E-GOVERNANCE, CORRUPTION AND PUBLIC SERVICE DELIVERY IN ETHIOPIA: EVIDENCE FROM JIMMA TOWN WATER SUPPLY AND SANITATION SECTOR

A THESIS SUBMITTED TO THE DEPARTMENT OF MANAGEMENT IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN PUBLIC MANAGEMENT

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Declaration

I, the undersigned, declare that the thesis on E-governance, Corruption and Public Service Delivery in Ethiopia: evidence from Jimma Town Water Supply and Sanitation Sector- Oromia National Regional State is my own work and that the sources I have used are indicated and acknowledged in the references.

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Abbreviations

DISD- Information Services Division’s
ECA- Economic Commission for Africa
ETC- Ethiopian Telecommunications Corporation
FEACC- Federal Ethics and Anti Corruption Commissions
GDP- Growth Domestic Product
ICTA- Information Communication Technology Centre for Africa
ICT- Information and Communication Technology
JTWSSSA – Jimma town water supply and sanitation service agencies
JTWSSSD – Jimma town water supply and sanitation service delivery
MDGs- Millennium Development Goals
MOWR- Ministry of Water Resources
NGOs- Non Governmental Organizations
OECD- Organization for Economic Co-operation and development
TI - Transparency International
WB - World Bank
WSSS – Water Supply and Sanitation sector
WSSSC – Water supply and sanitation service corruption
WSSSD – Water supply and sanitation service delivery
ABSTRACT

This paper aims at investigating and exploring the potential of e-governance applications to reduce corruption and increase efficiency, responsiveness, accountability and transparency in water supply and sanitation service delivery. To this end, the study employed mixed method, which involves both quantitative and qualitative data gathering tools. This survey was conducted over 400 respondents in Jimma town using multistage cluster sampling. A structured questionnaires and interview schedules were mainly used to collect data concerning corruption and poor water supply and sanitation service delivery. It further asked respondents on how e-governance can cut corruption in water supply and sanitation service delivery. Conclusions are derived from a mix of descriptive and inferential analysis. Findings reveal that corruption and demands for bribes are increasing in Jimma town water supply and sanitation service delivery. It is quite evident that time, cost factors and red-tape procedures are the major constraints in water supply and sanitation service delivery. Most of the respondents are aware of e-governance and feel that it can help in curbing corruption and increasing efficiency, responsiveness, accountability and transparency in the provisions of sanitation and water services. However, its potential still remains unexploited in JTWSSS because of unsuccessful implementation and limited use of e-governance initiatives. By exploring the role of e-governance for reducing corruption that has afflicted water supply and sanitation service delivery in this town, the main finding is that e-governance is positively related to government - citizen relationship and water supply and sanitation service corruption reduction. However, government agencies do not seem to be much motivated to build sound government citizen relationships. The study proposes that in order to mitigate negative forces in the implementation of e-governance such as limited access to ICT infrastructure, sustained strategic commitment and effective leaders and urban bias, the government agencies need to design sound policy and strategy which integrate information and communication technology (ICT) with development agenda of the country to expand ICT infrastructures and raise the awareness of citizens, staff and other stakeholders about the benefits, adoption and implementation of e-governance initiatives to dismantle corruption in water supply and sanitation service delivery.
CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Water supply and sanitation service corruption remains one of the most pervasive and the least confronted issues. It engulfs many region of the world, but more devastating and serious in developing countries like sub-Saharan Africa countries, not because their people are different from people elsewhere, but because conditions are ripe for it. It makes water and sanitation service scarce, absent, inaccessible, unaffordable and unsafe for both urban and rural poor (Global Corruption Report, 2003). In this regard, Ethiopian has no exception.

In Transparency International’s Corruption Perception Index for 2005, Ethiopia ranked 137th out of 158 countries and its civil services were considered as bureaucratic, inefficient, and lacking transparency and good governance (Pathak et al., 2007). Such problems are very common in water supply and sanitation sector, which is highly vulnerable to corruption and mal-governance. It drains valuable economic resources, creates resentment and frustration among the staff as well as reduces organization efficiency in providing accessible, adequate, safe and affordable water and sanitation services to the community (UNDP, 2006).

The key drivers of corruption in Ethiopia water and sanitation sector are poor governance, lack of accountability and transparency, low levels of democratic culture and traditions, lack of citizen participation, lack of clear regulations and authorization, low level of institutional control, extreme poverty and inequity, and centralization of authorities and resources etc (Gebremedhin, 2009 as cited by Pathak, et al., 2008). In Ethiopia water supply and sanitation sector corruption looked from political and administrative perspective. Political corruption occur at the highest level of political authority amongst politicians and political decision makers, who one entitled to formulate, establish and implement the laws in the name of the people. These people are greedy because they displace the common interest with private interest. The bureaucratic/ administrative corruption on the other hand, occurs in water supply and sanitation service delivery particularly at the implementation ends of politics or water supply and sanitation service delivery including connection, disconnection, reconnection, meter reading etc(FEACC, 2003).
Currently, administrative and political corruption still remain the main challenge in water supply and sanitation service delivery and manifested in terms of bribery, extortion, embezzlement, nepotism, theft, cheating, trickery, fraud/ speedy money and prejudice in water and sanitation service delivery process (Schacter and Shah, 2000). Corruption tends to diffuse across all regions of the country, whereas the scope and degree of its occurrence varies from region to region. Specially it is persistent in urban area and makes water supply and sanitation service inadequate, unsafe, and unaffordable for urban poor. As a result, inadequate sanitation, poor hygiene and unclean water result in sickness and death of many urban people every year (FEACC, 2003).

Moreover, corruption result in higher health costs, lower productivity, lower school enrollment and retention rates of girls and perhaps most importantly the denial of the rights of people to live with dignity (WHO-UNICEF, 2000). In this regard, Jimma town has no exception where corruption exacerbates water and sanitation service delivery and amplifies the pivotal challenge of water and sanitation governance. It also increases competition for water & sewerage services and makes it inadequate, unsafe and unaffordable for the population of the town. But inadequate water supply and sanitation service delivery are not only the problems of Jimma town but of all urban areas of developing countries (Sofonias, 2004).

In view of corruption & poor public service delivery, Raposo, Leito and Paco (2000) have introduced e-governance initiatives to provide efficient, effective and affordable services through ensuring good governance in public sector. As a result, many developing countries realized the need for e-governance to address public service corruption and to provide customer-focused, cost effective, and affordable services for citizens and businesses. In this regard, both developed and developing countries should not question the importance of e-governance in reducing corruption through promoting transparency, accountability, responsiveness, and integrity in water supply and sanitation sector (Pathak, et al., 2008).

Like other developing countries, Ethiopia government has also realized the potential of e-governance to raise the interest and involvement of citizens, NGOs, private sector, and other stakeholders to address public service corruption and provide public service effectively and efficiently (Ndou, 2004).
Annually the government spends approximately one tenth of its GDP on IT to ensure accountability, transparency, responsiveness, efficiency, and integrity in public service delivery. In ICT based initiatives, Ethiopia has pioneered electronic networks like WoredaNet to provide ICT services at federal, regional and woreda (district) levels as well as to connect woredas (districts) and kebeles (the smallest administrative unit of governance) with regional and federal government offices in order to provide customer focused and cost effective public services (Chekol, 2008). However, effective implementation of e-governance initiatives demands sound Information and Communications Technology (ICT) infrastructure, sustained strategic commitment & effective leader. In this case, potential role of e-governance initiatives remains largely unexploited and unutilized in public sector (Ndou, 2004). Lack of access to information and communication technologies like internet, wide area networks or mobile computing affects the adoption & implementation of e-governance in water supply and sanitation sector particularly at local level, where the problems of corruption getting worse (TI, 2005).

Some researcher like Lambsdorff, 2001, Ndou, 2004 and Pathak et al., 2008 indicates that e-governance initiatives will curb corruption and increase transparency, accountability, responsiveness, & integrity in public service delivery including water supply and sanitation service delivery. But no research has been conducted regarding the utilization and implementation of e-governance initiatives in water supply and sanitation sector, where corruption is persistent and challenging in providing services to the citizens efficiently. ICT initiatives and its implementation have been adversely affected by lack of access to ICT infrastructures, well trained man power, & capital, language barriers, low ICT skills, and lack of awareness among the community about the benefits of ICT as well as the absence of strategic and sustained leadership (Pathak, et al., 2008).

As a result, this research is quite essential to address the factors that hinder the adoption and successful implementation of e-governance initiatives in public service sector. But, little attention is still given for water supply and sanitation sector. Thus, a researcher conducted the study on e-governance, corruption and public service delivery in Ethiopia in reference to Jimma town water and sanitation sector to promote the awareness level of citizens about e-governance in addressing corruption and governance crisis that affect water supply and sanitation service delivery.
1.2 The Statement of the Problem

In developing countries, water supply and sanitation service (WSSS) corruption remains one of the most pervasive and the least confronted issues. It is more rampant and serious in Sub Saharan African (SSA) countries (Global Corruption Report, 2008). As it makes water and sanitation service inadequate, unsafe and unaffordable for the community, the government of developing countries and their citizens suffer incalculable cost such as economic, political, social, cultural and environmental costs (J. Plummer, 2006). In this regard Ethiopia has no exception.

In comparison other public sectors, water supply and sanitation sector is highly vulnerable to corruption and governance related crisis. It has negative impacts on affected economies and societies. It drains valuable economic resources, creates resentment and frustration among the staff as well as reduces organization efficiency in providing accessible, adequate, safe and affordable water and sanitation services to the community especially for the poorest section of the society who are incapable to pay corruption or bribes to get services from water supply and sanitation service agencies (UNDP, 2006).

According to Schater & Shah (2000), water supply and sanitation sector corruption takes different forms but its scope varies substantially across types of water practices, governance structure, the perceptions and norms of actors involved in water supply and sanitation service delivery process. Nowadays administrative and political corruption is very common and still remains an increasing challenge in water supply and sanitation service delivery. However, bribery, extortion, embezzlement, nepotism, theft, cheating trickery, fraud, speedy money and prejudice were believed to be the major features by which corruption manifested itself in water supply and sanitation sector (AAU, 2001).

Thus, the widespread of corruption and governance related problems makes the attainment of MDGs water supply and sanitation coverage in Ethiopia unthinkable because corruption discourages investment, decrease government revenues, and limits access to water and sanitation services especially to the urban poor (MoWRD, 2008).
Like other developing countries urban WSSS, Jimma town water supply and sanitation sector faces the problem of corruption. Poor urban planning and management; lack transparency, accountability, efficiency and effectiveness, integrity, & responsiveness aggravates the WSSS corruption in town. It makes water and sanitation service inaccessible, inadequate, unsafe and unaffordable for poorest section of the societies who have no capacity to pay kickbacks and bribes to gain water and sanitation service. However, inadequate, unsafe and inaccessible water and sanitation service because of lack of transparency, accountability, responsiveness, and integrity and the like are not only the problems of Jimma town but of all urban areas of developing countries (WHO-UNICEF, 2006).

As a result, most of developing countries adopted e-governance initiatives as tool to reduce corruption in public service like WSSS to provide customer-focused, cost effective, transparent and accountable services for their citizens. In this concern, Ethiopia has also realized the importance of e-governance applications to remove corruption and improve the internal workings of the sector through enhancing the openness, transparency, accountability, integrity, responsiveness etc (FEACC, 2003).

Moreover it enhances the degree of interest and involvement of citizens, NGOs, private sector, and other stakeholders in fighting against corruption in water supply and sanitation service delivery. However, effective implementation of e-Governance initiatives demands sound ICT (Information and Communications Technology) infrastructure and sustained strategic commitment. For these reason, potential role of e-governance initiatives in Ethiopia public sector remains largely unexploited (Ndou, 2004). In this regard Jimma town has no exception.

Like other public service sector, WSSS are lagging behind to adopt and successfully implement e-governance initiatives to mitigate corruption and improve their efficiency and effectiveness in order to provide timely, quality, accountable, transparent and affordable services. The main reason behind all this is lack of access to ICTs like internet, wide area networking (WAN), and mobile computing etc (UNDP, 2006). Despite the progress of ICT infrastructure expansions in most urban area of the country to promote features of good governance such as accountability, transparency, responsiveness, efficiency and integrity in public service delivery, low working habits, high resistance to changes, lack of committed leadership, scarcity of capital, well
qualified man power, technicians, and insufficient education and citizen awareness about the importance of ICT affects the adoption and successful implementation of e-governance in public sectors (Pathak et al., 2008). In this concern Jimma town water supply and sanitation sector has no exception.

