document studied with collaboration of different sectors in 2011E.C, the average temperature of the town at the moment is $18^0$C and the average annual rain fall ranges from 800mm-1200 mm and the altitude ranges from 2600 a.s.l.-3200a.s.l.

### 3.1.2 Population

Sululta Town is one of the fastest growing towns in Oromia in terms of population. According to the second and third censuses carried out at national level in 1994 and 2007 the population size of Sululta town was 1,271and 6,407, respectively. But this number was grown to 129,843(62,896 male and 66,947 female) of which 60% or 77,905 are youths according to Sululta town planning commission office document studied in 2019. The religious institutions of the town are 8 Orthodox churches, 22 protestant churches,2 Wakefata houses and 5 Muslim mosques.

The importance of knowing the total number of population in the town helps the researcher to investigate the need and coverage of urban infrastructure for dwellers in the town.

## 3.2 Research Design

According to Creswell (2009) there are three basic views that are considered to be bases for quantitative, qualitative and mixed research methods that are post-positivist, social constructivist and participative and pragmatic respectively. In order to achieve the objective of the research, considering the nature of the problem and the type of the assessment, this study employed descriptive design in which both qualitative and quantitative research approaches (that is mixed method).Adopting mixed methods has a number of benefits. First, it helps for triangulation pertaining to a situation where researchers seek convergence, corroboration, correspondence of results from quantitative and qualitative methods to increase validity of constructs and inquiry results. Secondly, it helps researchers seek elaboration, enhancement, illustration, clarification of the results from one method with the results from the other method. Third, it helps researchers to use the results from one method to help develop or inform the other method. Fourth, mixing methods support the discovery of paradox and contradiction, new interpretations, the recasting of questions or results from one method with questions or results from the other method. Finally, it helps to increase the scope of inquiry to extend the breadth and range of inquiry by using different methods for different inquiry components

## 3.3 Study population

The target population of the study area is 129,843.from these 180 sampling was taken and studied because the number of sampling was appropriate to investigate my study. In order to achieve the objective of the research both primary and secondary data are utilized from different sources. The primary data were collected from dwellers, experts and officials who are living and working in the city administration and infrastructure provider sectors. Furthermore, secondary data are collected from reports that were reported to Oromia city development and housing bureau. In addition, relevant books, brochures, websites, journals, unpublished materials and other related documents were used as information sources in the research.

## 3.4 Sampling

The primary focus was on Sululta town city administration municipality, infrastructure provision sectors and the dwellers. This is due to the fact that the town, residents and its' employees are stationed in the city. This condition has thus limited the study questionnaires and interviews to be focused on experts in the municipality, infrastructure provider sectors and residents in the town. Therefore the researcher met total 180 respondents of which 30 experts (employees) for interviews from 6 infrastructure provision offices and 150 dwellers for questionnaires who live more than 5 years from 5 sites of the town. The researcher cross check information gathered through questionnaires with available annual reports of the town.

## 3.5 Sampling technique

According to (MohsinAlvi, 2016), the researcher prefers to use the 2 types of sampling

1-**Random sampling-** the researcher selected this sampling method for the dwellers to fill the questionnaires. Because in random sampling, the probability that any individual member from the population being selected as part of the sample is exactly the same as any other individual member of the population.

each member in the population has an equal and known chance of being between any experts of the municipality and infrastructure provider sectors to interview them and to distributes my for the residents.

**2- Purposive sampling-** is also the important technique for the researcher to use this sampling method for interview of experts of the municipality and infrastructure provider sectors. This is because the researcher judgment of the research will be used in selecting cases with a specific purpose in mind. This type of sampling is usually common in gathering historical facts, describing phenomena or when the subject of discussion is not widely known.

Therefore the researcher uses both 2 sampling techniques, because of the above mentioned reasons.

### 3.6 Data collection Techniques and Instruments

Questionnaires and interviews were the tools through which the data's were collected from participants. Semi-structured questionnaires were developed and used to collect primary data. In addition, reports of the different government organ were In line with this fact, reviewed to collect secondary data. These two sources of data were assumed to be sufficient for addressing the objectives of the study. In order to support the collection of sufficient data; the research questionnaire was prepared with two sections. The first part intended to gather information about the demographic characteristics of respondents.While the second part was concerned with questionnaires related to factors affecting urban services and infrastructure provision from each sector which are found in city administration like water provision office, road and drainage provision office, electric power utility office, health office, education office and experts of the municipality.

The other data collection used was interview in which experts and employees of urban service and infrastructure provision offices each. On the other hand, existing reporting format of the different offices were used to supports data analysis. The past five years performance data of the town were collected from the official reports of the city administration and infrastructure service provider office to analyze the current status of infrastructure provision in the town.

## 3.7 Data Analysis

Data analysis is the process of systematically reaching and arranging the questioner and interview. The research is designed to investigate urban service and infrastructure provision of (water supply, road and drainage, power utility, health and education) provider sectors of the study town. Primary and secondary facts were collected from Sululta town.

After the data were collected from various sources it was organized and analyzed by using both qualitative and quantitative data analysis techniques Data acquired through questionnaire were analyzed descriptively based on the number of respondents participated in the study town. Similarly, quantitative data collected from reports of City administration and infrastructure service provision were analyzed using simple descriptive statistical techniques like table, charts and graphs. On the other hand, qualitative data collected using the stated instruments were also analyzed through narration, comparison and interpretation using MS-excel. At the end, the data were processed and analyzed.

# CHAPTER FOUR DATA PRESENTATION AND ANALYSIS

## 4.1. Short back ground of urban services and infrastructure of Sululta town

Before the analysis of data, the researcher first focuses on the Short back ground of urban services and infrastructure provision of Sululta town for the past five years and the second section deals with the views of respondents collected through questionnaires and interviews.

### 4.1.1 Infrastructures

Table 1 Different type of roads constructed

| Type of roads | Unit of measurement | Amount | Remark |
|---|---|---|---|
| Asphalt road | Km | 4.33 | bad |
| Coble stone | Km | 26 | bad |
| Gravel road | Km | 246 | good |
| Drainage | Km | 270 | bad |
| Culvert | Km | 28 | bad |

(Source: STPCO, 2019)

As indicated in table 1 above, the coverage of different roads was low compared to the size of the town. It is possible to observe that the coverage of gravel road is better/good compared to that of coble stone and asphalt road for the past five years.

Table 2 Electric power utility supplied

| Electricity | Unit of measurement | Amount | Remark |
|---|---|---|---|
| Coverage of Electricity | Km. | 225 | bad |
| No. of houses electric uses | Number | 11,505 | bad |
| No. transformers in the town | Number | 111 | bad |
| Power used by the city | mw (megawatt) | 2.3 | bad |

**(**Source: STPCO, 2019)

The supply of electric utility is also provided to 11,505 houses of which only 57,525 people have electric power; the other 44% do not get electric power directly as seen on table 2 above. As the researcher observes the electric power utility provision, it is found at its low/bad stage.

Table 3 Water supply

| Water | Unit of measurement | Amount | Remark |
|---|---|---|---|
| Bonos | Number | 80 | good |
| No of deep well servicing at the moment | Number | 7 | bad |
| No of water springs | Number | 2 | bad |
| Provision of water supply at the moment | m3 | 5.33 | bad |

(Source: STPCO, 2019)

The provision of clean tap water has at a lower stage compared to the population of the town.so that the water service provider is starting to dig nine deep well to improve the service.

### 4.1.2 Social Infrastructures

Table 4 Different types of Schools

| Schools | Unit of | Amount | Remark |
|---|---|---|---|
| Kindergarten | Number | 1-3 | |
| - Governments | Number | 9 | bad |
| - Private | Number | 25 | good |
| **Primary school** | Number | (1-8) | |
| - Governments | Number | 5 | bad |
| - Private | Number | 7 | good |
| **Secondary school** | Number | (9-10) | |
| - Governments | Number | 1 | bad |
| - Private | Number | - | bad |
| **Preparatory school** | Number | (11-12) | |
| - Governments | Number | 1 | bad |
| - Private | Number | - | bad |
| Technique College | Number | 1 | bad |
| Private university | Number | 2 (1 regular and 1distance program) | good |
| Government university | Number | 1(distance program) | bad |

(Source: STPCO, 2019)

As indicated in table 4 above the type and the number of schools like private secondary schools are not existed. Due to these problems most peoples send their students to Addis Ababa which makes to spend more transport fees.

Table 5 Health institutions in the town

| Health institutions | | Unit of measurement | Amount | Remark |
|---|---|---|---|---|
| Government | health center | Number | 1 | bad |
| | Clinics | Number | 3 | bad |
| Private | primary clinics | Number | 9 | good |
| | medium clinics | Number | 7 | bad |
| | pharmacies | Number | 10 | bad |

(Source: STPCO, 2019)

There is a one health center which survives for 129,843 dwellers that cannot provide proper service for this amount of people. The city administration plans to construct additional health centers and hospital. But it takes too long time to take the action.

Table 6 Industries found in the study area

| Industry | Unit of measurement | Amount | Remark |
|---|---|---|---|
| Industries | Number | 42 | good |
| Capital of the of these industries | Birr | 965,573,211.00 | bad |
| No. employed person | Number | 2586 | bad |

(Source: STPCO, 2019)

The town has a lot of industries and its capital has nearest to one billion. But the services given by these industries were bad that would not fund city administration to cover the needs of the residents.

Table 7 Tourism

| Type of tourism industries | Unit of measurement | Amount | Remark |
|---|---|---|---|
| Hotels | Number | 31 | bad |
| Resorts | Number | 4 | good |
| Motel | Number | 1 | bad |
| Restaurants | Number | 71 | bad |
| Breakfast houses | Number | 65 | bad |
| **Type of Tourists and revenue collected** | - | - | - |

| | | | |
|---|---|---|---|
| National tourists | Number | 112,295 | bad |
| International tourists | Number | 28,179 | bad |
| Revenue collected in a year | Birr | 23,347,000.00 | bad |

(Source: STPCO, 2019**)**

To attract tourists the presence of different infrastructure plays a vital role in many ways. As seen above on table 7, the movement of national tourists was more than 4 times than that of international tourists with low/bad infrastructure provision. If the provision of infrastructure improved, the number of tourist's movement increases and revenue collected also increases.