Like other Ethiopian cities ICT expansion is on progress in Jimma town. But, inadequate ICT, capital, and man power; poor urban planning and management; poor working habits, and lack of awareness among the residents hinder the adoption and implementation of e-governance in water supply and sanitation service delivery. Thus, this implementation gaps again open the door for the expansion of corruption in water supply and sanitation service delivery. As a result, it is quite essential to conduct the study on the role of e-governance initiatives in mitigating corruption in water supply and sanitation service delivery. Irrespective of the need, it must be stressed that, to the best of researcher's knowledge, no research has been done to describe the applications of e-governance initiatives in reducing corruption WSSS in general and Jimma Town water supply and sanitation sector in particular.

Furthermore, some of the studies on related issues conducted elsewhere (e.g. Pathak et al., 2008, J. Plummer and P. Cross, 2006) were conducted their studies on Ethiopia public service delivery. Similarly, some others have given a little emphasis to the influence of corruption as well as to the expansion of ICT to minimize the problem of corruption that threaten and continues threaten water supply and sanitation service delivery.

Therefore, this research intends to fill this identified gap by extending research on e-governance, corruption and public service delivery in the case of Jimma town water and sanitation sector with the objective of investigating the potential benefits of e-governance in reducing corruption and increasing efficiency, effectiveness, accountability and transparency in water supply and sanitation service delivery. It tried to discover the nature, forms and factors of corruption and awareness level of the society and other factors that affect successful implementation of e-governance initiatives to address corruption and governance crisis that water supply and sanitation service delivery.
1.3 Objective of the Study

1.3.1 General Objective of the Study

The general objective of this study was to investigate and explore the potential of e-Governance applications to reduce corruption and increase efficiency, responsiveness, accountability and transparency of water supply and sanitation service delivery in Jimma town.

1.3.2 Specific Objectives:

Given the above contexts and problems, this study focuses on the following specific objectives:

- To examine the current status, range and type of corruption that documented (recognized) in Jimma town water supply and sanitation service delivery.

- To identify and assess the main causes of corruption in Jimma town water supply and sanitation service delivery.

- To investigate and explore the potential role of e-governance in reducing corruption and improving water supply and sanitation service delivery in Jimma town.

- To identify the factors that hinders the adoption and successful implementation of e-governance in Jimma town water supply and sanitation service delivery.
1.4 Formulation of Research Hypotheses

The paper postulates the following two major hypotheses concerning the role of e-governance initiatives in reducing corruption and improving the relationship between government and citizens in water supply and sanitation service delivery.

Hypothesis 1:

- Alternative Hypothesis (AH): E-governance initiatives are positively related to government-citizen relationships and water supply and sanitation service corruption reduction.
- Null Hypothesis (NH): E-governance initiatives are negatively related to government-citizen relationships and water supply and sanitation service corruption reduction.

Hypothesis 2:

- Alternative Hypothesis (AH): Improvements in government-citizen relationships account for more water supply and sanitation service corruption reduction.
- Null Hypothesis (NH): Improvements in government-citizen relationships account for less water supply and sanitation service corruption reduction.
1.5 Research Questions:

Based on the above principal research questions, the following specific research questions were extracted to undertake the study.

1. What is the current status and range of water supply and sanitation service corruption?

2. What types or forms of corruption are very common in water supply and sanitation service delivery?

3. What factors generate corruption in water supply and sanitation service delivery in Jimma town?

4. Does e-governance reduces corruption and how it is related with government- citizen relationships in addressing water supply and sanitation service corruption?

5. What factors hinder successful implementation of e-governance initiatives in Jimma town water supply and sanitation service delivery?

6. What WSSS agencies and other stakeholders need to do to strengthen the impacts of e-governance on water supply and sanitation service corruption?
1.6 Significance of the Study

The adoption and successful implementation of e-governance initiatives plays a great role in dismantling corruption that are occurring in public service delivery in general and in water supply and sanitation service delivery in particular through increasing transparency, accountability, integrity, efficiency, responsiveness etc. In view of this, it was hoped that the study could be significant in that:

The result of the study may help water supply and sanitation sector agencies; Jimma town municipality and other stakeholders to understand the problems of corruption in water supply and sanitation service delivery and the benefits of e-governance initiatives in reducing corruption so that they will come up with workable solutions to the problems.

It may serve as an input to policy makers at federal, regional, local as well as at sectoral level with the current and pertinent information to design effective ICT/ e-governance/ policy and strategy to address corruption and other governance related problems in water supply and sanitation service delivery.

It may provide scientific evidence to WSSS agencies, Jimma town municipality, NGOs, community, civil society and other government and private sectors concerning current status, ranges, types and factors that generate corruption in water supply and sanitation service delivery. Having such information would help them to take prevention with the help of e-governance (ICT) such as eliminating opportunities of corruption, lessening monopoly and discretionary power, and promoting accountability, transparency, integrity and the like in water supply and sanitation service delivery.

This study also serve as a springboard or bench mark for further study by researchers who want to conduct research in the area of e-governance, corruption and public service delivery in Ethiopia in reference to water supply and sanitation sector. It also plays great role in lifting up awareness levels of the community about the importance of e-governance initiatives and encourage them to provide support in its implementation and utilization to reduce corruption and increase accountability, transparency, integrity, efficiency and responsiveness in water supply and sanitation service delivery.
1.7 The Scope of the Study

The problem of corruption remains pervasive and least confronted in public service sector. Thus, Ethiopian government and its officials realized the need for the adoption and implementation of e-governance initiatives to reduce corruption and improve public service delivery through enhancing transparency, accountability, efficiency, responsiveness, integrity and the like in public sector. The study was associated with the investigation of the potential of e-Governance applications in reducing corruption and increasing efficiency, responsiveness, accountability and transparency of water supply and sanitation service delivery. Corruption and governance related problems affect all public service sectors. However, to make the study manageable and to complete within the time frame, it was delimited to Jimma town water supply and sanitation sector.

While selecting water supply and sanitation sector as a case study several reasons were considered. These are:

- Water supply and sanitation agencies is highly vulnerable to corruption and maladies of governance in providing services to the citizens
- Water and sanitation service is very essential for the survival of the community and has no substitutes and
- Water supply and sanitation service corruption affects the poorest section of the society who cannot pay bribes to get water service from the provider etc.

Thus, corruption should not allow flourishing in water supply and sanitation service delivery. In this case a researcher believes the paper plays a crucial role in bringing different stakeholders and creating awareness among them about the importance of e-governance initiatives in fighting against corruption in water supply and sanitation service delivery. Even if various types of corruption like economic and state capture were occurred in water supply and sanitation service delivery but, the study mainly focuses on political and administrative corruption. This was because of the prevalence of administrative and political corruption in water supply and sanitation service delivery.
1.8 Limitation of the Study

The widespread of corruption in water supply and sanitation service delivery and its associated effects, necessitates the request to empower local community, media, NGOs, private sector and other different stakeholders to fight corruption and poor governance problems through adopting and successfully implementing e-governance initiatives in water supply and sanitation service agencies.

As a result, researcher tried to conduct the research on e-governance, corruption, and public service delivery in Ethiopia in reference to Jimma town water supply and sanitation sector. It aimed to examine the potential role of e-governance applications in dismantling corruption and factors that affect the adoption and successful implementation of e-governance initiatives in WSSS and provide policy implication or recommendation to enhance the adoption and implementation of e-governance initiatives at sectoral and institutional levels.

However, due to the time and financial constraints of the researcher, this thesis concentrated on one specific zonal city. Therefore, its output will not represent water supply and sanitation service problems of other geographical area. In addition, six(6) factors (monopolistic nature of service delivery; discretionary power; lack of transparency and accountability; poor institutional incentives; lack of punishment and effective corruption reporting mechanism and inflation, social, culture and custom of the society) were identified as the main drivers of corruption and these factors may not only describe water supply and sanitation service corruption. Therefore, future research better try to consider other factors that describe corruption in Jimma town water supply and sanitation sector.
In addition JTWSSS officials were very much busy to conduct the interview schedules. Similarly, some of the respondents had no willingness to be interviewed and to fill the questionnaires. As well, some of the respondents were not cooperative to complete the questionnaires on time. However, the researcher tried to manage these shortcomings through patiently discussing with the respondents and arranged an additional time to bring the paper in its complete form but, at some extent it affects the quality of the paper.

The study did not provide detail case studies to extend the findings of the study because of lack of adequate finance, time and other necessary resources. The study mainly focuses on political and administrative corruption. Thus, the study didn’t address other types of corruption like economic and state capture. Therefore, future research better try to include all types of corruption that occur in water supply and sanitation service delivery.

1.9 Definition of Terms

- **Corruption**: is defined as “the misuse of public office for private gain and the abuse of entrusted power for personal satisfaction” (Rose-Ackerman, 1999).
- **Administrative corruption**: refers to corrupt acts of the appointed bureaucrats in their dealings with either their superiors (political elite) or with the public. It occurs at the lower or implementation stages of policies where the government officials meet the general public and most frequently reported in meter readings, connection, disconnection and reconnection of water supply and sewerage systems (TI, 2006)
- **Political corruption**: refers to acts of political elite or higher officials, wherein they change either the national policies or the implementation of national policies to serve their own interest. It involves the distortions of policies and adopting decisions with the abuse of power to displace public interest with personal interest (Bardhan, 1997).
- **Bribery**: is the giving of some form of benefit to unduly influence some action or decision on the part of the recipient or beneficiary. It can be initiated by the person soliciting the bribe or by the person offering the bribe. The "benefit" may vary from money or other valuables to less tangible benefits such as inside information or employment (Rose-Ackermann, 1989).
• **Collusions**: is an arrangement between two or more parties designed to achieve an improper purpose, including improperly influencing the actions of another party. For instance it occurs when bidders agree among themselves on prices and "who should win" (Davis, 2003)

• **Embezzlement and theft**: is the process of taking or conversion of money, property, or other valuables for personal benefit. It might involve diversion of public funds to one's own bank account or stealing equipment from the utility's warehouse (Rose- Ackermann, 1989).

• Fraud: is the use of misleading information to induce someone to turn over money or property voluntarily, for example, by misrepresenting the number of people in need of a particular service (Bardhan, 1997).

• **Extortion**: involves coercive incentives such as the use of threat of violence or the exposure of damaging information to induce cooperation. It also takes the form of an official threatening to cut off water supply or refuse to certify measurements at a construction site (J.Plummer, 2009).

• **E-Governance or Electronic governance**: refers to the exercise of political, economic and administrative authority via the electronic medium in order to facilitate an efficient, speedy and transparent process of disseminating information to the public, and other agencies, and for performing government administration activities. Also it may include application of ICT in the processes of government functioning in order to bring about (SMART) governance (UNESCO, 2011).

• **Water supply and sanitation sector**: refers to the government institutions that established to provide water and sanitation services to the community at affordable price (MoWR, 2009).

• **Water supply and sanitation service corruption (WSSSC)**: refers to the misuse of water supply and sanitation service agencies offices for individual gains (J. Plummer, 2006).
1.10 Organization of the study

This study was organized into five chapters. The first chapter comprised the introductory part, which contained background of the study, a statement of the problem, objectives, and significance of the study, scope, limitations of the study and definitions of key terms. The second chapter deals with a review of related literature which present detail theoretical concepts, critical empirical studies that are conducted in the areas of e-governance, corruption and public service delivery particularly regarding water supply and sanitation service delivery and other related issues which were used as a base for the study.

Whereas, chapter three describes research methodology employed in the study; it describes the study area, research design/methods, target populations, sampling procedures and size. It also presents details of instruments used for collecting data, and descriptive and statistical methods employed for the analysis.

Chapter four was related to the presentation, interpretation and analysis of the data, while, the fifth chapter consisted of summary of the findings, conclusions and recommendations.
CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1 The Concept of Corruption

Corruption exists in all societies, to varying degrees and in different forms. Some practices that might be regarded as corrupt in one country might be legally and socially acceptable in another. Thus, there is no universally agreed upon definition for corruption. Indeed, attempts to develop such a definition invariably encounter legal and political issues. A good starting point is the definition used by the World Bank (1998, 1920): Corruption is the abuse of public office for personal gain. Consequently, Transparency International uses a broader definition: "Corruption is the abuse of entrusted power for private gain." But for the purpose of this study, Corruption has been broadly defined as the misuse of public office for private gain and the abuse of entrusted power (Rose-Ackerman, 1999).

These corrupt practices vary from country to country and even differ in the regions of one country because of difference in water and sanitation sector governance, water supply and sanitation service delivery systems, economic policies and other multitude factors. Corruption includes both monetary and non-monetary benefits. Common forms of corruption are bribery, extortion, influence peddling, nepotism, fraud, and opportunism (Rose-Ackerman, 1998). These corrupt practices have been very severe and challenging in Africa specifically in sub Saharan Africa (SSA). Due to the widespread of corruption in water and sanitation service the developing countries and their citizen suffer incalculable cost such as economic, political, social and environmental (Gray and Kaufmann, 2003).
2.2 Corruption in Water Supply and Sanitation Sector Agencies

In water supply and sanitation sector (WSSS), corruption can generally be understood in terms of: bureaucratic or petty corruption in which a vast number of officials abusing public office extract small bribes and favors/special treatment; grand corruption meaning the use of vast amounts of sector funds by a relative small number of officials; or state capture seen in the collusion between public and private actors for private benefit (Shah, 2000).

Whether big and small, such corruption practice takes the form of: abuse of resources – theft and embezzlement from budgets and revenues; corruption in procurement which results in overpayment and failure to enforce quality standards; administrative corruption in payment systems, and, corruption at the point of service delivery (World Bank, 2003).

Corruption in water and sanitation sector varies substantially in size and incidence, but it is likely that somewhere in the region of 20-40% of WSS sector finances is being lost to those tasked with the decision-making and delivery of water and sanitation services (Davis, 2003). The type, size and incidence of corruption in service delivery in urban area may be a function of the path of legislative reform, the nature of the water market, or the way the sector has been managed, or it may be an outcome of decentralization, the role of social structures and civil society. Unmonitored and low capacity, lack of competition, all potentially contributes to local level corruption, capture and collusion (Cisar, 2003).
2.3 Causes of corruption

Like all corruption in developing and transitional economies, corruption in WSSS in Africa is founded in historical, political and social realities. The causes of corruption are not sectoral because always it's contextual, rooted in policies, bureaucratic traditions, political development, and social history of the country. However, TI (2012) describes corruption as the most prevalent and insidious product of poor governance such as lack of accountability, responsiveness, and transparency among service providers and facilitators (Davis J., 2003).

Lack of check and balance; complex service delivery system; less transparency in government policies, rules, and regulations; lack of supervisions; poor compliant handling mechanism; limited access to information for citizens; inadequate training and equipment for water supply and sanitation sector departments and political wills that exist in a country are a common contributing factors for corruption in water supply and sanitation service delivery (Gage, 2008).

In many parts of the African countries, WSSS has been plagued with corrupt practices because of monopoly power, wide discretionary power, and lack of accountability and transparency among the water and sanitation service providers and facilitators (Kraay and Mastruzzi, 2005). Klitgaard’s definition of corruption: Corruption = Monopoly + Discretion - Accountability is very relevant to an understanding of the WSS sector in Africa in that it highlights the aggregate effect of monopoly and discretionary power. A strong characteristic of agencies and officials involved in the sector is their enormous discretion in the planning, design, contracting, implementation and monitoring of water and sanitation service delivery (compounded by a lack of clarity of rules and regulations). This is true whether we are in the public or the private sector, whether we are in a poor country or a rich one, whether we are in health, water, sanitation, education or other public sectors (klitgaard, 1998).

In comparison to other sectors WSS is highly vulnerable to corruption because of the large flow of public money; often uncoordinated donor, national and local funds; the opacity, political interference and discretion in investment decisions; the monopolistic nature of service delivery, coupled with the failure of sector financing and cost recovery, problematic tariffs and subsidies, and the increasing role of the informal market; the cost of sector assets; the asymmetry of information between user and provider, and the complexity of sector stakeholders, systems, levels of service, institutional roles and functions(Lambsdorff,2001).
The main reason behind all this, the problems of weak governance or governance crisis in which transparency, accountability, responsiveness, effective WSS management are lacking. In addition to these, little political commitment, little private sector involvement, decentralization problems/excessive centralization of power and limited engagement of civil society, community, NGOs and media in water supply and sanitation service delivery process increase the opportunity for corruption because corruption loves multiple and complex regulations with ample and uncheckable official discretion (Janelle Plummer & P. Cross, 2006).

2.4 Types of WSSS Corruption

Corruption in the water sector comes in many different forms and the scope varies substantially across types of water supply and sanitation sector practices, governance structure and the perceptions and norms of actors involved. Typical examples of corruption include falsified meter reading, distorted site selection of boreholes, collusion and favoritism in public procurement, and nepotism in the allocation of public offices (Davis, 2003).

The variation in sorts of corruption activities is partly explained by the large number of different kinds of actors engaged in the water sector. In the public domain, this includes political leaders, policy makers, procurement and regulation officials, law enforcement agencies, and technical staff, as well as international development partners. Civil society plays a vital role via stakeholder facilitation, allowing demands and discontent to be voiced and playing a key role in advocating reform. Notable actors include the media, water stakeholder associations, environmental protection groups, as well as religious leaders concerned with social justice and sustainable development (P. Cross and J. Plummer, 2009).

According to FEACC (2003), political, administrative, state capture and economic corruption are common in water supply and sanitation service delivery. But the study mainly focuses on grand and administrative corruption which is still an increasing challenge in provision of water and sanitation service.
2.4.1 Political Corruption

Grand corruption or political corruption refers to acts of political elite, wherein they change either the national policies or the implementation of national policies to serve their own interest. There is political corruption when the behaviors deviate from the principles that guide politics and policies, adapting decisions with abuse of power, which means that the private interests displace the public and common interests (Rose-Ackerman, 199).

Political corruption distorts policies or central functioning of the state, enabling leaders to benefit at the expense of the water supply and sanitation services. Most of the time political corruption occurs at higher level government officials where decisions made (Bardhan, 1997). It is mostly common in the award of large contracts for construction works, equipment, or concessions to operate major water and sewerage systems as well as frequent in the purchase of equipment and materials. The city mayor and an executive of the multinational water company together participated in accepting and paying bribes in the letting of concessions to run the city’s water supply and sewerage services (Cisar, 2003).

2.4.2 Administrative/Bureaucratic Corruption

It refers to corrupt acts of the appointed bureaucrats in their dealings with either their superiors (the political elite) or with the public. It takes place at the implementation end of politics, where the public officials meet the public. It involves bribery in connection with the implementation of existing laws, rules and regulations (Oye, 2008). Petty corruption is the modest sums of money usually involved, and has also been called low level and street level to name the kind of corruption that people can experience more or less daily, in their encounter with public administration and services like water supply and sanitation services delivery (Jain, 2001).

Administrative corruption results in transfer of public benefits to private benefits taking advantage of the entrusted power, as for example, in the form of nepotism that results in the transfer of benefits from society to family members. It also involves bribery, fraud, embezzlement, favoritism, and other benefits generated at the expense of public benefits.
Petty or administrative corruption reported most frequently in meter readings (payments for falsifying meter readings), connection, disconnection and reconnection of water supply and sewerage systems ways as well as when the household made payments to expedite attention to repair work (FEACC, 2003 and Bardhan, 1997).

Generally there are various types of corruption that occur in water supply and sanitation including political and bureaucratic corruption because of their pervasiveness and seriousness in the provisions of water and sanitation service, the focus on administrative and political corruption.

2.5 Effects of WSSS Corruption

The effect of corruption has many dimensions related to political, economic, social and environmental effects. In political sphere, corruption impedes democracy and the rule of law. In a democratic system, public institutions and offices may lose their legitimacy when they misuse their power for private interest (Lambsdorff, 2001). Corruption may also result in negative consequences such as encouraging cynicism and reducing interest of political participation, political instability, reducing political competition, reducing the transparency of political decision making, distorting political development and sustaining political activity based on patronage, clienteles and money, etc. In our society, the impact of corruption is often manifested through political intolerance, problems of accountability and transparency to the public, low level of democratic culture, principles of consultation and participation dialogue among others (Rose-Ackerman, 1999).

The economic effects of corruption can be categorized as minor and major. However, both in one way or the other have serious impact on the individual community and country. First and foremost, corruption leads to the depletion of national wealth. It is often responsible for increased costs of goods and services, the funneling of scarce public resources to uneconomic high profile projects at the expense of the much needed projects such as schools, hospitals and roads, or the supply of potable water, diversion and misallocation of resources, conversion of public wealth to private and personal property, inflation, imbalanced economic development, weakening work ethics and professionalism, hindrance of the development of fair in market
structures and unhealthy competition there by deterring competition. Large scale corruption hurts the economy and impoverishes entire population (Gray and Kaufmann, 2003).

In Social sphere, corruption discourages people to work together for the common good. Frustration and general apathy among the public result in a weak civil society. Demanding and paying bribes becomes the tradition. It also results in social inequality and widened gap between the rich and poor, civil strife/conflict, increased poverty and lack of basic needs like food, water and drugs, jealousy and hatred and insecurity (Telmon, 2007).

Corruption also undermine the legitimacy of the governments and weakening their structures, reducing productivity, hindering development, worsening poverty, marginalizing the poor, creating social unrest particularly in developing African countries (OCED, 2002). This problem is highly visible in Ethiopia public service institutions such education, health, water and sanitation sector. However, it is most frequent and common in water supply and sanitation sector.

2.6 water supply and sanitation sector corruption in Ethiopia

In the water supply and sanitation sector, Ethiopia exhibits most of the classic warning signs of corruption risk, including instances of poor-quality construction, inflated unit output costs, and delays in implementation. In turn, these factors appear in some cases to be driven by unequal or unclear contractual relationships, poor enforcement of professional standards, high multipliers between public sector and private sector salaries, wide-ranging discretionary powers exercised by government, a lack of transparency, and a widespread perception of hidden barriers to market entry (MOFED, 2003).

Petty and political corruption is the two major types of corruption that threaten and continue to threaten the water and sanitation service provisions in most part of the country. WSS corruption diffuses in all regions of the country whereas, the scope and magnitude of the corruption is differing from region to region even with the same region from sector to sector (FEACC, 2003).
Water supply and sanitation sector corruption can manifest in different forms in the country. Mainly it can be revealed in terms of bribery, nepotism, fraud; cheating, trickery, embezzlement, extraction, theft and prejudice in public service delivery including water supply and sanitation service delivery. In most part of urban area corruption makes water undrinkable, inaccessible, unsafe and unaffordable. Presently around 50% of Ethiopian urban residents have no access to clean, safe and adequate water and sanitation service and these threats the life of the urban people particularly women and children who travel a great distance to collect water for their family (TI, 2006, WHO-UNICEF, 2006).

However, the consequences of corruption are differing from country to country, from region to region and from sector to sector based on the stakeholders that participate in delivery of water and sanitation service. To tackle corruption in water and sanitation sector, we need to differentiate and understand the actors or stakeholders involved in water supply and sanitation service process (FDRE, 2008).

### 2.6.1 Actors of WSSS Corruption

Water supply and sanitation sector corruption involves, to some degree, a vast range of stakeholders. The list of actors includes international actors (both donor representatives and private companies and multinationals), international, national and local construction companies, consultancy firms and suppliers, large and small-scale operators, a range of middlemen, consumers and as well as national and sub-national politicians, and all grades of civil servants and utility staff. Corrupt activities between these partners occur at a range of institutional levels, with different stakeholders often involved in more than one type of corrupt transaction (J. Plummer & P. Cross, 2006, 2009).

Generally there are two major actors in water supply and sanitation service corruption. These are government and non-government actors. Combined with the main causes of corruption like poor governance, where transparency, accountability, responsiveness and integrity are lacking and various actors that involved in water and sanitation service delivery process increases the vulnerability of the sector to corruption.
2.6.2 The main causes of WSSS Corruption in Ethiopia

Like other developing countries, WSSS corruption in Ethiopia is deeply rooted in historical, political, economic and social realities of the country. The main cause of corruption in WSS includes lack of transparency, accountability, integrity, responsiveness, efficiency, citizen participation and other features of good governance, ineffective organizational structures, poor compliant handling mechanism in water supply and sanitation, social cultural, Political and economic factors/inflation, coupled with inadequate finance, inadequate man power and other resources (Pathak et al., 2008).

There are a number of dimensions which suggest relatively high potential for corruption in water and sanitation sector. These include, inter alia, the large flow of public money; often uncoordinated donor, national and local funds; the opacity, political interference and discretion in investment decisions; the monopolistic nature of service delivery' coupled with the failure of sector financing and cost recovery; problematic tariffs and subsidies, and the increasing role of the informal market; the cost of sector assets; the asymmetry of information between user and provider (FEACC, 2003).