Table 8 Finance institutions

| Finance institutions | | Unit of measurement | Amount | Remark |
|---|---|---|---|---|
| Banks | Governments | Number | 3 | good |
| | Private | Number | 11 | good |
| Microfinances | | Number | 3 | bad |

(Source: STPCO, 2019)

As described on table 8 above, finance institutions increase from time to time, these gives an opportunity to provide urban services if the city administration closely works with them. But microfinances are not enough to provide proper services.

Table 9 revenue collected for the last five years

| Type of Revenue | Revenue collected in five years | | | | |
|---|---|---|---|---|---|
| | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 |
| Fees and taxes revenue collected by different sectors | 43,022,755.14 | 62,482,736.34 | 63,766,991.19 | 76,921,048.38 | 88,012,668.35 |
| Revenue collected by city municipality | 43,194,709.15 | 90,571,696.95 | 81,796081.21 | 68,738,429.77 | 46,996,746.68 |
| Total | 86,217,464.29 | 153,054,433.29 | 145,563,072.4 | 145,659,478.15 | 135,009,415.03 |
| Out of the total 40% is allocated budget for infrastructure provision | 34,486,985.72 | 61,221,773.32 | 58,225,228.96 | 58,263,791.26 | 54,003,766,12 |

(Source: STPCO, 2019)

While looking at the performance of the five years revenue collection, it was decreased at 2015/16 due to different factors like problem of peace. However the needs of infrastructure service increases over time

## 4.2 RESULTS AND DISCUSSION

This section deals with presentations, discussions and interpretations of the data collected through questionnaire and interview. It is categorized based on the predefined research questions and objectives. The findings were linked to **factors affecting urban service and infrastructure provision**. This part consists of seven sub-sections based on the data collected from questionnaires and interviews. These are the factors that affect urban service and infrastructure provision including demographic characteristics and their responses about Sululta town water service office, road and drainage office, electric service utility office, health service office, education service office, the municipality and the dwellers to identify the factor and to indicate possible solutions.

### 4.3. Socio-Economic Characteristics of the Respondents

The socio-economic and social characteristics of the respondents had a direct relationship with factors affecting urban service and infrastructure provision in the study area. Therefore, it is necessary to discuss and analyze these variables which include age, sex, marital status, education; income level and Occupation of the respondents were seen. Because each of them have a link in infrastructure provision in many ways as described below.

### 4.4. Rate of Respondents

The study covered a total of 180(30 respondents were from six infrastructure provider office and sectors and 150 from dwellers) in Sululta town. Questionnaires were proportionally distributed to residents from 5 sites 136 were properly filled and collected, making a response rate of 91%.Interviews were distributed to 30 respondents from six infrastructure provider offices and sectors i.e. 100 % response rate. The average responses rates were 166(92%).This is a better response rate which were properly filled as sufficient to draw logical conclusions.

#### 4.4.1. Demographic Characteristics of Respondents

In order to understand the profile of study participants, respondents were requested to fill questions related to their attributes such as gender, age, marital status, occupation, years of service, income and education level as follows.

**Age of Respondents:** While looking at the age of respondents, around 17% of the total respondents found under the age group of 18 – 25 which were young, 25-35 were 21% and 35-50(37%) indicating that majority of the participant are found under economically active age

group to fund for infrastructure development. The remaining 25% are found within the age group of >50, indicating that there are aged which lives much more in the town to know the real fact.

Table 10 Age structure of the respondents

| No | Age Group | Frequency | Percentage |
|---|---|---|---|
| 1 | 18-25 | 28 | 17 |
| 2 | 25-35 | 36 | 21 |
| 3 | 35-50 | 60 | 37 |
| 4 | >50 | 42 | 25 |
| Total | | 166 | 100 |

(Source: Researcher's Survey)

**Gender of Respondents:** Sex distribution of the respondents had a different interpretation in infrastructure provision. Women use electricity and water for cooking foods and for different purpose than men. Therefore, sex distribution of respondents affects the intention of using it. In terms of gender, Out of the total 166 respondents 78(47%) of them are women and the remaining 88(53%) are male's.

Table 11 Age structure of the respondents

| No | Sex | Frequency | Percentage |
|---|---|---|---|
| 1 | Male | 88 | 53 |
| 2 | Female | 78 | 47 |

(Source: Researcher's Survey)

**Marital status of the respondents**: At the same manner marital status of the respondents has also a direct relationship with factors affecting urban service and infrastructure provision. Because widowed women's have more challenged to fund and cover their challenges of urban service than others. Therefore when questionnaires and interviewed were provided, Out of the total 166 respondents 86(52%) of them were married, 18(11%) were widowed and the remaining single and divorced were 30(18%) and 32(19%) respectively. This shows that the result of the assessment is relatively equivalent to see the case in all type of statues.

Table 12 Marital status of the respondents

| No | Marital status | Frequency | Percentage |
|---|---|---|---|
| 1 | Single | 30 | 18 |
| 2 | Married | 86 | 52 |
| 3 | Divorced | 32 | 19 |
| 4 | Widowed | 18 | 11 |
| Total | | 166 | 100 |

(Source: Researcher's Survey)

**Income level of respondents-**Incomes of individuals are closely related to the urban service and infrastructure provision because it would cover the ability of contributing money to solve their problem occurred that are not covered by the city administration. As shown in the table below the income level of the majority of the respondents is between 2000-4000 (49 %) per month. This shows most of the residents get an average income which makes enable to contribute some amount of money to solve urban service problems.

Table 13 Income Level of the Respondents

| No | Income Level(in birr) | Frequencies | Percentage |
|---|---|---|---|
| 1 | <2000 | 45 | 27 |
| 2 | 2000-4000 | 81 | 49 |
| 3 | >4000 | 40 | 24 |

(Source: Researcher's Survey)

**Education Level of Respondents-**The level of education for majority of respondents was 58(35%) who can read and write. This indicated that the questionaries' were filled by more residents in the town which have direct attachment with the problem. However, around 20(12%) of the respondents were individuals with higher level of education interviewed in most sectors.

Table 14 Education of the Respondents

| Frequencies and Percentages | Level of Education | | | | |
|---|---|---|---|---|---|
| | Read and write | Grade 9-12 | Certificate and Diploma | Degree &above | Total |
| Frequencies | 58 | 48 | 40 | 20 | 166 |
| Percentages | 35 | 29 | 24 | 12 | 100 |

(Source: Researcher's Survey)

**Occupation of Respondents:** The result of the analysis shows that around 29% of the respondents are engaged in self-employed jobs while the remaining 27% and 21% of the participants are working as other works like farmers, daily laborers and business man respectively from top percentages. In general all types of peoples working in different areas are engaged as shown below the table 15.

Table 15 Occupation of Respondents

| Frequencies and Percentages | Occupation of Respondents | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Manager | Expert | Administrative staff | Business man | self employed | NGO | other | Total |
| Frequencies | 3 | 2o | 7 | 35 | 48 | 9 | 44 | 166 |
| Percentage | 2 | 12 | 4 | 21 | 29 | 5 | 27 | 100 |

(Source: Researcher's Survey)

**Work Experience of Respondents:** In terms of experience, around 39% of the respondent's have an experience of 1-5 years living in the town. This fact is very helpful to get more relevant information to get the recent condition of factors affecting urban service and infrastructure provision. The proportion of fresh residents those who were living less than a year was very low when compared with those wholive5-10 years. This are 28% and those who lives more than 10 years were 23% respectively. This shows the percentage of those who live more also have a shortage of infrastructure provision.

Table 16 Work Experience of the Respondents

| Frequencies and Percentages | Work Experience of Respondents | | | | |
|---|---|---|---|---|---|
| | <1years | 1-5year's | 5-10Years | above 10 years | Total |
| Frequencies | 18 | 64 | 46 | 38 | 166 |
| Percentage | 10 | 39 | 28 | 23 | 100 |

(Source: Researcher's Survey)

### 4.5. Data presentation and discussion

This section covers the overall assessment and findings of the study. It discusses the problems of infrastructure occurred in the town and the factors affecting urban infrastructure provision. The assessment was conducted in relation to budget deficit, expansion of the town, lack of educated man power, corruption, squatter settlement, etc.

Table 17 Factors affecting urban infrastructure and services

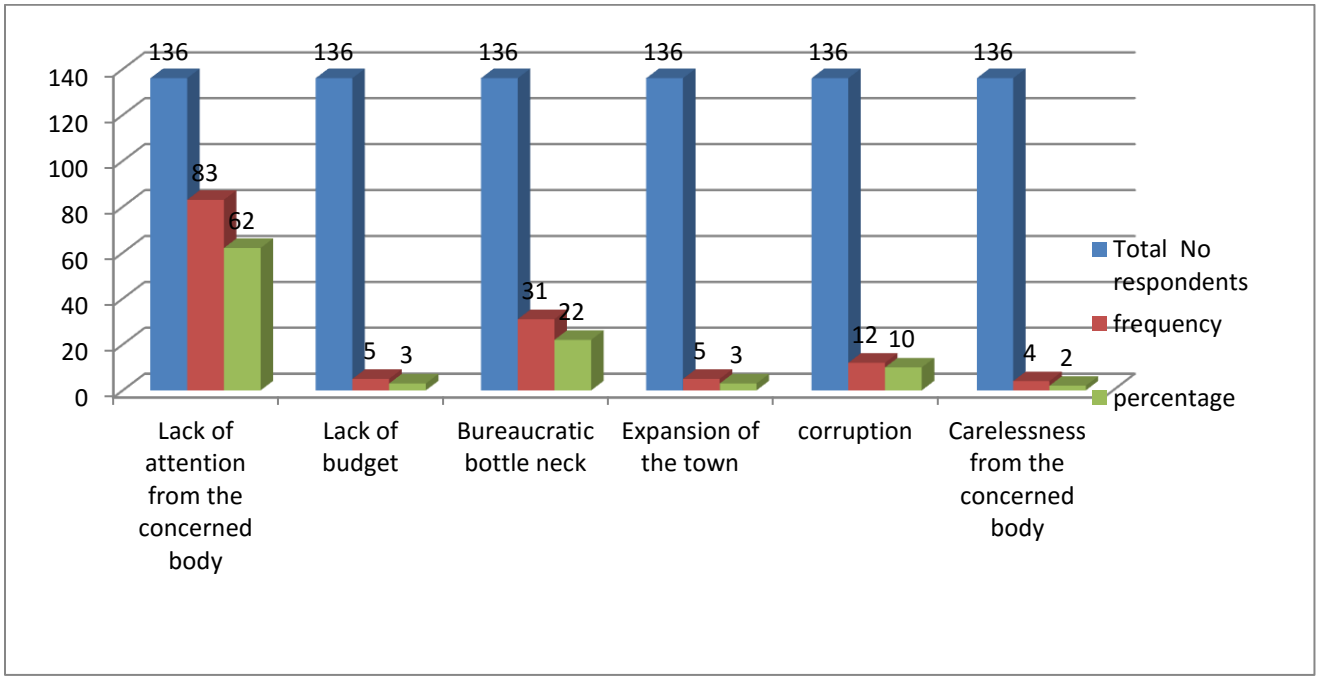
| Responses of the dwellers | Total No respondents | frequency | percentage |
|---|---|---|---|
| Lack of attention from the concerned body | 136 | 83 | 62 |
| Lack of budget | 136 | 5 | 3 |
| Bureaucratic bottle neck | 136 | 31 | 22 |
| Expansion of the town | 136 | 5 | 3 |
| corruption | 136 | 12 | 10 |
| Carelessness from the concerned body | 136 | 4 | 2 |