2.6.3 Concentrated Area of WSSS Corruption

Diagnosis of corruption concentrated area in water supply and sanitation services needs a promotion of conceptual approach. As a result, J. Plummer and P. Cross (2007) have posited a useful diagnostic model to establish a more comprehensive approach to understanding corruption in the water and sanitation sector, highlighting corrupt interactions within and between three broad stakeholders groups:

- Public-to-public interactions, ranging from public finance allocation distortions that favor projects that come with kickbacks, to corruption in public service management such as buying jobs or transfers
- Public-to-private interactions, including contract procurement and marked-up pricing or fraud in construction
- Public-to-consumer interactions, including “speed” money (bribes to give priority to repairs), illegal connections, or falsifying bills and meter readings.
These interactions occur along a value chain, encompassing a comprehensive framework of decisions and interactions—from high-level policy making to household payments—that kickback differentiate between types of corrupt practice. The framework assists in identifying which corrupt practices exist in different settings, who is involved, and at what stage of water and sanitation sector corruption occur along the cycle of five sector functions: Policy making and regulation; Planning, budgeting, and fiscal transfers; Tendering and procurement; Construction and operations and Payment and access (J. Plummer, 2009).

In recent years, Ethiopia government has embarked upon a wide range of investment programs in water supply and sanitation sector by recognizing the scale and importance of the water and sanitation challenge. The Priority has been given to water for human development and for livestock use, with a core focus on low-cost groundwater development for urban and rural supply. The Ministry of Water Resources (MOWR) has, over the past half-decade, led a process of studies, policy, and strategy development, resulting in much-improved sector coordination, institutional reforms, significant increases in water and sanitation coverage, increased financial allocations, and the development of an ambitious plan not only to meet the water and sanitation MDGs but also to achieve universal access to basic services (MOWR, 2009).

In contrary to this, the attainment of MDGs or UAP target is unlikely in Ethiopia because of corruption and governance crisis in the water supply and sanitation service delivery. The consequence of corruption is serious and directly affects the well being of most the society, specifically, corruption transactions in water supply and sanitation service delivery will have a direct or indirect impact on the poorest and largest sections of the population. Facing extremely low access rates at the turn of the century, the MOWR embarked upon a substantial program of reforms and improvements in service development, undertaking sector studies from which they adopted a new policy frame and sector strategies (FEACC, 2003).

In 2001 the government adopted a water and sanitation strategy such as Promoting more decentralized decision making; Promoting the involvement of all stakeholders, including the private sector; Increasing cost recovery; integrating water supply, sanitation, and hygiene (WASH) promotion (MoWR, 2003).
However, its implementation in achieving water and sanitation service coverage raises the question of corruption again in the sector because the institutional structure of water and sanitation sector both at regional and local level is very weak in preventing corruption and enabling the national program to reach its goals. Indeed, risk factors for corruption include: the very speed of program development; intention to decentralize is not borne in practice; questions about the lack of staff, experience, and skills at lower levels and the substantially increased activity and money being invested in the sector (Ibid). It occurs alongside service delivery value chain or stages. These stages are: policy making and regulation; planning, budgeting and transfers; design, tendering and procurement; construction and maintenance; local management and payments (J. Plummer, 2009 and FEACC, 2003).

2.6.3.1 Policy Making and Regulation

Corrupt practices may occur at the policy-making level within the public sector. Politicians and officials responsible for water sector policies might seek to influence the focus of policy (that determines investment priorities) to set up future opportunities for rent seeking. In turn, regulators can be bought by politicians and other stakeholders to determine standards and regulations (regulatory capture) or to allow projects to bypass established standards or procedures.

At higher levels of government, such corruption is typically opaque and complex, but distortions in the allocation of resources are achieved only by collaboration within water and sanitation departments and between line departments such as financing and planning (Plummer and Cross 2007).

2.6.3.2 Planning, Budgeting, and Transfers

Grand corruption is the misuse of vast amounts of public sector funds by a relatively small number of officials is most likely to occur during the planning and budgeting processes associated with project and sector investments. Corrupt practices along this portion of the value chain may include the following (Plummer and Cross 2006):
- Favoring of large, capital-intensive works, where opportunities for bribery and rent seeking are greatest
- Manipulation of budgets, particularly where there is a disconnect between policy objectives and planning and implementation
- Corruption in local budget management (for example, fraud or falsification of accounts)
- Corruption in fund allocation and transfers (for example, through, approval systems that operate between ministries and line departments).

In poor countries, where the aid budget is a significant contributor of finance to the sector, the value chain is strongly influenced by the type of financing and conditions of use. Aid harmonization or donor contribution may provide greater degree of discretion, or fiduciary risk, in budget allocation and spending than traditional project-based investment. In Ethiopia, sector-level planning, budgeting, and financial transfers have changed significantly over recent years—reflecting shifts in both government policy particularly around decentralization and revisions the UAP and donor financing (Sanson, 2006).

2.6.3.3 Design, Tendering, and Procurement

Procurement requires public-private interaction for the purchase of a wide range of goods and services, including borehole drilling and materials. For this reason, it is one of the most well-publicized and well-documented faces of corruption in the water and sanitation sector (Plummer and Cross 2007). Depending on country context and project area, a number of public actors may be involved, from national to local. Private actors may include suppliers, contractors, operators, or local and national consultants. Corruption may influence the selection of contracts for services and supplies, payment schedules, profit margins, and the outcomes of the regulatory process (Ndou, 2004).

In Ethiopia, the drilling sector is characterized by a mix of private operators, both national and international, and SOEs. Procurement can be carried out by government institutions (typically regional bureaus) or directly by donors and NGOs; the method depends on both financing modalities and whether the commissioning agent has in-house drilling capacity.
The tendering and procurement process for borehole drilling has undergone major changes in recent years. In particular, national procurement guidelines are now closely aligned with international or donor systems, such as those developed in the World Bank’s WASH program\((WB, 2009)\).

In addition, all public sector institutions in Ethiopia have recently been required to complete a business process reengineering plan, under which all organizations start with a clean slate in looking at ways to improve efficiency, effectiveness, and transparency (\(WB, 2006\)). In contrary to this, corrupt practices is prevalent in designing, tendering and procurement function of water supply and sanitation sector in terms of favoritism on design spaces, conflict of interest in the selection of committee members, arbitrary exclusions of bids on licensing ground or spurious (fake) technical, and interference in bidding process as well as use of contract variation to extend the work of contracted company beyond original contract (\(FEACC, 2003\) and \(Sanson, 2006\)).

2.6.3.4 Construction and Payment

After the contracts are awarded, corruption can also be prevalent in the construction of infrastructure and in final invoicing for work completed or not completed. In construction, bribery and fraud resembles that found in other parts of the construction industry: contractors may fail to build to specification, concealing substandard work and materials or paying officials to ignore it. Oversight officials may demand payments to ignore instances where specifications are not adhered to. Fraudulent invoicing and documentation is another common problem in construction and payment stage of water and sanitation sector (J. Plummer, 2009).

2.6.3.5 Local Management and Payment Systems

Corruption that directly involves communities and households includes situations where a householder or community leader acts as a bribe giver—bribing officials to gain access to water, or water infrastructure that might otherwise go to another village or household. Such community or household corruption might also include the embezzlement of funds by committee members in charge of collecting money for an operation and maintenance fund or nepotism in the selection of committee members to secure kickbacks and bribes. Petty corruption can be significant because many small transactions gradually mount up for a household or village (\(WB, 2007\)).
Moreover, broader policy shifts toward cost recovery and user financing raise the stakes: under cost-sharing arrangements, the poor are paying for leakages caused by corruption throughout the system in the form of higher (absolute) contribution levels and higher bribes to secure (more costly) access to water and sanitation (J. Plummer, 2009).

In general, all functions of water supply and sanitation sector are vulnerable to the problem of corruption and governance crisis but it degrees varies from one stages or functions to functions based on the number of stakeholders involved in corrupt practices as well as depending on nature of work, techniques required and the like. However, budgeting, construction, design, and procurement and management and payment systems are highly exposed to corruption. However, corruption is more serious and pervasive at the point service delivery where water supply and sanitation sector officials meet with the general public. Particularly petty or bureaucratic corruption is the dominant types of corruption at the point service delivery. For instance it occurs where connection, disconnection, reconnection of water supply and sewerages services were given to the people. It is also frequent in meter reading, and payment of bills.

To tackle the problem of corruption and other related problems in provisions of water supply and sanitation service delivery, the government need to adopt and implement the anti corruption strategy that incorporate citizens, NGOs, privates sectors, civil society, media and other stakeholders in fight against water supply and sanitation service corruption.

Among the currently designed anticorruption strategy e-governance initiatives is highly recommended for developing courtiers where public services were afflicted with the widespread of corruption and governance crisis. However, its implementation needs strong, sustained and committed leaders, adequate ICT infrastructures, adequate finance or capital, well qualified man power, ICT professionals, experts and sufficient education and awareness among government officials and citizens.
2.7 The Role of ICT in Fight against Corruption

In developing countries Corruption is the outcome of faulty governance in which accountability, transparency, responsiveness, integrity and other features of good governance are lacking. Also, corruption is also symptom of fundamental economic, political and institutional causes. Effectively addressing corruption means tackling these underlying causes. The major emphasis must be put on prevention—that is, on reforming good governance, economic policies, institutions, and incentives. Efforts to improve enforcement of anticorruption legislation using the police, ethics offices, or special watchdog agencies within government will not bear fruit otherwise (Homburg & Bekkers, 2002).

The problem of corruption around the world is daunting, and fighting it is a long-term challenge. In the medium term, however, the design and implementation of difficult anti-corruption economic and institutional reforms is feasible with: strong political will and leadership, civil society involvement within a transparent and participatory process, and the power of rigorous data and the use of new toolkits and approaches. In this context, the development and expansions of ICT infrastructures is very useful to faster communications, exchange of information, and improve recording and monitoring of information in improving the operational efficiency of government agencies as well as increasing coordination among government, people, civil society, NGOs, and international organization to fight corruption in public service (Nodu, 2004).

Moreover, it’s useful to create sound government-citizen relationship through promotion of transparency, accountability, responsiveness, effectiveness, integrity and other features of good governance at federal, regional, local and sectoral level. ICT is an effective tool to realize people's right to information by making disclosure and it's monitoring quicker and easier than ever before (Cisar, 2003).

The increased automation of processes reduces the need for person-to-person contact in the delivery of government services to the people, and the less contact there is, the less opportunity there is for rent-seeking behavior. Increased automation improves the quality of services delivered to the public and also reduces the cost of doing business. ICT is increasingly being used to strengthen good governance in order to increase impact on improving governance, preventing and combating corruption (Tangkityanich, 2003).
Therefore it's believed that if implemented strategically e-governance (ICT) can improve efficiency, accountability and transparency and contribute to establish governments which are small in size but more efficient and effective in service delivery as well as facilitating citizen's right to information, and encourages people's participation in the administrative process to ensure justice, transparency, accountability and confidence in governance to reduce corruption in public sector (Dong & Tae, 200).

2.8 The Concepts and Definition of E-Governance

Governments and their officials now realize that e-Governance is more than just floating government web sites on the Internet. The definition for the purposes of this paper is to characterize e-Governance as a process to make simpler and improve democratic government and business aspects of governance through an application of electronic means in the interaction between citizens and government and businesses and government and also in internal government operations (Backus, 2001).

It involves the use of IT to improve the ability of government to address the needs of society. It includes the publishing of policy and program related information to transact with citizens. It extends beyond provision of on-line services and covers the use of IT for strategic planning and reaching development goals of the government. In public sector e-governance with the help of ICT aim at improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective (Tagkityanich, 2003).

According to Backus, (2001) ICT also comprises new styles of leadership, new ways of debating and deciding policy and investment, new ways of accessing education, new ways of listening to citizens and new ways of organizing and delivering information and services and useful to bring about a change in the way how citizens relate to governments and to each other through promoting and increasing performance of the system of governance via the electronic medium in order to facilitate an efficient, speedy and transparent process of disseminating information to the public, and other agencies, and for performing government administration activities.
2.8.1 Purpose of E-Governance

The purpose of implementing e-governance is to enhance good governance. Good governance is generally characterized by participation, transparency and accountability. The recent advances in communication technologies and the Internet provide opportunities to transform the relationship between governments and citizens in a new way, thus contributing to the achievement of good governance goals (Bhatnagar, 2003 and Ndou, 2004).

The use of information technology can increase the broad involvement of citizens in the process of governance at all levels by providing the possibility of on-line discussion groups and by enhancing the rapid development and effectiveness of pressure groups. Advantages for the government involve that the government may provide better service in terms of time, making governance more efficient and more effective. In addition, the transaction costs can be lowered and government services become more accessible (Ibid).