(Source: Researcher's Survey)

### 4.5.1. Factors affecting infrastructure and service provision

Questionnaires were distributed to 150 dwellers, but of these 136 were collected and the responses show that lack of attention from the concerned body 62%, lack of budget 3%, bureaucracy 22%, expansion of the town 3% and corruption 10% were responded by the residents not to have accesses to pure tape water, electricity, road, school and hospital as indicated by table 17 above and Figure 2 below.

Figure 2 Factors affecting urban infrastructure and services




(Source: Researcher's Survey)

After the dwellers are paying fees to the district branch of power utility sector to get electricity, most of them could not get on time due to lack of attention from their experts and other concerned bodies. Corruption is also another factor to hinder the growth of the town because more than 8 city administration managers are at prison including the former mayor since 2015. On the other hand since the town is under Oromia regional state there is a delay to give the required service on time as each of them indicated by dwellers above.

Table 18 Water Service provider Respondents

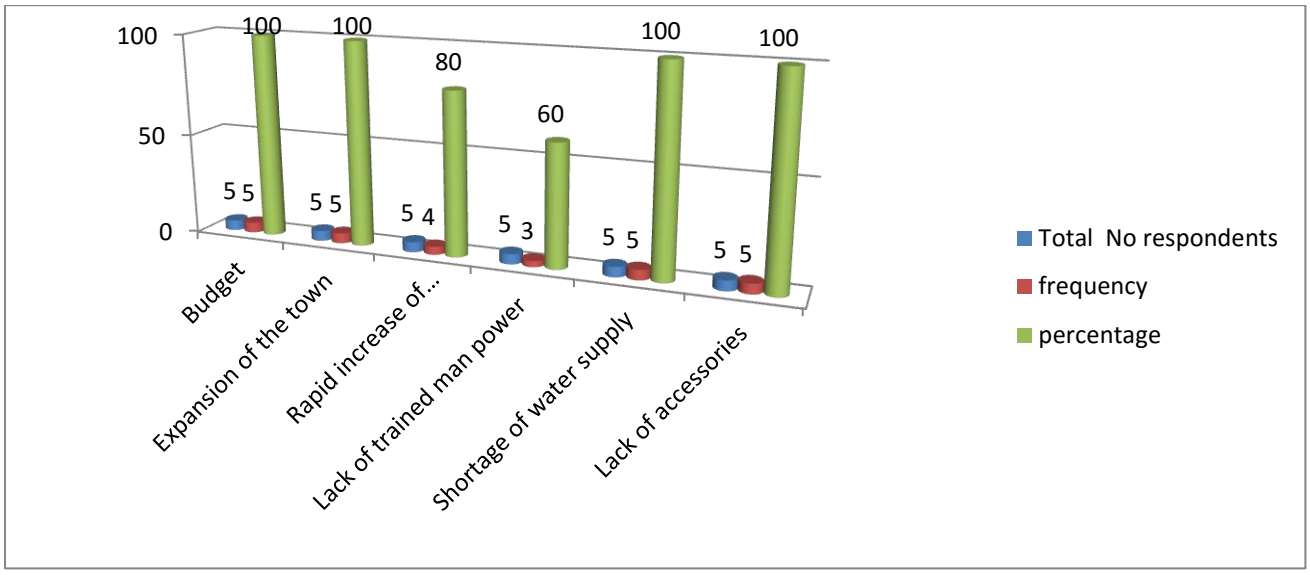
| Causes and factor of responses | Total No respondents | frequency | percentage |
|---|---|---|---|
| Budget | 5 | 5 | 100 |
| Expansion of the town | 5 | 5 | 100 |
| Rapid increase of population | 5 | 4 | 80 |
| Lack of trained man power | 5 | 3 | 60 |
| Shortage of water supply | 5 | 5 | 100 |
| Lack of accessories | 5 | 5 | 100 |

(Source: Researcher's Survey)

### 4.5.2. Water Service provision sector Responses

While looking at respondents of water Service provision sector were asked what affects access to clean drinking water at their home and 5 expert's responses show that lack of budget(100%), lack of accessories (100%), expansion of the town100%, and Shortage of water supply were indicated 100% by respondents which were caused by different factors indicated below in the table. Rapid increase of population (80%) and lack of trained man power (60%). This indicates that those mentioned factors had occurred by such obstacles as shown at table 18above and figure 3 below.

Figure 3 Water Service provider Respondents




(Source: Researcher's Survey)

The current situation of provision of water in the town is at its low level due to different constraints indicated by respondents above; therefore to utilize the opportunities for the provision of clean tap water in the town, organizing and participating the industries on the involvement is the solutions to the problems.

Table 19 Road and drainage Service provider Respondents

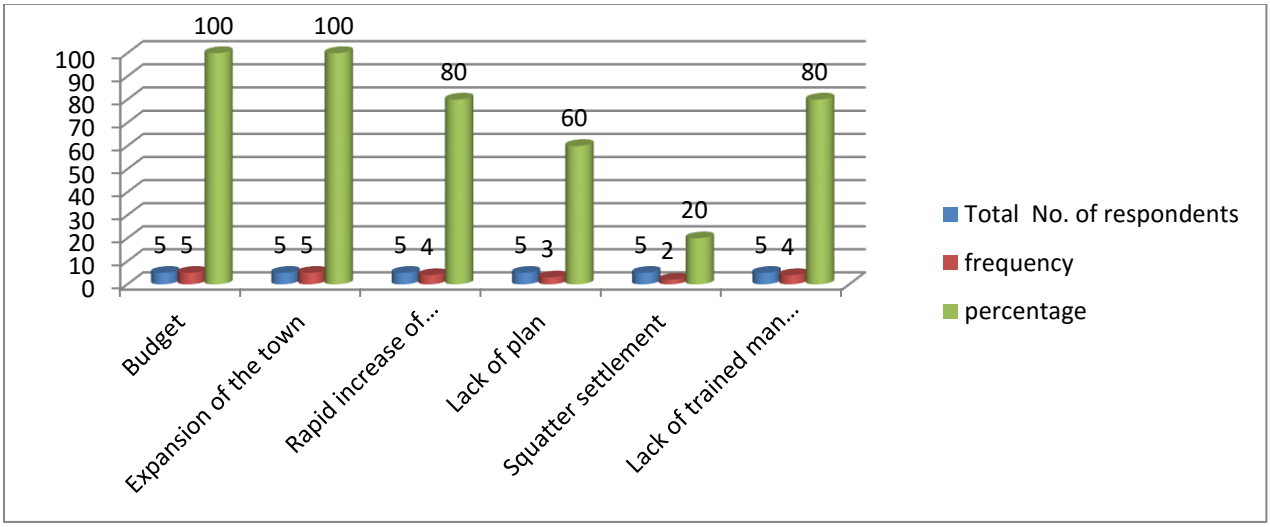
| Type of response | Total No. of respondents | frequency | percentage |
|---|---|---|---|
| Budget | 5 | 5 | 100 |
| Expansion of the town | 5 | 5 | 100 |
| Rapid increase of population | 5 | 4 | 80 |
| Lack of plan | 5 | 3 | 60 |
| Squatter settlement | 5 | 2 | 20 |
| Lack of trained man power(engineers and surveyors) | 5 | 4 | 80 |

(Source: Researcher's Survey)

### 4.5.3. Road and drainage Service provider sector Responses

Similarly respondents of road and drainage Service provider were interviewed what affects the provision of urban service and infrastructure around their home and in the town, responses of 5 experts show that lack of budget, Expansion of the town were responded by 5 experts (100%),rapid increase of population (80%) lack of plan (60%),Lack of trained man power(engineers and surveyors80%) and Squatter settlement (20%)responded.Because the settlements don't made by plan so that it makes difficulty to provide road and drainage properly. This indicates that all those factors affect urban service and infrastructure as indicated at table 19 above and fig 4 below.

Figure 4 Road and drainage Service provider Respondents




(Source: Researcher's Survey)

While looking at the current situation of provision of road and drainage in the town, it is at its low level due to expansion of the town indicated by respondents above; therefore to utilize the opportunities for the provision of road and drainage in the town, organizing and participating the industries on the involvement development is the solutions to the problems.

Table 20 Power utility Service provision Respondents

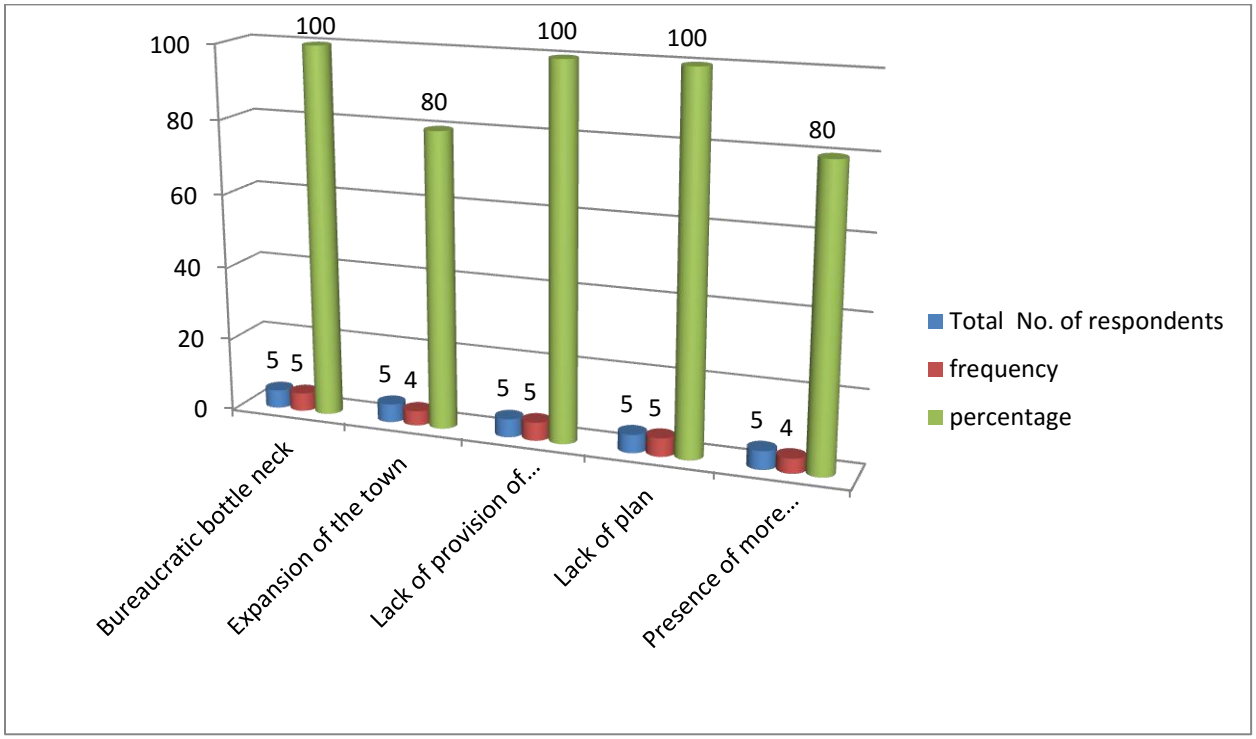
| Type of response | Total No. of respondents | frequency | percentage |
|---|---|---|---|
| Bureaucratic bottle neck | 5 | 5 | 100 |
| Expansion of the town | 5 | 4 | 80 |
| Lack of provision of accessories | 5 | 5 | 100 |
| Lack of plan | 5 | 5 | 100 |
| Presence of more factories | 5 | 4 | 80 |

(Source: Researcher's Survey)

### 4.5.4. Power Service utility provision sector Responses

When the same interview were raised for 5 experts of Power utility Service provider sector on what affects the provision of electric power supply to provide at their homes in the town, there responses were categorized as bureaucratic bottle neck 5 (100%), expansion of the town 4(80%), lack of provision of accessories 5 (100%), presence of more factories 4(80%) which limits power expansion and lack of plan 5 (100%). This shows that the factors for supply of electric power were affected by these factors seriously the percentages are indicated on the table 20 above and fig 5 below.

Figure 5 Power utility Service provision Respondents




Source: Own Survey (Feb 2019)

While investigating at the current situation of provision of power utility Service in the town, it is at its low level due to expansion of the town and lack of provision of accessories as indicated by respondents above; therefore to utilize the opportunities for the provision of power utility Service in the town, organizing and participating the industries on the involvement development is the solutions to the problems.

Table 21 Health Service provider Responses

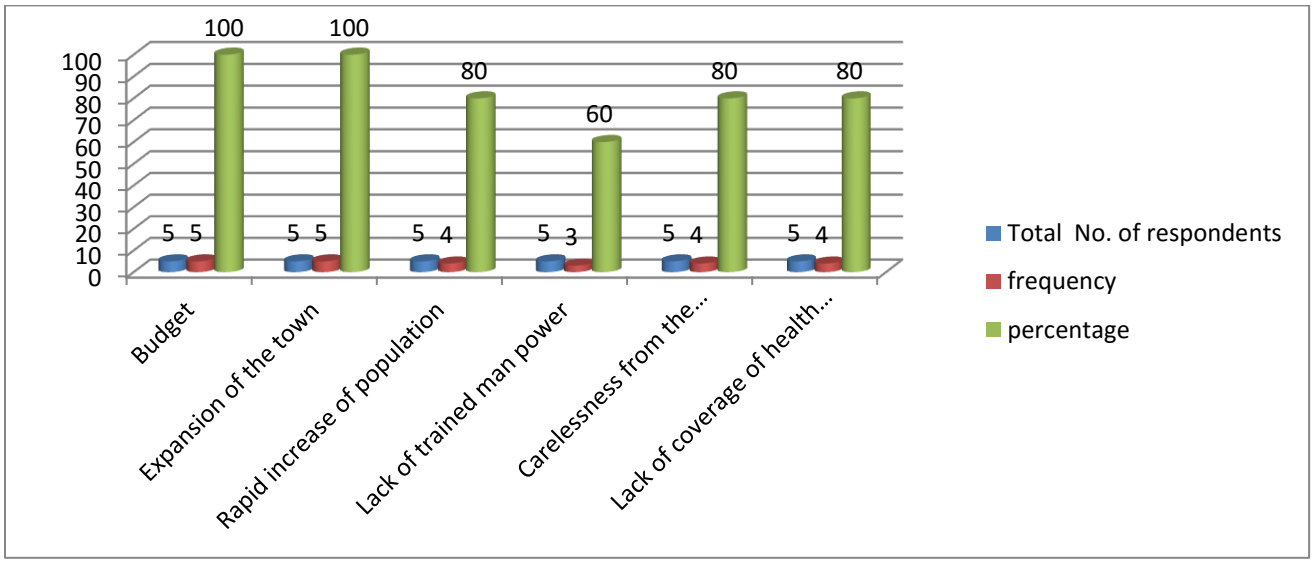
| Type of response | Total No. of respondents | frequency | percentage |
|---|---|---|---|
| Budget | 5 | 5 | 100 |
| Expansion of the town | 5 | 5 | 100 |
| Rapid increase of population | 5 | 4 | 80 |
| Lack of trained man power | 5 | 3 | 60 |
| Carelessness from the concerned body | 5 | 4 | 80 |
| Lack of coverage of health institutions(hospitals) | 5 | 4 | 80 |

(Source: Researcher's Survey)

### 4.5.5. Health Service provider Responses

While interviewed were provided for 5 experts of health Service provider on what affects the provision of electric power supply to provide at their homes and in the town, they responses were categorized as budget 5 (100%) ,expansion of the town 4(80%),lack of provision of accessories 5 (100%),lack of coverage of health institutions4(80%) which means because there is no hospital in the town the residents move to Addis Ababa and Chancho to get health service, and lack of plan 5 (100%). This shows that the factors for health Service provider were affected by different factors as shown by the percentages indicated on the table 21 above and fig 6 below

Figure 6 Health Service provider Responses




(Source: Researcher's Survey)

While considering at the current situation of provision of health Service in the town, it is also at its low level due to rapid increase of population by different factors as indicated by respondents above; therefore to utilize the opportunities for the provision of health Service in the town, organizing international NGO's to build additional health center and hospital is the solutions to the problems.

Table 22 Education Service provider Respondents

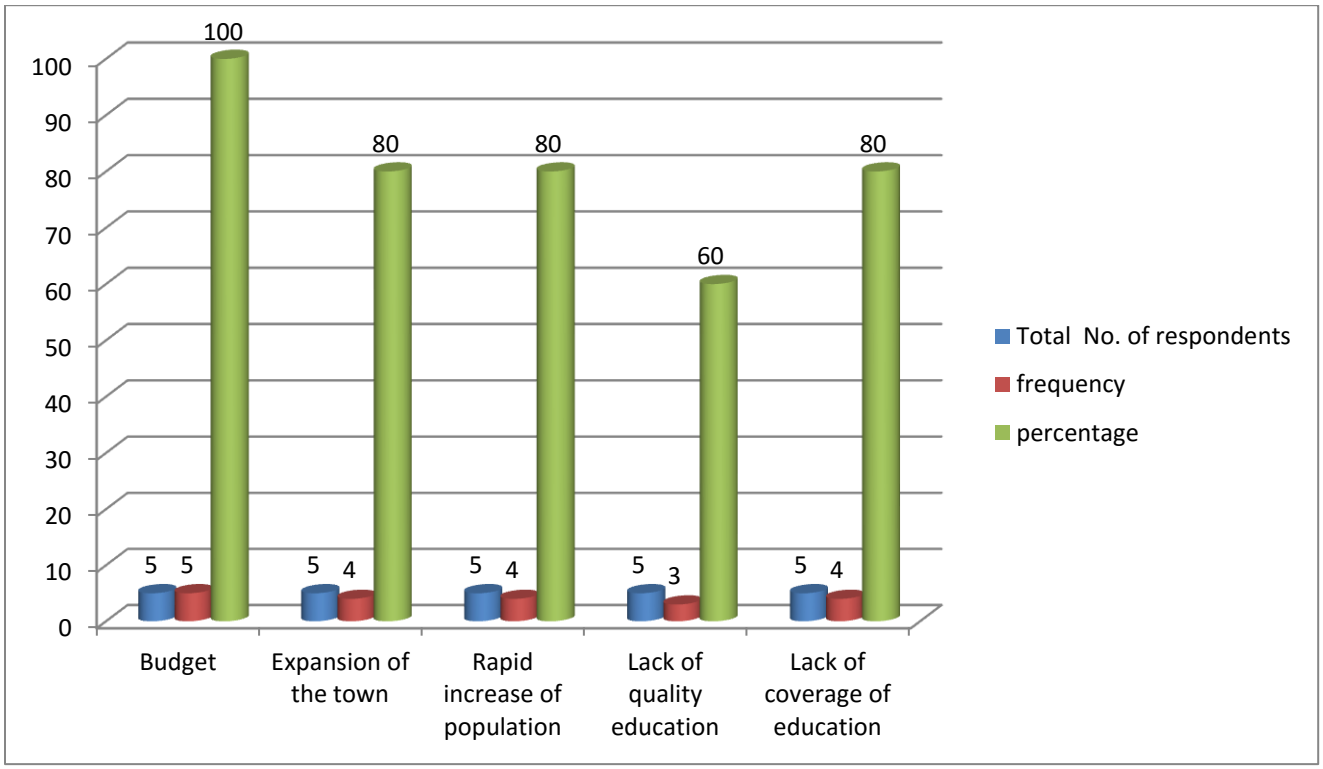
| Type of responses | Total No. of respondents | frequency | percentage |
|---|---|---|---|
| Lack of budget | 5 | 5 | 100 |
| Expansion of the town | 5 | 4 | 80 |
| Rapid increase of population | 5 | 4 | 80 |
| Lack of quality education | 5 | 3 | 60 |
| Lack of coverage of education(high schools) | 5 | 4 | 80 |