2.8.2 Mission and Objectives of E-Governance

With the sole mission of bringing district administration closer to the common people thus offering efficient and effective services governance is evolved with the following objectives.

- To provide a friendly, affordable, speedier and efficient interface between the government and the public.
- To ensure greater transparency, efficiency, objectivity, accountability and speed that can help tackle most of the maladies of the government by providing efficient services to the public.

- To provide responsive and transparent services to the citizens of the state.
- To provide cost effective service and at the same time improving the quality of service.
- To provide a single window for government services at district level.
The potential benefits of using ICT in government include, but go beyond, efficiency and effectiveness. By making available interactive access to and use of information by people who use government services e-Governance initiatives hope to empower citizens (Gage, 2002) and improve relationships between governments and citizens by helping build new spaces for citizens to participate in their overall development (Gasco, 2003).

To curb and mitigate corruption in public service delivery, the design of e-Governance initiatives needs an appropriate conceptual framework and needs to be understood by policy makers and public managers (Tangkitvanich, et al, 2003). Within the principal-agent framework there are three dimensions of institutional structure as the most critical in bearing on opportunities for corruption: (1) the monopoly power of officials; (2) degree of discretion that officials are permitted to exercise; and (3) degree to which there are systems of accountability and transparency in an institution (Klitgaard, 1995; Rose-Ackerman, 1994).

E-Governance, reformers aspire to reinforce the connection between public officials and communities thereby leading to a stronger, more accountable and inclusive democracy. The success of e-Governance requires fundamental changes in how government works and how people view the provisions through which government is helping them. Governments need to undertake e-Governance initiatives actively, strategically and resourcefully (Moon, 2002 cited in Kaufmann, et al, 2003, 2005).
2.9 E-Governance and Corruption

Corrupt actions are so diverse and the concept of corruption so generic that any precise definition of institutional corruption is difficult to frame. Corruption can be broadly defined as the abuse of public power for the benefit of private individuals (Rose-Ackerman, 1999). Corruption includes both monetary and non-monetary benefits. Common forms of corruption are bribery, extortion, influence peddling, nepotism, fraud, and opportunitism. Garcia-Murillo and Vinod (2005) identify the main drivers of corruption as economic, political, and cultural factors, which vary from country to country.

ICT can through e-governance systems support the fight against corruption by raising accountability through digital footprints, raise transparency by publicizing regulations and fees, and reduce face-face interaction where most requests for bribes take place. ICT such as mobile phones, effectively empower citizens by allowing people to collaboratively gather and share evidence of corrupt practices. In other words, ICT can assist citizens willing to challenge the systems that condone corruption (Kaufmann et al., 2005).

The main drivers of corruption include monopoly of power; discretion; and lack of accountability and transparency (Lambsdorff, 2001). It is useful to distinguish between types of corruption and to identify those which e-Governance can most readily fight. The first group of corrupt practices is petty bureaucratic corruption i.e. Low-level administrative corruption. The second group of corrupt activities consists of strategies aimed at self-serving asset stripping by state officials. The third group of corrupt activities consists of large political corruption or grand corruption (Shah, 2004).

The Internet minimizes the opportunities for public officials to monopolize access to relevant information and to extract bribes from their clients. In addition, use of ICTs in government can also foster the anticorruption struggle against ‘self-serving asset stripping’ by state officials and ICTs may potentially play an important role in preventing some types of grand political corruption (Pathak, et al., 2008).

E-Governance represents a significant opportunity to move forward with qualitative, cost effective government services and a better relationship between citizens and government. The potential benefits of using ICT in government include, but go beyond, efficiency and
effectiveness. By making available interactive access to and use of information by people who use government services, e-Governance initiatives hope to empower citizens and improve relationships between governments and citizens by helping build new spaces for citizens to participate in their overall development (Gasco, 2008).

E-government is believed to reduce corruption by prompting good governance and strengthening reform oriented actors. Specifically, e-government can reduce corruption behaviors by externally enhancing relationships with citizens internally by effectively controlling and monitoring employee's behaviors (Ndou. 2004; Dong & Tae, 2007). One of the ways to combat corruption is by automating G2C interactions that lie at the heart of e-Society. A critical component of e-society refers to the digital content that users can access. User interactions with digital or electronic means have been grouped in a number of ways (Homburg, et al, 2003, 2005).

The introduction of ICT can reduce corruption by improving the enforcement of rules, lessening the discretion of officials, and increasing transparency and promoting efficient and effective government, more convenient government services, greater public access to information, and more government accountability to citizens (Ndou, 2004).

ICT-enabled reforms can yield many benefits, including lower administrative costs, faster and more accurate response to requests and queries every day. As a result, developing countries have established an online e-procurement system that allows public bidding for suppliers to meet government needs. The system has reportedly led to increased transparency in transactions, and is favorably regarded by suppliers. By doing so e-governance initiatives mitigate corruption in public service institutions and provide cost effective, efficient and customer focused service to the citizenry (Pathak et al., 2008).
2.10 Transparency and Corruption

The primary factors that contribute to the growth of corruption are the low probability of discovery, and perceived immunity against prosecution. Secrecy in government, restrictions on access to information by citizens and the media, ill defined/complex and excessive rules, procedures and regulations can all lead to a low chance of discovery. A lack of transparency in the functioning of the government agencies can make it easy for the perpetrators to cover their tracks and unearthing corruption becomes very difficult. The weak character of institutions which are supposed to investigate charges of corruption and prosecute the guilty as well as an inefficient or corrupt judiciary further exacerbate the problem of corruption and facilitate immunity against prosecution (Yum, 2005).

Although, there are some evidences that use of ICT in Government can also enhance opportunities for corruption (Richard, 1998). However e-government reduces corruption in several ways. It increases chances for exposure by maintaining detailed data on transactions, making it possible to track and link the corrupt with their wrongful acts. E-government can be used to combat corruption in two ways. First, e-government can become one of the key components of a broader anti-corruption strategy as is demonstrated by the OPEN system installed in the Seoul municipality in Korea. By reducing administrative corruption in service delivery, e-government can reduce the tolerance for corruption amongst citizens who would no longer be required to compromise their honesty by paying a bribe to public officials. E-government can lead to transparency provided that the legal framework supports free access to information. Most developing countries are not fully ready to embrace a comprehensive program of e-governance (Yum, 2005 cited in Pathak, et al, 2008).

According to (Wei Zhang, et al, 2011), China's efforts on E-anticorruption promotion was classified into four categories based on the information communication theory application, which illustrates the whole process of information flow as orderly sequences of information generation, delivery, share, analysis and feedback. They are making government information public, monitoring of real-time governmental behaviors and collecting the online public opinions, analyzing high-risks of corruption points and making possible prediction, and sharing the corrupt-information with interrelated bodies. These were: instant monitoring; preventing and control; data sharing and centralization of data.
2.11 E-Governance Initiatives and Corruption in Ethiopia

Ethiopian government provides very different mechanisms which are useful to fight corruption and governance related problems as well as corruption prevention. One of these mechanisms is the application of e-governance initiatives which plays essential role in wiping out corruption in public service sector and improving public services delivery through blistering transparency, accountability, responsiveness and other good governance features which is necessary in increasing relationship between government and citizens (Ndou, 2004).

Regarding the expansion and development of e-governance initiatives at all levels, Ethiopia has made significant investments in ICT but still there are physical barriers to communication and repeated government instability which results in progressive growth of corruption and poverty in the country. Under previous three successive regimes Ethiopia has experienced political upheavals, repeated government instability and conflict of interest particularly among the nations, nationalities and peoples of the country. To change the situation the incumbent government has recently declared good governance with a priority to ensure sustainable development and increase benefits of the peoples of the country (Pathak et al., 2008).

Indeed to increase civil service productivity, by dramatically cutting the time for the processing of information and regulatory implementation, and through the wide implementation of e-procurement Ethiopia spends one tenth of its GDP every year on ICT. Internet usage in Ethiopia is somewhat equivalent to that of Nigeria and the Democratic Republic of Congo but far less than E-governance and Corruption-developments and Issues in Ethiopia 199 that of Kenya (1.2%) and South Africa (7.3%)(Ibid).

Ethiopia is one of the few African countries that still maintain a monopoly in the telecommunications sector. Total telephone line penetration is very low at 5.95 per 1,000 people. However, the government is keen on privatizing the national operator-Ethiopian Telecommunications Corporation (ETC)-and introducing competition in mobile and Internet services. The mobile sector has been growing by 100% or more per annum in recent years crossing the capacity limits. Broadband initiatives taken in 2005 are intended to bring the country closer to the information society with higher budgets allocated for infrastructure improvements in 2006.
With the new ICT program the government of Ethiopia is endeavoring to improve deteriorating public services particularly water and sanitation services which mainly affect the urban as well as the rural poor and women. Its dream relies on the spread and usage of Internet technology (WB, 2007). In relation with this, government agencies do not seem to be motivated to distribute information online, and automate processes that are subject to corrosive and corrupt influences. Most government websites developed to show the government’s commitment to e-Governance have become dysfunctional or obsolete. Therefore, it becomes essential to identify specific targets in Ethiopia where ICT can be successfully applied as a tool in curbing corruption and improving the quality of public services for the mass of citizens (Pathak et al., 2008).

Further initiatives are underway. These include a project to connect all Federal Courts with a centralized database through a Wide Area Network (WAN). To showcase the value of ICT for facilitating information delivery in local administration, recently the Economic Commission for Africa (ECA), in collaboration with the Information Technology Center for Africa (ITCA), launched a multimedia touch screen kiosk in Amharic (the national language of Ethiopia) at the Nefa Silk Lafto Sub-City of the Addis Ababa Municipality. It may be the best that hoped for is a phased approach that gradually extends reach and impact first in the cities and then in the rural areas (WB, 2011). However, the expansions and development of ICT infrastructures still limited to major cities that found in the country. Thus, e-governance initiatives remains limited and unexploited in removing corruption and increasing transparency, accountability and other features of good governance to provide customer focused, cost effective and easy services for local citizenry.

To successfully implement and remove water supply and sanitation service corruption government agencies needs to design the policy and strategy that support the expansion and develop Information and Communication Technology (ICT) infrastructure like internet, WAN, telecommuting and other alternatives which foster the applications and utilizations of e-governance initiatives. Unless, the problem of corruption and governance crisis continue flourishing and deteriorates water supply and sanitation service delivery. It also makes MDGs water supply and sanitation coverage unthinkable and unattainable in most part of urban area that found in the country like Jimma town.
2.12 Empirical Review

2.12.1 Conceptualization of Corruption in water supply and sanitation sector

Corruption in water supply and sanitation service delivery is claimed by many advocates, practitioners and disciplines each approaching with different approaches. Regarding the prevalence of corruption in public service including water supply and sanitation sector, different scholars develop different approach to describe current status of corruption, types and the circumstances or factors that promote the opportunities for corruption in water supply and sanitation sector (Shah and Schacter, 2009).

Internationally water supply and sanitation sector is highly vulnerable to corruption. J. Plummer, 2009 also stated water supply and sanitation sector is highly corrupted sectors. As a result, a number of anti corruption advocates including Klitgaard (1998) identified four key factors that engender opportunities for corruption: monopoly, wide discretion, weak accountability and lack of transparency. Klitgaard in 1998 developed an approach or formula to describe corruption in water supply and sanitation service delivery. This approach or formula: corruption = (monopoly + discretion) – (accountability + transparency). It was introduced in Bolivia municipal water supply and sanitation sector and get acceptance throughout the world.


However, their formula or approach to understand corruption was not limited to only the Klitgard corruption approach. They described corruption as outcomes of monopoly power, wide discretionary power given to water supply and sanitation sector officials, lack of good governance(where transparency, accountability, integrity, responsiveness and other features) and ineffective organizational structures. These above listed factors are applicable in every sector whether private or public sectors, whether health sector, education or water supply and sanitation sector (Bhatnagar, 2003).
In general Klitgard (1998), Pathak, et al, (2008), and J. Plummer, (2006) conceptualization of public service corruption has a great contribution in studying corruption in water supply and sanitation sector. It helps us to identify the types and the main factors of corruption in water supply and sanitation service agencies.

2.12.2 Conceptualization of e-governance initiatives

Considering the problem of corruption and poor service delivery, different scholars from different countries designed different anticorruption strategy to mitigate corruption and provide the customer focused cost, effective, transparent and efficient services to citizens (J. Plummer, 2009). To remove public service corruption effectively it is useful to distinguish and understand the main cause of corruption in public service agencies (Rose-Ackermann1999). He identified monopoly power; discretion; and lack of accountability as the main drivers of corruption (1973, 1978 and 1999).