(Source: Researcher's Survey)

### 4.5.6. Education Service provider Responses

As per the interview conducted with 5 experts of education Service provision office on what affects the provision of education in the town, the responses were categorized as lack of budget5 (100%) ,expansion of the town 4(80%),lack of quality education 3 (60%), lack of coverage of education 4(80) because of lack of high school most students went to other cities for need of school and rapid increase of population (80%).This shows that the education were affected by these factors seriously as indicated on the above table 22 and fig 7 below.

Figure 7 Education Service provider Responses




(Source: Researcher's Survey)

Similarly, while looking at the current situation of construction of schools in the town, it is also at its low level due to rapid increase of population by different factors as indicated by respondents above; therefore to utilize the opportunities for the provision of schools in the town, organizing international NGO's to build additional schools is the solutions to the problems.

Table 23 municipality Service provision Responses

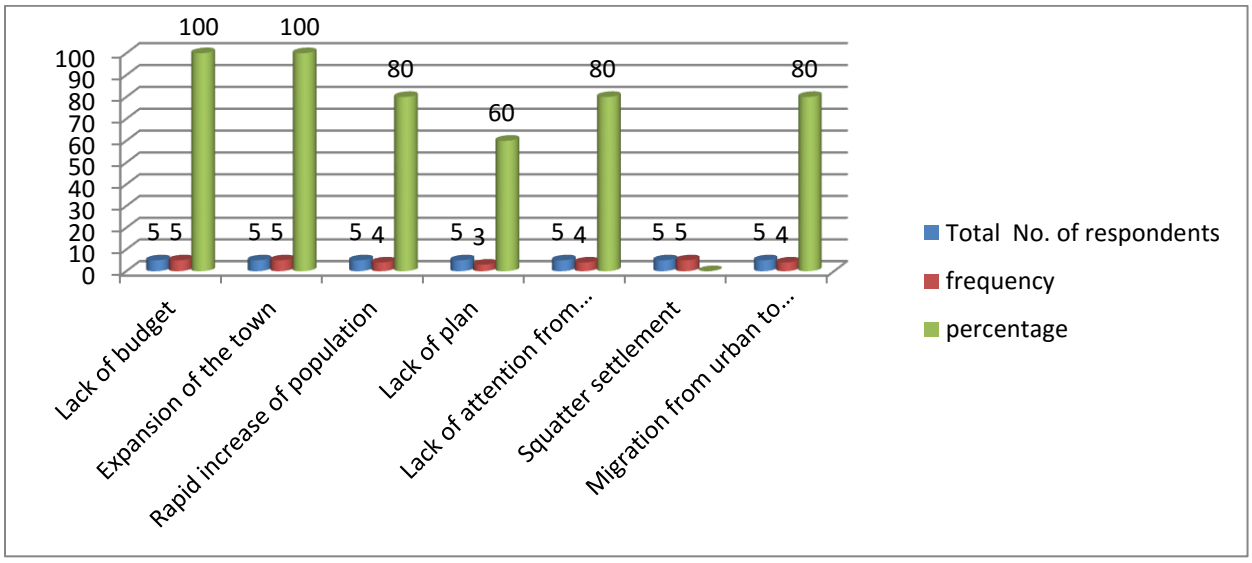
| Type of responses | Total No. of respondents | frequency | percentage |
|---|---|---|---|
| Lack of budget | 5 | 5 | 100 |
| Expansion of the town | 5 | 5 | 100 |
| Rapid increase of population | 5 | 4 | 80 |
| Lack of plan | 5 | 3 | 60 |
| Lack of attention from ORG(Oromia Regional Government) | 5 | 4 | 80 |
| Squatter settlement | 5 | 5 | 1oo |
| Migration from urban to urban and rural to urban | 5 | 4 | 80 |

(Source: Researcher's Survey)

### 4.5.7. Responses of municipality employees

The municipality was the most important sector for which interviewed were provided for 5 experts/engineers to which the case directly involves by asking what factors affects the provision of urban service and infrastructure provision in the town, the responses were categorized as lack of budget5 (100%), expansion of the town 5(100%),rapid increase of population due to migration from urban to urban and rural to urban 4(80),lack of plan3(60) and Squatter settlement 5(1oo%) because the town is nearest to Addis Ababa a lot of people migrate to the town and construct illegally without plan. Lack of attention from ORG(Oromia Regional Government were also indicated by 4(80%).This is because due to the wide problem of infrastructure provision in the towns of the regions. It indicated on the above table 23 and fig 8 below

Figure 8 municipality Service provision Responses




(Source: Researcher's Survey)

The figure above indicated that while looking at the current situation of provision of different urban service and infrastructure in the town, it is found at the lowest coverage due to rapid increase of population and expansion of the town which leads to highest demand of infrastructure by the dwellers as indicated by respondents above; therefore the allocated budget by municipality is not enough to cover the needs. So it is important to assess the opportunities to get additional budget to provide appropriate Service in the town.

# CHAPTER FIVE: SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATION

## 5.1. Summary of the findings

Provision of urban service and infrastructure is a high cost process and often suffering from deficiencies in recovering its expenses. Lack of budget, expansion of the town, rapid increase of population, lack of plan, lack of attention from the concerned bodies, squatter settlement, migration from urban to urban, rural to urban and lack of trained man power are some of the factors affecting urban service and infrastructure provision. The study town has many alternative investment opportunities to participate in provision of urban service.

The study focuses on the dwellers and infrastructure provider sectors like water, road and drainage, electric utility services, health, education service providers and the municipality offices to know what affects urban infrastructure provision, identifying the current situation of urban services and infrastructure provision, to show and analyze the opportunities for the availability of infrastructure provision and to recommend alternative solutions to the problem of urban service and infrastructure provision in the town and to indicate solutions taken by the concerned body.

In the provision of urban infrastructure, the municipality/city administration should know all the basic information about the city's urban service infrastructure system. In addition to this, the municipality needs to have the role of monitoring and controlling the infrastructure provision, guiding urban infrastructure, coordinating infrastructure providing sectors.

On the other hand municipalities and infrastructure provider sectors should work together to identify sensitive infrastructure provision process to solve the challenges. These sectors may have the role of coordination and integration of each other for infrastructure provision process like (planning, provision, management and maintenance) to achieve their goal.

## 5.2. CONCLUTION

Infrastructure is the combination of fundamental systems that support a community, region, or country "The installations that form the basis for any operation or system". Different infrastructure sectors have different effects on improving the quality of life and reducing poverty. Access to clean water and sanitation has the most obvious and direct consumption benefits in reducing mortality and morbidity. It also increases the productive capacity of the poor and can affect men and women differently. For example, the Poor women in particular must commit large shares of their income or time to obtaining water and fuel wood, as well as to carrying crops to market.

Based on the study, the results obtained from the analysis are summarized as follows. The study considered factors affecting urban service and infrastructure provision of Sululta town, water service provision office, road and drainage office, electric power utility office, health service provision office, education service provision office, municipality service provision office and the dwellers.

Factors' affecting urban service and infrastructure provision has been characterized and resulted due to different factors like;

- ✓ **Lack of budget**- which is indicated by various service provider sectors were reduced from 58 million to 54 million in 2014/15 and 2015/16 respectively. But the need of the service increases every year so that the budget should be increased. But the town is fast grown more than they allocate its budget. The provision of clean tap water, provision of road and drainage, electric power is highly depended on the allocated budget to provide the needs of the residents.
- ✓ **Expansion of the town**- is also a major factor affecting infrastructure provision. Because the town was expanded from 4 kebeles to 8 but the provision of infrastructure was not improved according to the size of the town. There is also the migration of the people from town to town and from rural to urban as indicated by the city administration the climate condition is favorable for residents and the town is nearest to Addis Ababa this makes to grow fast and makes it to expand.
- ✓ **Rapid increase of population**- through migration from town to town and from rural town is another factor affecting urban service provision. According to the second and third censuses carried out at national level in 1994 and 2007 the population size of Sululta the town was 1,271and 6,407, respectively, but according to Sululta town planning commission office document studied in 2011E.C (2019 G.C), the population of

sululta town is 129,843(62,896 male and 66,947 female) which is doubled by 20% within 12 years. This affects the city administration to provide infrastructure.

- ✓ **Lack of trained man power-** was also the major obstacle in water provider sector and health sector to provide the services needed. For example the plumber needed in the town should be 18 but now only 5 are present. According to ministry of health norms, there should be a hospital for 100 thousand peoples but population of the town is more than 129 thousand. Therefore to provide pure water additionally the city administration is on the way of digging 6 deep well and in case of health institution additional 1 health center is also started to build and 1 hospital is planned to build by 6 million in 2012 E.C.
- ✓ **Carelessness from the concerned body, lack of plan, bureaucratic bottle neck and Lack of attention from ORG(Oromia Regional Government)-** are also the major factors affecting urban infrastructure provision by different sectors. On the other hand since the town is under Oromia regional state there is a delay to give the needed service due to different factors. For example carelessness from the concerned body, lack of plan and bureaucratic bottleneck are the case of Ethiopian Electric Service behavior to provide the service on time because the head of the office is Addis Ababa so that the office should be decentralized to give quality service.
- ✓ **Squatter settlement**- also makes the service provider to give the service illegally. Because most peoples are buying a land and made their home in un planned manner which finally makes them deployment from their home.
- ✓ **Corruption-** is another major factor to hinder the growth of the town because more than 8 city administration managers are at prison including the former mayor since 2015.