Naz et al., (2006) emphasized that to tackle these three drivers, a viable anticorruption strategy must be designed as a multi-pronged endeavor that includes a set of complex measures in different spheres of society and state organization. Vittal, India’s former chief vigilance commissioner states that in order to fight corruption: rules and procedures need to be simplified; there is a need for greater transparency and empowerment of members of the public; and there is a need for effective punishment mechanisms for participants in corruption (Vittal, 2004a, b cited in Pathak and Prasad, 2005).

A similar three-point formula is given by Cisar (2003, cited in Naz et al., 2006). He states that the applications of information and communications technologies (ICTs) can address water supply and sanitation service corruption through creating simple, moral, accountable, responsive, and transparent (SMART) governance in water supply and sanitation sector.
In developing countries e-governance initiatives successfully reduced water supply and sanitation corruption by increasing competition, reduce discretionary power, remove bottlenecks in routine transactions, increase reliability and predictability of government actions, ensure better and equal access to information and services, and promote transparency and accountability (Tangakitvanich et al., 2003).

Table 2.1 Selected studies which report the benefits of e-governance in reducing corruption

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Study context and key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhantnagar (2004)</td>
<td>Study on Indian e-governance models reveals that e-governance initiatives successful reduce bribes and other types of corruption in public service sectors</td>
</tr>
<tr>
<td>Pathak and Prasad (2006)</td>
<td>The authors analyze nine e-governance models undertaken in India and conclude that e-governance can be effective in reducing corruption or eliminating it altogether</td>
</tr>
<tr>
<td>Gelleri (2004)</td>
<td>The applications of e-governance or ICT in decision making can limit the possible damaging of public service corruption</td>
</tr>
<tr>
<td>Pathak, Sigh, Belwal and Smith (2007)</td>
<td>A survey conducted on citizens in Ethiopia. The regression model comprising the exogenous variable government citizen relationships and e-governance model could only explain 8.2% of the variance on corruption reduction</td>
</tr>
</tbody>
</table>

Survey, 2014
2.12.3 Conceptual Framework

As cited in literature, water supply and sanitation service corruption is very common and remain least confronted issues in developing countries including Ethiopia. In line with most of developing countries, has realized the need for e-governance initiatives to dismantle water supply and sanitation sector corruption in particular and public service corruption in general. In this case, the development of conceptual framework is very essential and useful to describe the relationship between dependent variable (corruption reduction) and independent variables (e-governance models and government-citizen relationships) in the provisions of water supply and sanitation services.
CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

A purpose of this chapter is to adopt research design which describes the conditions and procedures for collecting and analyzing data. This strategy helps to systematically address the central research problem and specific research questions, for situating researchers in the context of the empirical world and for connecting them to specific sites, individuals/groups, and methods of data analysis. It also explains the procedures that the researcher follows in the collection and the analysis of data to address the research problem clearly, answers the research question(s) and draws a valid conclusion. Moreover, adopting appropriate research design is essential to maintain quality standards and to define the research questions to be asked and methodologies to be used in answering the research questions.

In the light of this, the study attempted to utilize mixed research design which involves both qualitative and quantitative data within the stages of the research process. In other words, both quantitative and qualitative data were collected, analyzed and integrated to come up with valid findings and conclusions. The main reason behind employing mixed research design was for the purpose of triangulation.

The study started with the review of secondary (qualitative) data from various documents to define the research problems and conduct a literature review. And then primary data was collected to triangulate and substantiate the reliability and validity of information collected from different sources or information that provided in the literature regarding the role of e-governance in reducing water supply and sanitation service corruption.

To this end, description of the study area, rationale for site selection, research method, sources of data, sample size and sampling techniques, instruments and methods of data collection, validity and reliability checks, ethical consideration and method of data analysis were stated hereunder.
3.1 Description of the Study Areas

The study was conducted at Jimma town which is located in south western part of the country and it is the Zonal town of Jimma zone. It is located at a distance of 350 km from Addis Ababa on the main road that leads to south western region of Ethiopia. Jimma town is one of the oldest towns in South Western Ethiopia. The development of town is related with coffee and other crop production that produced in zone. Owning its strategic location, it has been serving as transportation and commercial center of the south western region of Ethiopia (Jimma Town municipality, 2009).

According to census conducted in 2009, the town is generally characterized by rapid population growth with a growth rate of 4.3%. Geographical location of Jimma town is 7°41' N latitude and 36° 50' E longitude. The town is found at an average altitude of about 1,780 m above sea level. It lies in the climatic zone locally known as "Woyna Daga" (1,500-2,400 m above sea level) which is considered ideal for agriculture as well as human settlement. It is generally characterized by warm climate with a mean annual maximum temperature of 30°C and a mean annual minimum temperature of 14°C. The annual rainfall ranges from 1138-1690 mm. The maximum precipitation occurs during the three months period from June through August, with minimum rainfall occurring in December and January. From a climatic point of view, abundant rainfall makes this town one of the best watered of Ethiopian highland areas, conducive for agricultural production and human life (Jimma Town Municipality, 2011).

The town is an administrative capital for Jimma Zone. It provides township plan prepared by the national urban planning institution. The master plan covers different aspects such as development plans road network plans, utility service plans, drainage and land use plan, water supply and sewerage service plans etc. The urban government model of Jimma town is a council mayor system whereby the city council has the final authority on urban issues whereas the highest executive powers are vested up on the mayor and the mayor committee (Jimma Town municipality, 20011).
From the population point of view, Jimma is the most populous city in South west Ethiopia with 162,000 total population. Migration of the people increases the population of town and such increment in population results in higher competition and conflicts over public service delivery specifically over water supply and sanitation service delivery. The provision of water and sanitation service is inadequate, unsafe and unaffordable for the residents particularly for the poor who have no capacity to pay bribes to obtain water and sanitation services from the providers (Jimma Town Municipality, 2011).

3.2 Rationale for Selection of the Study Site

In this research, Jimma town was selected as the study area and thus, a number of criteria were considered while selecting Jimma town. Jimma has a long history in providing urban public service delivery, a zone capital and seat for many federal, regional and international organizations having many economic and political functions. Water supply and sanitation service delivery has faced various challenges and constraints. Among those challenges the widespread of corruption and rent seeking are the major one. Lack of good governance, poor urban planning and management also exist in the town and makes corruption worse and worse in water supply and sanitation service delivery (Jimma Town Municipality, 2009).

In comparison with other public sectors, water supply and sanitation sector is highly prone to the problem of corruption and mal governance. With the prevalence of corruption and governance problems, time, cost and red tape procedures constrained water supply and sanitation service delivery (FEACC, 2003). In line with this, Jimma Town Water Supply Sanitation Sector was selected as a case study with the aim of understanding the current status/ nature, ranges, types, & drivers of corruption and the potential applications of e-governance initiatives to reduce corruption & increase transparency, accountability, efficiency and responsiveness in water supply and sanitation service delivery.
3.3 Research Methods

The study employed both descriptive and explanatory research design to investigate the potential role of e-governance applications to reduce corruption and increase transparency, accountability, efficiency and transparency in Jimma town water supply and sanitation service delivery. It involves both quantitative and qualitative research methods to triangulate the quantitative data with the information gained from the qualitative one. That is gathering data using different methods from different sources so as to see the convergence of results and thereby get a relatively comprehensive picture of the issues under study. The researcher employed quantitative descriptive survey in Jimma town to obtain information about the perception & attitudes of the respondents regarding the status, types, & factors or circumstances that promote the widespread of corruption in water supply and sanitation service delivery.

The quantitative survey is also useful to understand the perception of the respondents about the importance of e-governance in addressing corruption and improving water supply and sanitation service delivery in Jimma town through enhancing transparency, accountability, efficiency and integrity in the sector. It enables the researcher to differentiate factors that hinder the adoption and implementation of e-governance initiatives in water supply and sanitation sector. Besides, it helps to draw valid general conclusions.

On the other hand, the qualitative method that constituted interview, open-ended questionnaire and document analysis were used for qualitative data in order to substantiate and triangulate the quantitative data that collected regarding e-governance, corruption and public service delivery in reference to water supply and sanitation service delivery.

As descriptive research design/ methods has its own defects in generalizing and inferring the results for the general population, explanatory research design was also adopted and employed to explore the potential applications of e-governance in reducing water supply and sanitation service corruption that encounter the provision of water supply and sanitation service delivery.
3.4 Sources of Data

This study is both descriptive and explanatory type of the study, since it describes and explains the relationships between e-governance, government citizen relationships and water supply and sanitation service corruption reduction. To achieve the pre-stated objective of the thesis, both primary and secondary data were used to generate and extract all necessary information to the research. However, the study mainly utilized primary data which collected through survey research using personally administered questionnaires and interview schedules from Jimma town residents, and water supply and sanitation sector officials and other concerned bodies respectively.

In addition, secondary data were reviewed concerning corruption and the role of e-governance in cutting corruption in water supply and sanitation service delivery. Various sources like websites of World Bank (WB), Transparency International (TI), Federal Ethics & Anti corruption commission (FEACC), MoWR, UNDP, and other documents that published regarding water supply and sanitation service corruption were reviewed to identify the types, forms, factors of corruption and its consequences on water supply and sanitation service delivery; the role of e-governance initiatives in reducing corruption, capabilities of e-governance and factors that hinder the successful implementation and utilization of e-governance initiatives were also viewed in order to strengthen the study with appropriate justifications.

Generally, the data collected for the study were both quantitative and qualitative in nature. While most of the qualitative data regarding water supply and sanitation service corruption, applications of e-governance in cutting corruption, factors that hinder the adoption and implementation of e-governance and the like were collected from Jimma town residents, water supply and sanitation sector and Jimma town municipality. Quantitative data also emanated from respondents survey. Moreover, both quantitative and qualitative data were assessed from secondary sources to realize the pre-determined objective of the study.
3.5 Methods of Data Collection

To collect data from primary and secondary sources, both qualitative and quantitative data collections methods were used with the objective of triangulating and checking the validity of information collected from different Sources. In order to obtain relevant information for the study, the researcher employed three major instruments. These were: questionnaire (both close-ended and open-ended questionnaires), interviews (structured and unstructured interviews), and desk review or document review.

3.5.1 Questionnaires

The questionnaire is considered as the heart of a survey operation because large samples can be made use of and, thus, the results can be made more dependable and reliable. In addition, collecting data through questionnaire is also relatively economical and it is the most common data collection method in descriptive and explanatory survey.

In line with this, both open-ended and close-ended questionnaires were prepared and administered to all respondents in order to collect data properly. Close-ended questions were dominantly used because of easy handling, simple to answer, quick and relatively inexpensive to analyze. On the other hand, open-ended questions were prepared with the assumption that it permits the researcher to generate free responses from the respondents and gives them freedom in phrasing a reply. It also gives respondent's opportunity to express their feelings, perceptions, problems and intentions related to the issue under study.

The questionnaire comprises two parts. The first part were designed to collect data on the demographic characteristics of the respondents while ,the second part were used to collect data on e-governance, status , types/forms, range of corruption and factors that optimize the occurrence of corruption in water and sanitation service delivery system. So that questionnaires were prepared and distributed to 400 respondents. These respondents were selected from Bosa Kito, Hermata Merkato, Ginjo, Mendara Kochi,Hermata, Bacho Bore and Ginjo Guduru kebele/ smallest administrative units/ using multistage cluster sampling techniques.
3.5. 2 Desk Review

In order to ensure the relevancy of collected data, the researcher undertook a detailed and extensive review of existing literature on e-governance, corruption and public service delivery specifically in reference to water supply and sanitation service delivery. This includes different websites, government reports, project reports, and research papers. Dimensions such as current status, types/forms of corruption, and key factors that promote corruption in water supply and sanitation service delivery; capability, citizens’ and governments’ needs, priority areas, problems, and citizens’ awareness about e-government mechanism to solve such problems were assessed along with underlying sub-dimensions.

In addition, water supply and sanitation sector governance were also reviewed to identify the problems of governance such as lack of accountability, transparency, efficiency integrity, & responsiveness in water supply and sanitation service delivery.

The document which relates to anti-corruption policies and strategies like e-governance initiatives in mitigating corruption through increasing accountability, transparency, responsiveness, integrity, and efficiency in water supply and sanitation sector agencies, as well as the plans of water supply and sanitation agencies and if any possible recommendation given to the agencies in curbing corruption & providing quality, timely and affordable water supply and sanitation service to the customers were reviewed to obtain more information on whether corruption were addressed or not in the provision of sanitation and water services.
3.5.3 Interviews

The interview permits greater depth of response that is not possible through any other means. Thus, the purpose of the interview was to collect more supplementary opinion to substantiate and triangulate questionnaire response. Thus, both structured and semi structured interview schedule were conducted with Jimma town water supply and sanitation sector manager to probe further and to validate the findings. Moreover, semi structured interviews were held with Jimma town municipality. Semi structured interviews provide the researcher the opportunity to probe answers which is done for instance where there is a need for the interviewees to explain further or in depth based on their experiences.