In general, on the basis of the findings of the study it is possible to say that urban infrastructure provision is at lower stage. Its provision is very low compared to other towns due to its different factors described above. For example, the number of experts of water supply office is low in number compared to the potential of the water existing underground around the town is not more than 4 meters. Furthermore, the presence of high investment opportunity is there but their contribution is at its low level and requires participating on urban infrastructure provisions. Therefore, proper emphasis is expected to minimize the factors affecting urban infrastructure provision of the town and to enhance its coverage. This is because Coordination of the municipality between dwellers and infrastructure provision sectors was not strong. Therefore proper emphasis is needed to solve factors affecting urban service and infrastructure provision overall in the town.

## 5.3 RECOMMENDATION

The following recommendations are provided for solving factors affecting urban service and infrasture provision the town.

- The major recommendation indicated for lack of budget raised by different sectors are to search choices how to get budget from Oromia regional state, Addis Ababa city administration, different NGOs and to prepare project proposals.
- The next recommendation for expansion of the town through legally and illegally invasion of land was to manage migration and of peoples from different directions to make the town to have its own master plan.
- The recommendation for lack of trained man power will be to provide training and to hire the proper experts.
- The other solution for carelessness from the concerned body is regular follow up and to give attention from the concerned body will be the solution.
- The recommendation for squatter settlement is to control illegal invader of land.
- The other recommendation for bureaucracy of power utility which was centralized will be to decentralize the sector so that the dwellers and the service needed costumer would minimize the obstacles to get the service.

Moreover government politicians and decision makers should recognize the problems and challenges of infrastructure provision have to be given attention to solve out systematically and strategically by respective authorities given the existing supply gap and highly growing urban service and infrastructure demand in Sululta town.

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**ANNEX 1**

**Semi-structured questioner for dwellers**

Dear respondents, I am a post graduate student of Addis Ababa University undertaking a research on, **Factors Affecting Urban Service and Infrastructure Provision in Sululta Town**. Semi-structured questioner is used for the purpose of collecting the necessary data for this research. The study is only for academic purpose and cannot affect you in any case. So, your genuine, honest and timely response is vital for accomplishment of this study on time. Therefore, I kindly ask you to give your response to each items/questions carefully. No need of writing your name.

<< Thank you in advance for your Cooperation >>

**Part I: Demographic Characteristic of the Respondents**

Instruction: please **tick** or give reliable answers for each questions presented as below.

1) Sex of respondent. Male _____b. Female_____

2) Age of respondent

A. 18-25years_____ b.25-35year's_____C.35-50Years _____d. above 50 year_____

3. Marital Status a. Single _____b. Married _____c. Divorced_____ d. Widowed_____

4. Level of education?

A. Read and write_____ b. Grade 9-12_____ c. Certificate and Diploma_____ d. degree and above_____

5. Occupation

a. Business man_____ b. self-employed _____c. NGO _____d. government employee _____e. other specify_____

6. Income

a. Less than 2000 birr_____b.2000 birr-4000birr_____c.> 4000 birr_____

**Part II. Questionnaires on factors affecting urban service and infrastructure provision**

1. What is your primary problem to the provision of urban infrastructure? (Give the problems as ranking order of 1st, 2nd and 3rd…..)

a. water _____b.road_____c.drainage_____d.electiricity_____e.school_____f. health institution _____g. others_____

2. What are the factors affecting urban services and infrastructure provision (FAUSIP) in the last five years, (give the problems as ranking order of 1st, 2nd and 3rd…….)? _____

a. budget _____b. lack of attention from the concerned body _____c. expansion of the town _____d. rapid increase of population _____e. migration _____f. squatter settlement _____g. others_____

3. What was your contribution to solve this problem?

a. fund raising_____ b. participating in your profession_____ c.other means_____

4. What will be the role of the next bodies' in solving these problems?

Role of Municipality_____

_____

Role of different sectors _____

_____

Role of dwellers':_____

_____

5. What is the present state of the provision of infrastructure in the town in your opinion?

a. good _____b.satisfactory_____c.unsatisfactory_____

6. Which infrastructure provision sector was given an attention to solve your problems? (Give the problems as ranking order of 1st, 2nd and 3rd…..)

a. water provision sector _____b. road and drainage provision sector _____c. power utility provision sector _____d. education provision sector _____ e. health provision sector _____d. municipality office provision sector _____

7. Had the municipality office help you to solve the problem of infrastructure provision?

a.yes_____b.no._____

8.If yes, what measures have been taken by the municipality to solve Q no.7?

_____

_____

9. What are the opportunities available in the town to solve the problems of infrasture provision?

a. presence of different factories _____closeness to Addis Ababa _____Willingness of residents to participate in fund raising_____

10. Who is responsible for the provision of infrastructures in the town?

_____

_____

11. Did you get the land you made this house from the municipality legally?

Yes _____NO_____

11.1 Did you buy the land you made this house from the municipality legally?

Yes_____ NO_____

11.2. Did you live in a squatter settlement house Yes_____NO_____

12. Is there institutional collaboration or dialogue experience between you and the municipality in urban infrastructure provision? a) Yes _____ b) no _____.

If the answer is yes

• Who are the participants? (Give them as ranking order of 1st, 2nd and 3rd…..)

a. The mayor _____b. the manager_____c.an engineer _____d. administrative staffs _____e .other professionals_____

• What issues raised? _____

• How do you see the importance of such collaboration or dialogue?

_____

13. Have you seen other towns which have best practices in urban infrastructure provision?

a) yes _____ b) no _____

• If yes, what is the name of the towns? _____

Why do you attracted?

_____

_____

**ANNEX-2**

**Interview guidelines for office of water supply service providers**

Dear respondents, I am a post graduate student of Addis Ababa University undertaking a research on, **Factors Affecting Urban Service and Infrastructure Provision in Sululta Town**. Semi-structured questioner is used for the purpose of collecting the necessary data for this research. The study is only for academic purpose and cannot affect you in any case. So, your genuine, honest and timely response is vital for accomplishment of this study on time. Therefore, I kindly ask you to give your response to each items/questions carefully. No need of writing your name.

<< Thank you in advance for your Cooperation >>

**Part I: Demographic Characteristic of the Respondents**

**Instruction:** please **tick** or give reliable answers for each questions presented asbelow.

1. Sex of respondents a. Male _____b. Female_____

2. Age of respondent

A.18-25years_____b .25-35year's_____C.35-50Years _____d. above 50 year_____

3. Marital Status a. Single _____b. Married _____c. Divorced_____ d. Widowed_____

4. Level of education?

A, Read and write_____ b. Grade 9-12_____ c. Certificate and Diploma _____d. Degree and above_____

4. Occupation

A .Manager _____b. Engineer _____c. Expert _____administrative staff/ Civil servant ____e. other specify_____

5. Income

a. Less than 2000 birr_____b.2000 birr-4000birr_____c.> 4000 birr_____

6. Work experience of respondents?

a. < 1 year _____b. 1-5 years_____ c.5-10 years_____ d. >10 years_____

**Part II. Interview on factors affecting urban service and infrastructure provision**

**Instructio**n: please **tick o**r give reliable answers for each questions presented as below

1.Are you satisfied with the coverage of water supply both in in quality and quantity Sulult town?

_____

_____

2. If your answer for Q#1 is No, what are the reasons and in which type of service you are not satisfied?

_____

_____

3. What are the obstacles and the major problems of the town in the last five years, in the provision of water supply? (Give the problems as ranking order of 1st, 2nd and 3rd…..)

a. budget _____b. lack of trained man power _____c. Shortage of water supply _____d. corruption_____ e. inefficient utilization of financial resources _____d. squatter settlement _____

4. What is the present state of the provision of water supply in the town in your opinion?

a. good _____b.satisfactory_____c.unsatisfactory_____

5. If your answer for Q 4 is un satisfactory, what measures have been taken by your office to solve these problems?

_____

_____

6. What action was taken by the city administration to solve infrastructure provision problems? State with justification

_____

_____

7. What will be the role of water supply office and the next bodies' in solving these problems?

Role of Municipality's:_____

_____

Role of your office _____

_____

Role ofdwellers':_____

_____

8. Have you ever participating in discussing and participating on urban service provision in Sululta town?

_____

_____

9. What are the opportunities available in the town to solve the problems of infrasture provision?_____

_____

10. How do you evaluate Sululta town in the provision of urban infrastructure?

_____

_____

11.What is the attitude of the urban dwellers towards service provided in the town?

_____

_____

12. What are the main challenges facing Sululta town on provision of urban service in general and infrastructures in particular?

_____

_____

13. What should be done for Q#12?

_____

_____

14. What are the coverage of the planned and the achievement of Water with its allocated budget for the last 5 years in Sululta town?

| Year | Type of infrastructure | No. of households obtained the service | Infrastructure Provided | | | Allocated budget for this work by the year in birr |
|---|---|---|---|---|---|---|
| | | | planned | Achieved | Achieved in% | |
| 2010/11 | Water | No. | | | | |
| 2011/12 | Water | No. | | | | |
| 2012/13 | Water | No. | | | | |
| 2014/15 | Water | No. | | | | |
| 2015/16) | Water | No. | | | | |
| | Total cost in birr | | | | | |

**ANNEX-2**

**Interview guidelines road and drainage service provider**

Dear respondents, I am a post graduate student of Addis Ababa University undertaking a research on, **Factors Affecting Urban Service and Infrastructure Provision in Sululta Town**. Semi-structured questioner is used for the purpose of collecting the necessary data for this research. The study is only for academic purpose and cannot affect you in any case. So, your genuine, honest and timely response is vital for accomplishment of this study on time. Therefore, I kindly ask you to give your response to each items/questions carefully. No need of writing your name.

<< Thank you in advance for your Cooperation >>

**Part I: Demographic Characteristic of the Respondents**

**Instruction**: please **tick** or give reliable answers for each questions presented as below.

1. Sex of respondent a. Male_____ b. Female_____

2. Age of respondent

A.18-25 years_____ b .25-35 year's _____C.35-50 Years _____d. above 50 year_____

3. Marital Status a. Single _____b. Married _____c. Divorced_____ d. Widowed_____

4. Level of education?

a. Grade 9-12_____ b. Certificate and Diploma _____ c. degree and above----------

5. Occupation

a. Manager _____b. Engineer _____c. Expert _____d. Administrative staff _____e. other specify_____

6. Work experience of respondents?

a. < 1 year _____b. 1-5 years_____ c.5-10 years_____ d. >10 years_____

**Part II. Interview on factors affecting urban service and infrastructure provision**

**Instruction**: please **tick** or give reliable answers for each questions presented as below

1. Is there all weather roads from your residence to town service centers?

Yes_____ No_____

2. If your answer for Q#1 is No, what are the reasons not to provide it? _____

_____

3. What is the present state of the provision of road and drainage supply in the town in your opinion?

a. good _____b.satisfactory_____c.unsatisfactory_____

4. If your answer for Q 3 is un satisfactory, what measures have been taken by your office to solve these problems?

_____

_____

5. What are the obstacles and the major problems of the town in the last five years, in the provision of road and drainage (give the problems as ranking order of 1st, 2nd and 3rd…….)?

a. Expansion of the town _____b. Squatter settlement _____c. lack of plan _____d. budget_____ e. corruption _____f. inefficient utilization of financial resources_____ g. carelessness _____

6. What action was taken by the city administration to solve infrastructure provision problems? State with justification _____

_____

7. What is the city administration suggestion to solve road and drainage problems?

State with justification

_____

_____

8. What will be the role of road and drainage's provider's office and the next bodies' in solving these problems?

Role of Municipality's:_____

_____

Role of your office _____

_____

Role of dwellers':_____

_____

9. Have you ever participating in discussing and participating on road and drainage provision in Sululta town? Yes _____No_____

10.Whom do you think is the main responsible body for the provision of urban infrastructure?

_____

_____

11.What are the opportunities available in the town to solve the problems of infrasture provision?_____

_____

12. What is the attitude of the urban dwellers towards service provided in the town?

_____

_____

13. What are the main challenges facing Sululta town on provision of urban service in general and infrastructures in particular?

_____

_____

14. What should be done for Q#13?

_____

_____

15. What are the coverage of the planned and the achievement of urban service and infrastructure with its allocated budget for the last 5 years in Sululta town?

| Year | Type of infrastructure | | Unit of measurement | Infrastructure Provided | | | Allocated budget for this work by the year in birr |
|---|---|---|---|---|---|---|---|
| | | | | planned | Achieved | Achieved in% | |
| 2010/11 | Road | Coble stone | km | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Gravel Road | km | | | | |
| | Drainage | | km | | | | |
| 2011/12 | Road | Coble stone | km | | | | |
| | | Gravel Road | km | | | | |
| | Drainage | | km | | | | |
| 2012/13 | Road | Coble stone | km | | | | |
| | | Gravel Road | km | | | | |
| | Drainage | | km | | | | |
| 2014/15 | Road | Coble stone | km | | | | |
| | | Gravel Road | km | | | | |
| | Drainage | | km | | | | |
| 2015/16) | Road | Coble stone | km | | | | |
| | | Gravel Road | km | | | | |
| | Drainage | | km | | | | |
| | Total cost in birr | | | | | | |

**ANNEX-2**

**Interview guidelines for Ethiopian Electric Utility services provider Sululta branch**

Dear respondents, I am a post graduate student of Addis Ababa University undertaking a research on, **Factors Affecting Urban Service and Infrastructure Provision in Sululta Town.** Semi-structured questioner is used for the purpose of collecting the necessary data for this research. The study is only for academic purpose and cannot affect you in any case. So, your genuine, honest and timely response is vital for accomplishment of this study on time. Therefore, I kindly ask you to give your response to each items/questions carefully. No need of writing your name.

<< Thank you in advance for your Cooperation >>

**Part I: Demographic Characteristic of the Respondents**

**Instruction**: please **tick** or give reliable answers for each questions presented as below.

1. Sex of respondent a. Male_____ b. Female_____

2. Age of respondent

A.18-25 years_____ b .25-35 year's _____C.35-50 Years _____d. above 50 year_____

3. Marital Status a. Single _____b. Married _____c. Divorced_____ d. Widowed_____

4. Level of education?

a. Grade 9-12_____ b. Certificate and Diploma _____ c.degree and above----------

5. Occupation

a.Manager_____b.Engineer_____c.Expert/Electirician_____d.Administrativestaff_____e.other specify_____

6. Income

a. Less than 2000 birr_____b.2000 birr-4000birr_____c. > 4000 birr_____

7. Work experience of respondents?

a. < 1 year _____b. 1-5 years_____ c.5-10 years_____ d. >10 years_____

**Part II. Interview on factors affecting urban service and infrastructure provision**

**Instruction:** please **tick** or give reliable answers for each questions presented as below

1. Are you satisfied by the provision of urban service and infrastructure of Sulult town?

_____

_____

2. If your answer for Q#1 is No, what are the reasons and in which type of service you would not satisfy?_____

_____

3. What is the present state of the provision of urban service and infrastructure in the town in your opinion?

a. good _____b. satisfactory _____c. un satisfactory_____

4. If your answer for Q 3 is un satisfactory, what measures have been taken by your office to solve these problems?

_____

_____

5. What are the obstacles and the major problems of the town in the last five years, in the provision of electricity (give the problems as ranking order of 1st, 2nd and 3rd…….)?

a. Expansion of the town _____b. Squatter settlement _____c. lack of plan _____d. budget _____ e. corruption_____ f. presence of more factories_____ g. bureaucracy _____h. lack of accessories provision_____

6. What measures have been taken by your office to solve these problems?

_____

_____

7. What is the city administration suggestion to solve infrastructure provision problems?

State with justification

_____

_____

8. What will be the role of Ethiopian Electric Utility office and the next bodies' in solving these problems?

Role of Municipality's:_____

_____

Role of your office _____

_____

Role of dwellers':_____

_____

9. Have you ever participating in discussing and participating on urban service provision in Sululta town? _____

10. Whom do you think is the main responsible body for the provision of electricity in the town?

_____

_____

11. How do you evaluate Sululta town in the provision of electricity in the town?

_____

_____

12. What is the attitude of the urban dwellers towards service provided in the town?

_____

_____

13. What are the main challenges facing Sululta town on provision of urban service in general and infrastructures in particular?

_____

_____

14. What should be done for Q#13?

_____

_____

15. What are the coverage of the planned and the achievement of electricity with its allocated budget for the last 5 years in Sululta town?

| | Type of infrastructure | No. of households obtained the service | Infrastructure Provided | | | Allocated budget for this work by the year in birr |
|---|---|---|---|---|---|---|
| | | | planned | Achieved | Achieved in% | |
| 2010/11 | Electricity | No. | | | | |
| 2011/12 | Electricity | No. | | | | |
| 2012/13 | Electricity | No. | | | | |
| 2014/15 | Electricity | No. | | | | |
| 2015/16) | Electricity | No. | | | | |
| | Total cost in birr | | | | | |

**ANNEX-2**

**Interview guidelines for health services provider**

Dear respondents, I am a post graduate student of Addis Ababa University undertaking a research on, **Factors Affecting Urban Service and Infrastructure Provision in Sululta Town**. Semi-structured questioner is used for the purpose of collecting the necessary data for this research. The study is only for academic purpose and cannot affect you in any case. So, your genuine, honest and timely response is vital for accomplishment of this study on time. Therefore, I kindly ask you to give your response to each items/questions carefully. No need of writing your name.

<< Thank you in advance for your Cooperation >>

**Part I: Demographic Characteristic of the Respondents**

**Instruction**: please **tick** or give reliable answers for each questions presented as below.

1. Sex of respondent a. Male_____ b. Female_____

2. Age of respondent

A.18-25 years_____ b .25-35 year's _____C.35-50 Years _____d. above 50 year_____

3. Marital Status a. Single _____b. Married _____c. Divorced_____ d. Widowed_____

4. Level of education?

a. Grade 9-12_____ b. Certificate and Diploma _____ c. degree and above----------

5. Occupation

a. Doctor _____b. Health officer _____c. Nurse_____d. Administrative stuff_____e. other specify_____

6. Income

a. Less than 2000 birr_____b.2000 birr-4000birr_____c. > 4000 birr_____

7. Work experience of respondents?

a. < 1 year _____b. 1-5 years_____ c.5-10 years_____ d. >10 years_____

**Part II Interview on factors affecting urban service and infrastructure provision**

**Instruction:** please **tick** or give reliable answers for each questions presented as below

1. Are you satisfied by the provision of urban service and infrastructure of Sulult town?

_____

_____

2. If your answer for Q#1 is No, what are the reasons and in which type of service you would not satisfied_____

_____

3. What is the present state of the provision of urban service and infrastructure in the town in your opinion?

a. good _____b.satisfactory_____c.un satisfactory_____

4. If your answer for Q 3 is un satisfactory, what measures have been taken by your office to solve these problems?

_____

_____

5. What are the obstacles and the major problems of the town in the last five years, in the provision of health institution (give the problems as ranking order of 1st, 2nd and 3rd…….)?

a. Expansion of the town _____b. Rapid increase of population _____c. budget _____ e. corruption_____ f. lack of trained man power_____ g. carelessness _____

6. What measures have been taken by your health institution to solve these problems?

_____

_____

7. What is the city administration suggestion to solve health institution?

State with justification

_____

_____

9. What will be the role of health institution and the next bodies' in solving these problems?

Role of Municipality's:_____

_____

Role of your institution _____

_____

Role of dwellers':_____

_____

10. Have you ever participating in discussing and participating on health institution service provision in Sululta town? Yes _____No_____

11.Whom do you think is the main responsible body for the provision of health institution?

_____

_____

12. How do you evaluate Sululta town in the provision of urban infrastructure?

13. What is the attitude of the urban dwellers towards health institution to provid in the town?

14. What are the main challenges facing Sululta town on provision of urban service in general and infrastructures in particular?