Interview questions cover different issues like nature, types/forms, range and factors of corruption in water supply and sanitation service delivery. In addition, it covers the potential role of e-governance initiatives in reducing corruption and improving water supply and sanitation service delivery; factors that hinder the adoption successful implantation of e-governance in WSSS and what the sector officials, community and other stakeholders need to do to strengthen the impacts of ICT in reducing corruption and improving water supply and sanitation service delivery in the town.

3.6 Targeted Population

According to Burns & Grove (2003) population refers to the total number of units from which data can be collected such as individuals, organizations, events and the like. They also describe population as all the elements that meet the criteria for inclusion in the study. Jimma town is the largest and fastest growing city in South Western Ethiopia and has currently independent city administration and seventeen (17) independent kebeles/or smallest administrative units (Jimma Town Municipality, 2009).

The targeted populations that can be included under the study were the whole members of the towns, which are permanent residents and legally registered on their respective kebele or smallest administrative units. In addition, Jimma town water supply and sanitation sector officials, and other concerned body were included and interviewed to probe further and to validate the findings.
3.7 Sample size and sampling methods

3.7.1 Sample Size

The survey was conducted considering very large and infinite population of the city given the fact that; the spread of the population is not clearly known as a large number of the people come from different parts of the country and reside here through building and renting house. Because of poor urban planning and management and absence of updated and well documented information, it is very difficult to accurately know total numbers of people who permanently residing in each seventeen (17) kebeles of the town. In addition to lack of well documented and updated data which shows the current population size, density and growth rate, assimilation of different rural kebeles with the urban kebeles hinder us to accurately know the total number of population who reside in Jimma town as a whole and in each 17 independent kebeles in particular. Thus, the researcher calculates sample size by using the infinite population formula as suggested in Kothari (2004, P, 179).

\[ n = \frac{Z^2 \cdot p \cdot q}{e^2} \]

Where;

- \( n \) = sample size
- \( P \) = sample proportion
- \( q \) = 1 - \( P \)
- \( Z \) = Standardized normal variable and its value that corresponds to 95 % confidence interval equals 1.96
- \( e \) = Allowable error 5% (0.05)

Accordingly, the sample size is determined to be;

\[ n = \frac{1.96^2 \cdot 0.5 \cdot 0.5}{0.05^2} = 385. \]

Therefore, the sample size for this study was 385 respondents. Beside 4% (15) respondents were added for the contingency to overcome potential non response rate and invalid responses to make the number of respondents 400. Thus, the questionnaires were prepared and distributed to 400n respondents in order to undertake this survey and no questionnaires were left uncollected or unreturned. Thus, all 400 questionnaires (100%) were viable for the final analysis.
3.7.2 Sampling Methods

In this study the researcher used multistage cluster sampling technique in order to select sample respondents from the total population. Given the nature of the study and unavailability of sampling frame of permanent population who reside in Jimma town, multi stage sampling was preferred over the other techniques to select a representative sample size. In the first stage population density, geographical location, and economic status or development of each kebele were considered and taken as a defining variable in clustering the town’s kebele in to some manageable size from which sample respondents were drawn.

Accordingly, seventeen (17) independent administrative units were clustered in to seven (7) manageable sizes. In the second stage, a simple random sampling technique was used and one (1) kebele was selected from each cluster. Totally 7 kebele (Bosa Kito, Hermata Merkato, Ginjo, Mendara Kochi, Hermata, Bacho Bore and Ginjo Guduru) were selected as sample kebeles from which residents were drawn. In the third stage, 400 total respondents (65, 55, 60, 70, 50, 50 and 50) respondents were proportionally selected from Bosa Kito, Hermata Merkato, Ginjo, Mendara Kochi, Hermata, Bacho Bore and Ginjo Guduru kebele respectively for the survey using convenience sampling. See the following figure 3.1 here under for more information.
3. 8 Method of Data processing and Analysis

3.8.1 Data Processing

This part is very essential to come up with fruitful finding through maintaining the reliability and validity of information. In this section, the researcher carried out data editing, coding, data entry and data cleaning activity in order to differentiate and avoid irrelevant data & check the consistency of data which were collected from the respondents using various questionnaires and interviews.

Following the collection of quantitative data, but prior to data entry, the researcher carefully screened all data for accuracy. Data screening was carried out to ensure that data are accurate and complete and the researcher planned to screen the data to make certain that responses are legible, understandable, complete, and include all of the necessary information.

3.8.2 Methods of Data Analysis

In this study, the researcher employed both quantitative and qualitative methods to analyze the data. The analysis of quantitative data was carried out first and the qualitative data followed. The quantitative data that collected through personally administered questionnaires were analyzed through quantitative method of analysis or descriptive statistics such as frequency, percentage, mean, and standard deviation were used so as to describe the data collected in research studies and to accurately characterize the variation under observation within a specific sample.

Descriptive methods of analysis such as frequencies, tables, bar charts, pie charts, percentages, means, standard deviation and standard error were applied to describe status, types, range of corruption and concentrated area of corruption in water supply and sanitation service delivery and effects of time, cost and red tape procedures in water supply and sanitation service delivery and also applied to examine the potential of e-governance in reducing corruption in water and sanitation services delivery; implementation of e-governance initiatives and factors that hinder successful implementation of e-governance in Jimma town water supply and sanitation service delivery.
Also, a researcher applied correlation or inferential methods of data analysis to test the relationship between e-governance and corruption reduction in water supply and sanitation sector as well as to test the relationship between e-governance, sound government-citizen relationship and water supply and sanitation sector corruption reduction. Because of the difficulty to predict and generalize results for the total population by using descriptive methods of data analysis, correlation/inferential methods of data analysis such as Pearson correlation methods, enter methods/regression standard methods, means, standard deviations, and independent t-test were utilized in the study.

In addition, the qualitative data which collected via interview and personal observation were analyzed through qualitative methods of data analysis. Mainly qualitative data were analyzed and presented through description, narrating and interpreting the situation deeply and contextually so that water supply and sanitation service corruption and the role of e-governance in addressing corruption were revealed.

3.9 Model / Equations to be estimated and tested

In this study, a blend of quantitative and qualitative data analysis approaches was used. In order to explain the variance in water supply and sanitation service corruption reduction, regression model (which is made up of e-governance initiatives and government-citizen relationships) was used. According to this model, water supply and sanitation service corruption reduction (dependent variable) was regressed as a function of e-governance initiatives and government-citizen relationships (independent/explanatory variables).

In order to check whether there is a problem of multicolinearity, the rule of thumb, according to Gujarati (2004), is a value $\geq 0.8$ in correlation coefficients between variables. Accordingly, Variance Inflation Factor (VIF) was computed for the variables used in regressions and no problem of multicolinearity was found. Similarly, the Breusch-Pagan test revealed that no problem of heteroscedasticity was observed in the data. To check for model fit, the Hosmer and Lemeshow Test was used, which correctly predicted more than 80% of the variables.
To determine the relative contributions of e-governance initiatives and government citizen relationships in water supply and sanitation service corruption reduction, regression model was used. E-governance initiatives denoted by EGI whereas improvement in government citizen relationships denoted by GCRs takes the value of "1" and "2" respectively in explaining water supply and sanitation service corruption reduction.

Generally the relationship between E-Governance Initiatives (EGI), Government Citizen Relationships (GCRs) and water supply and sanitation service corruption reduction (WSSSCR) are expressed in the following mathematical notations:

\[ X_1 + X_2 = Y, \]

where,

- \( X_1 \) = E-governance initiatives (EGI)
- \( X_2 \) = Government citizen relationships (GCR)
- \( Y \) = Water supply and sanitation service corruption reduction (WSSSCR)

In addition to regression, Pearson correlation, and independent samples t-tests were used to analyze the data.
CHAPTER FOUR
4. PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This part of the thesis deals with the presentation, analysis and interpretation of the data. Accordingly, presentation, analysis and interpretation were made to achieve the objective of the study using different methods of analysis. Descriptive methods of analysis like table, frequencies, percentages, bar chart, pie charts, mean and standard deviation were mainly used in the study to analyze data obtained from the survey.

In addition, inferential statistics like t-test, Pearson correlation methods and standard regression model (enter method) were used to analyze the data obtained from the respondents regarding water supply and sanitation service corruption; e-governance initiatives and its capabilities in reducing corruption in water supply and sanitation service delivery.

Generally, the data were analyzed both quantitatively and qualitatively. The qualitative part was to probe of substantiate the findings of quantitative analysis. The qualitative data included the data gathered through interviews; open-ended questions and document analysis were analyzed through qualitative method of analysis like description, narrating and interpretation of the situation contextually with the help of some descriptive statistics.

Considering the nature of study and its importance, quantitative data were mainly used in order to describe and explain the relationship between e-governance, government citizen relationships and water supply and sanitation service corruption reduction in Jimma town. In addition, qualitative data which collected via open ended questionnaires and interview were analyzed to probe the findings.
4.1 Demographic characteristics of the respondents

Description of the demographic characteristics of the respondents gives some basic information about the sample population involved in the study. It gives an indication toward respondent's sex, age group, educational status or educational background, marital status, and job/occupation status. Thus, the following table 4.1 here under contains and describes the general characteristics of the respondents.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>294</td>
<td>73.6</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>106</td>
<td>26.4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>400</td>
<td>100</td>
</tr>
<tr>
<td>Age</td>
<td>18-25</td>
<td>71</td>
<td>17.8</td>
</tr>
<tr>
<td></td>
<td>25-39</td>
<td>242</td>
<td>60.5</td>
</tr>
<tr>
<td></td>
<td>over 40</td>
<td>87</td>
<td>21.7</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>400</td>
<td>100</td>
</tr>
<tr>
<td>Education</td>
<td>No formal education</td>
<td>9</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td>Primary education(1-8)</td>
<td>24</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Secondary education(9-12)</td>
<td>36</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Certificate</td>
<td>107</td>
<td>24.3</td>
</tr>
<tr>
<td></td>
<td>Diploma</td>
<td>101</td>
<td>25.4</td>
</tr>
<tr>
<td></td>
<td>Degree</td>
<td>120</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Professionals</td>
<td>13</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>400</td>
<td>100</td>
</tr>
<tr>
<td>Marital status</td>
<td>Married</td>
<td>268</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Unmarried</td>
<td>117</td>
<td>29.3</td>
</tr>
<tr>
<td></td>
<td>Widowed /divorced</td>
<td>15</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>400</td>
<td>100</td>
</tr>
<tr>
<td>Job status</td>
<td>Self employee</td>
<td>76</td>
<td>19.0</td>
</tr>
<tr>
<td></td>
<td>Government employee</td>
<td>248</td>
<td>62.0</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td>6</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Un employed</td>
<td>57</td>
<td>14.3</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>13</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>400</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: survey, 2014
As the above Table 4.1 shows, Out of 400 sampled respondents, 294 (73.6 percent) and 106 (62.4 percent) are male and female respectively. This implies that male respondents profile dominate the personal profile of the respondents. Looking at the age group of the respondents; middle age respondents in the age group between 26-39 takes a major share (60.5 percent) of the respondents, followed by age group over 40 which accounts 21.7 percent of the respondents while, the remaining 17.8 percent of the respondent is found below 25 age group. Since the majority of the respondents were in the mid age group (26-40), their responses can be considered mature.

Item three of the Table 4.1 shows educational status/ background of the respondents. Accordingly, 78.7 percent of the respondents had degree, diploma and certificate level education from different university and college, 9.0 percent of them had completed secondary education and the rest 11.3 percent of them had primary and no formal education. This indicates that most of the respondents were educated (degree, diploma, and certificate holders). Since most of them were educated their response can be considered as mature and they have awareness about the problems of corruption in water supply and sanitation delivery and e-governance initiatives in fight against corruption including its advantages and disadvantages. Item four of the table also depicts the marital status of the respondents, with a majority of respondents (67.0 percent) were married and the rest 29.7 percent were unmarried. Insignificant number of respondents (3. 3 percent) were widowed and divorced.

Item five is about employment status or occupational background of the respondents. The survey result depicts that, 62.0 percent of the respondents are government employees, 19.0 percent were self employed, and 14.3% and 1.5 percent were unemployed and students respectively. The remaining insignificant numbers, 3.2% of respondents are found in other jobs or occupations.