15. What should be done for Q#14?

16. What are the coverage of the planned and the achievement of health institution with its allocated budget for the last 5 years in Sululta town?

| Year | Type of infrastructure | Unit of measurement | Infrastructure Provided | | | Allocated budget for this work by the year in birr |
|---|---|---|---|---|---|---|
| | | | planned | Achieved | Achieved in% | |
| 2010/11 | Health institution | No. | | | | |
| 2011/12 | Health institution | No. | | | | |
| 2012/13 | Health institution | No. | | | | |
| 2014/15 | Health institution | No. | | | | |
| 2015/16) | Health institution | No. | | | | |
| | Total cost in birr | | | | | |

**ANNEX-2**

**Interview guidelines for education services provider**

Dear respondents, I am a post graduate student of Addis Ababa University undertaking a research on, **Factors Affecting Urban Service and Infrastructure Provision in Sululta Town**. Semi-structured questioner is used for the purpose of collecting the necessary data for this research. The study is only for academic purpose and cannot affect you in any case. So, your genuine, honest and timely response is vital for accomplishment of this study on time. Therefore,

I kindly ask you to give your response to each items/questions carefully. No need of writing your name.

<< Thank you in advance for your Cooperation >>

**Part I: Demographic Characteristic of the Respondents**

Instruction: please **tick** or give reliable answers for each questions presented as below.

1. Sex of respondent a. Male_____ b. Female_____

2. Age of respondent

A.18-25 years_____ b .25-35 year's _____C.35-50 Years _____d. above 50 year_____

3.Marital Status a. Single _____b. Married _____c. Divorced_____ d. Widowed_____

4. Level of education?

a. Grade 9-12_____ b. Certificate and Diploma _____ c.degree and above_____

5. Occupation

a. Manager_____b. Director _____c. Teacher_____d. Administrative staff___ e.other specify_____

6. Income

a. Less than 2000 birr_____b.2000 birr-4000birr_____c. > 4000 birr_____

7. Work experience of respondents?

a. < 1 year _____b. 1-5 years_____ c.5-10 years_____ d. >10 years_____

**Part II. Interview on factors affecting urban service and infrastructure provision**

**Instruction**: please **tick** or give reliable answers for each questions presented as below

1. Are you satisfied with the provision of urban service and infrastructure of Sulult town?

_____

_____

2. If your answer for Q#1 is No, what are the reasons and in which type of service you would not satisfy?_____

_____

3. What is the present state of the provision of urban service and infrastructure in the town in your opinion?

a. good _____b. satisfactory _____c. un satisfactory_____

4. If your answer for Q 3 is un satisfactory, what measures have been taken by your office to solve these problems?

_____

_____

5. What are the obstacles and the major problems of the town in the last five years, in the provision of health institution (give the problems as ranking order of 1st, 2nd and 3rd…….)?

a. Expansion of the town _____b. Rapid increase of population _____c. budget _____ e. corruption_____ f. inefficient utilization of financial resources_____ g. carelessness _____

6. What measures have been taken by your education sector to solve these problems?

_____

_____

7. What measures have been taken by your office to solve these problems?

_____

_____

8. What is the city administration suggestion to solve education provision problems?

State with justification.

_____

_____

9. What will be the role of education sector and the next bodies' in solving these problems?

Role of Municipality's:_____

_____

Role of your office _____

_____

Role of dwellers':_____

_____

10. Have you ever participating in discussing and participating on education institutions provision in Sululta town? Yes _____No_____

11.Whom do you think is the main responsible body for the provision of education institutions?

_____

_____

12. How do you evaluate Sululta town in the provision of urban infrastructure?

_____

_____

13. What is the attitude of the urban dwellers towards education provided in the town?

_____

_____

14. What are the main challenges facing Sululta town on provision of urban service in general and infrastructures in particular?

_____

_____

15. What should be done for Q#14?

_____

_____

17. What are the coverage of the planned and the achievement of education provision with its allocated budget for the last 5 years in Sululta town?

| Year | Type of infrastructure | Unit of measurement | Infrastructure Provided | | | Allocated budget for this work by the year in birr |
|---|---|---|---|---|---|---|
| | | | planned | Achieved | Achieved in% | |
| 2010/11 | School | No. | | | | |
| 2011/12 | School | No. | | | | |
| 2012/13 | School | No. | | | | |
| 2014/15 | School | No. | | | | |
| 2015/16) | School | No. | | | | |
| | Total cost in birr | | | | | |

**ANNEX-2**

**Interview guidelines for municipality services provider**

Dear respondents, I am a post graduate student of Addis Ababa University undertaking a research on, **Factors Affecting Urban Service and Infrastructure Provision in Sululta Town.** Semi-structured questioner is used for the purpose of collecting the necessary data for this research. The study is only for academic purpose and cannot affect you in any case. So, your genuine, honest and timely response is vital for accomplishment of this study on time. Therefore, I kindly ask you to give your response to each items/questions carefully. No need of writing your name.

<< Thank you in advance for your Cooperation >>

Part I: Demographic Characteristic of the Respondents

**Instruction**: please **tick** or give reliable answers for each questions presented as below.

1.Sex of respondent a. Male_____ b. Female_____

2. Age of respondent

A.18-25 years_____ b .25-35 year's _____C.35-50 Years _____d. above 50 year_____

3. Marital Status a. Single _____b. Married _____c. Divorced_____ d. Widowed_____

4. Level of education?

a. Grade 9-12_____ b. Certificate and Diploma _____ c. degree and above----------

5. Occupation

a. Manager _____b. Engineer _____c. Expert _____d. Administrative staff _____e. other specify_____

6. Income

a. Less than 2000 birr_____b.2000 birr-4000birr_____c. > 4000 birr_____

7. Work experience of respondents?

a. < 1 year _____b. 1-5 years_____ c.5-10 years_____ d. >10 years_____

**Part II. Interview on factors affecting urban service and infrastructure provision**

Instruction: please **tick** or give reliable answers for each questions presented as below

1.Are you satisfied by the provision of urban service and infrastructure of Sululť town?

_____

_____

2. If your answer for Q#1 is No, what are the reasons and in which type of service you would not satisfy?

_____

_____

3. What is the present state of the provision of urban service and infrastructure in the town in your opinion?

a. good _____b.satisfactory_____c.un satisfactory_____

4. If your answer for Q 3 is un satisfactory, what measures have been taken by your office to solve these problems?

_____

_____

5. What are the obstacles and the major problems of the town in the last five years, in the provision of infrasture (give the problems as ranking order of 1st, 2nd and 3rd…….)?

a. Expansion of the town _____b. Rapid increase of population _____c. budget _____ e. corruption_____ f. inefficient utilization of financial resources_____ g. carelessness _____

6. What measures have been taken by your office to solve these problems?

_____

_____

7. What is the city administration suggestion to solve infrastructure provision problems? State with justification

_____

_____

8. What will be the role of municipality's and the next bodies' in solving these problems?

Role of Municipality's:_____

_____

_____

Role of dwellers':_____

_____

9. Have you ever participating in discussing and participating on urban service provision in Sululta town? Yes _____NO_____

10. Whom do you think is the main responsible body for the provision of urban infrastructure?

_____

_____

11. How do you evaluate Sululta town in the provision of urban infrastructure?

_____

_____

12. What is the attitude of the urban dwellers towards service provided in the town?

_____

_____

13. What are the main challenges facing Sululta town on provision of urban service in general and infrastructures in particular?

_____

_____

14. What should be done for Q#13?

_____

_____

15.What are the opportunities available in the town to solve the problems of infrasture provision?_____

_____

16. Is there a provision of land for housing for the last 5 years? Yes, No

If yes how?_____

If no why?_____

17. Is there the cooperation of the municipality to work with other sectors and vice versa? Whow?_____

_____

17. What are the actions to be taken by concerned bodies to overcome factors affecting urban services and infrastructure provision (FAIP) in order to solve, improve their performance and increase their coverage?_____

_____

18. When did Sululta town established?(year E.C)

_____

18.1 No of people at the establishment?_____

18.2 No of people at the moment_____

18.3 When did Municipality service begin?_____

19. Does the municipality have specific proclamation for infrastructure provision?

a) Yes _____ b) no _____

**ANNEX-3**

**COMPARISION USED TO MAKE ANALYSIS**

| **Description** | **Measurement Indicator** | **Result** |
|---|---|---|
| **Sex** | F | 78 |
| | M | 88 |
| Age | 18-25 | 28 |
| | 25-35 | 36 |
| | 35-50 | 60 |
| | >50 | 42 |
| Education | Read and write | 58 |
| | Grade 9-12 | 48 |
| | Certificate and Diploma | 40 |
| | degree and above | 20 |
| Marital Status | Single | 30 |
| | Married | 86 |
| | Divorced | 32 |
| | Widowed | 18 |
| Occupation | Manager | 3 |
| | Expert | 20 |
| | Administrative staff | 7 |
| | Business man | 25 |
| | Self employed | 2o |
| | NGO | 9 |
| | Government employee | 48 |
| | Other specify | 34 |
| Income | Less than 2000 birr | 45 |
| | 2000 birr-4000birr | 81 |
| | > 4000 birr | 40 |
| Experience | <1 | 18 |
| | 1- 5 | 64 |
| | 5-10 | 46 |
| | >10 | 38 |

| | | |
|---|---|---|
| Major factors affecting urban service and infrastructure provision in Sululta town | Lack of budget | 30 |
| | Expansion of the town | 28 |
| | Rapid increase of population | 17 |
| | Lack of trained man power(engineers and surveyors) | 11 |
| | Carelessness from the concerned body | 8 |
| | Lack of plan | 11 |
| | Lack of attention from the concerned body eg.ORG(Oromia Regional Government) | 87 |
| | Corruption | 12 |
| | Bureaucratic bottle neck | 36 |
| | Squatter settlement | 7 |
| | Migration from urban to urban and rural to urban | 4 |
| | Lack of accessories | 10 |
| | Presence of more factories | 4 |
| | Lack of coverage of health institution(hospitals) | 4 |
| | Lack of coverage of educations (high schools) | 4 |