Generally the above table (Table 4. 1) shows that the majorities of the respondents were married, had university and college level education, and middle aged (26-39 years). Male respondents dominated the sample profile and most of the respondents were employed. This indicates that the respondents were responsible, educated, and mature. Respondents were thus well aware of e-Governance initiatives and its pros and cons in reducing water supply and sanitation service corruption.
4.2 Current Status and ranges Water Supply and Sanitation Service Corruption

Corruption has been cited as one of the most prevalent and persistent challenges in public service institutions including water supply and sanitation sectors or agencies. The motivation to earn income through corrupt practices is extremely strong, exacerbated by lack of accountability, transparency, and integrity; poverty and by low and declining civil service salaries (Pathak et al., 2008). In the light of this, the following questions have been raised to understand the current status or conditions of water supply and sanitation service corruption in Jimma town.

Table 4.2: Respondents’ response about the current status of WSSSC

<table>
<thead>
<tr>
<th>Items</th>
<th>Ranges of water supply and sanitation service corruption</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VL</td>
<td>L</td>
</tr>
<tr>
<td>Decreasing</td>
<td>53</td>
<td>43.0</td>
</tr>
<tr>
<td>Increasing</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>43.0</td>
</tr>
</tbody>
</table>

Key: VL = very low, L = low, MH = moderately high, VH = very high, FH = fairly high, M = mean, SD = standard deviation, SE = standard Error
The above Table 4.2 deals with the respondent’s response towards current status of water supply and sanitation service corruption. Accordingly, the perceptions of corruption in water supply and sanitation service were found to be widely prevalent in Jinuna town and a large majority of respondents 277 (69.3 percent) were responded that corruption is increasing in water supply and sanitation service agencies whereas, the rest 123 (30.7%) of Jimma town respondents felt otherwise.

Similarly it also depicts the range of water supply and sanitation service corruption in Jimma town. Out of 277 respondents, a sizable majority of respondents 159 (57.4%) rated water supply and sanitation service corruption as fairly high and the rest 25.0 % and 17.6% of the respondents rated it very high, and moderately high respectively. In contrast to this, of 123 total respondents who described corruption as it was increasing in water supply and sanitation service delivery, the majority 70(56.9%) were rated the range of water supply and sanitation service corruption as low and the remaining 53(43.1%) of respondents rated it as very low.

In addition to this, mean, standard deviation and standard error were computed to infer the current status of water supply and sanitation service corruption in Jimma town. Accordingly, average means that calculated for the increasing group was 4.46 and 1.60 for the decreasing group. When we compare the average mean calculated for each group, the average mean of increasing group (4.46) was two times more than the average mean calculated for the decreasing group.

From this, we can conclude that presently the status of corruption is fairly increasing or high in Jimma town water supply and sanitation service delivery and perceptions about water supply and sanitation services appear to be negative because of high corruption. This is similar with the findings of Pathak et al., 2008 study conducted on Ethiopia public service sectors.
4.3 Types of Water Supply and Sanitation Service Corruption

Corruption practices come in many different kinds/types in water supply and sanitation service delivery. Figure 4.1 below depicts the most common types of corruption currently acknowledged in Jimma town water supply and sanitation service delivery.

The chart clearly deploys the dominance of administrative/petty corruption in water supply and sanitation service delivery consisting 70.9 percent, followed by political or grand corruption accounts for 21.3 percent. The rest insignificant number of respondents 7.8 percent were identified other types of corruption (economic and state capture) in the provision of water and sanitation service.

According the discussions that held with water supply and sanitation sector officials' administrative and political corruption is very common and a major an increasing challenge or obstacle in water supply and sanitation service delivery. This is similar with the finding of Davis (2003). She found administrative and political corruption in South East Asia water supply and sanitation sector. FEACC (2003) also identified administrative or bureaucratic corruption as the most dominant type of corruption in water supply and sanitation sectors.
As water and sanitation is an immensely political issue, wide open to manipulation, globally, nationally, and locally open to capture and conflict among communities and households. The dialogue over corruption in water supply and sanitation service delivery must reflect the diversity in forms, practices, and actors, their motivations and levels of impact. It is vital that water supply and sanitation sector and their officials need to learn about the forms of corruption taking place in water supply and sanitation service delivery in order to identify the impacts and develop practical and targeted anti-corruption policies and tools.

Thus, the effort has been made to identify the most common forms of corruption in Jimma town water supply and sanitation service delivery. Accordingly, bribery, nepotism, fraud/ speedy money, trickery, embezzlement, extortion, theft, collusions and prejudice were practiced in Jimma water supply and sanitation sector (JTWSSS). However, bribery, nepotism; fraud and theft were very common and highly practiced in water supply and sanitation delivery (See Table 4.3 from Appendix).

Generally we can conclude that administrative corruption is currently very common and remain a great challenge in Jimma town water supply and sanitation service delivery and it manifest itself in the form of bribery, nepotism, fraud or speedy money and theft.

**4.4 Concentrated area of water supply and sanitation service corruption**

The survey result reveals that water supply and sanitation service corruption was the result of public to public, public to private, and public to consumer interactions and these interactions occur along the five cycles of water supply and sanitation sector starting from high level policy making to household payments. According to FEACC (2003) all functions of water supply and sanitation sector (policy making & regulation; planning, budgeting & transfers; design, tendering & procurement; construction, and management and payment systems) are exposed to the problem of corruption and governance crisis.
However, its degrees varies among water supply and sanitation service delivery functions or stages based on the number of actors or stakeholders involved in corrupt practices. In relation with this, management and payment for service; construction and operation; design, tendering and procurement, and planning, budgeting and transfers were consecutively perceived as the highly corrupted functions of water supply and sanitation service delivery (see Table 4.3).

As per the information obtained from document analysis, quality compliance; revenue collection; meter reading; connection, disconnection and reconnection of water supply and sanitation sewerages and inspections and procurement of goods and services were also highly vulnerable to the problem of corruption. Some study like Davis, (2003) conducted in South East Asia water supply and sanitation sector, Pathak, et al, (2008) and FEACC, (2012) in Ethiopia public service sectors identified similar areas of water supply and sanitation sector that exposed to corruption and governance related problems.

Despite the structures (reforms) put in place to combat the dissatisfaction or at least reduce it to its barest minimum, corruption stills continues to be endemic, in Ethiopia water supply and sanitation service particularly in payment and access, construction and operations, planning, budgeting and fiscal transfers with its attendant implications for effective service delivery and welfare of the people (Adisa, 2003) as cited in FEACC, (2003).

4.5 The main causes of water supply and sanitation service corruption

As literature shows countering corruption in water supply and sanitation service delivery would be very easy if the concept of corruption was clearly understood and unambiguous and the causes of corruption were easily recognizable in water supply and sanitation service delivery. As a result, the respondents were asked to identify the main drivers of water supply and sanitation service corruption among monopolistic nature of service delivery; discretionary power; lack of good governance; poor institutional incentives; lack of punishment and effective corruption reporting mechanism; inflation, social, cultural and custom of the society and their response is summarized in Table 4.5 here under.
<table>
<thead>
<tr>
<th>No</th>
<th>Items</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>TD  DA  SA MA TA  N MD(t) sig. at 5~</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N  N  N  N  N  N</td>
</tr>
<tr>
<td>1</td>
<td>Monopolistic nature of service delivery</td>
<td>9  63 75 157 96 400 .415 .000</td>
</tr>
<tr>
<td>2</td>
<td>Wide discretionary power given to water supply and sanitation sector officials</td>
<td>47 52 48 99 154 400 .328 .000</td>
</tr>
<tr>
<td>3</td>
<td>Lack of good governance (transparency, accountability and integrity etc)</td>
<td>11 20 48 192 129 400 .1030 .000</td>
</tr>
<tr>
<td>4</td>
<td>Poor institutional incentives</td>
<td>22 201 31 120 38 400 -.119 .038</td>
</tr>
<tr>
<td>5</td>
<td>Lack of punishment and effective corruption reporting mechanism</td>
<td>38 288 43 13 11 400 .818 .000</td>
</tr>
<tr>
<td>6</td>
<td>Inflation, social, cultural factors and custom of the society</td>
<td>29 211 18 81 73 400 .1021 .111</td>
</tr>
</tbody>
</table>

Key: TD = totally disagree, DA = disagree, SA = somewhat agree, MA = mostly agree, TA = totally agree, MD = mean difference or t scores

As indicated in the above table (result of independent simple t test), monopolistic nature of service delivery; discretionary power of water supply and sanitation sector officials; faulty governance (where accountability, transparency, integrity, & responsiveness are lacking); and lack of punishment and effective corruption reporting mechanism in water supply and sanitation sector were significantly observed as the main drivers of water supply and sanitation service corruption. However, poor institutional incentives, and inflation, social, culture and custom of the society were considered as in significant in promoting corruption in Jimma town water supply and sanitation service delivery.
As per the information obtained from the interview results, lack of effective corruption reporting mechanism; lack of honesty; complex and unclear rules, regulations and procedures; acceptance of bribe as a way of life; ineffective judiciary; lack of punishment, and inadequate training of officials and lack effective supervision also generate the problem of corruption in Jimma town water supply and sanitation service delivery.

The Klitgaard (1998) corruption formula: Corruption = (Monopoly power + Discretionary power) – (Accountability + Transparency) that provided in the context of Bolivia municipal water supply and sanitation service delivery was also supported by this study to describe water supply and sanitation service corruption in Jimma town.

This is also related with what has been found by Davis (2003) in South East Asia water supply and sanitation sector. She identified that monopolistic nature of service delivery; discretionary power given to water supply and sanitation sector worker; and lack of transparency, accountability, capacity, responsiveness and integrity, inflation and low salaries as the main drivers of water supply and sanitation service corruption.

However, inflation and low payment of salaries were insignificant in promoting corruption in Jimma town water supply and sanitation service delivery. Thus, the study supports the findings of Davis except inflation and low payments of salaries because they were insignificant in describing water supply and sanitation service corruption in Jimma town.

4.6. Constraints in water supply and sanitation service delivery

In literature corruption has been cited as one of the major challenges that affect water supply and sanitation service delivery. With regards to this, respondents were asked whether corruption is problematic in Jimma town water supply and sanitation service delivery or not. The study revealed that corruption was problematic and still continues to threaten water supply and sanitation service delivery.
According to the survey result shown in above bar chart, the majority (87.3%) of the respondents view corruption as it was the most common and serious constraints in water supply and sanitation service delivery. Only small number of respondents (7.4%) were described corruption as it was less common and less problematic in water supply and sanitation service delivery, only small respondents (4.3%) were fail to say anything as corruption is problematic or not in water supply and sanitation service delivery.

From this, one can conclude that corruption is persistent and continue to be a problematic in water supply and sanitation service delivery because of lack of accountability and transparency among water and sanitation service providers and facilitators.

In spite of recent increases in transparency and accountability in water supply and sanitation sector, numerous challenges affect capacity to meet sector needs as well as its internal working in the provisions of services (FEACC, 2003). Among these, cost, time factors and red tape procedures are the major one.
4.6.1 Time, cost and red tape procedures in water supply and sanitation service delivery

Thus, the prevalence of corruption increases bureaucratic (red tape procedures), time and cost factors and pose great challenges in providing water and sanitation services.

Table 4.6: Time, cost factors and red tape procedure in water supply and sanitation service delivery

<table>
<thead>
<tr>
<th>Items</th>
<th>Responses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TD</td>
<td>DA</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Time and cost factor is a problematic</td>
<td>7</td>
<td>1.8</td>
</tr>
<tr>
<td>Time and cost factor makes no difference</td>
<td>46</td>
<td>11.5</td>
</tr>
<tr>
<td>Time and cost factor is not a problematic</td>
<td>117</td>
<td>29.2</td>
</tr>
<tr>
<td>Red tape procedures are problematic</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Red tape procedures make no difference</td>
<td>164</td>
<td>41.1</td>
</tr>
<tr>
<td>Red tape procedures are not a problematic</td>
<td>177</td>
<td>44.2</td>
</tr>
</tbody>
</table>

Key: TD=Totally Disagree, DA=Disagree, SA=Somewhat Agree, MA=Mostly Agree, TA=Totally Agree
4.6.1.1 Time and cost factors in water supply and sanitation service delivery and corruption.

The study result in the above table revealed time and cost factors in securing services was the biggest obstacle or problematic in dealing with water supply and sanitation service delivery and the major cause of concern. Time and cost factors refers to the cost service users of time spent in going to water supply and sanitation service agencies or offices and awaiting results and the majority of respondents in Jimma town found it difficult to get their grievances redressed in time. Nevertheless, respondents from Jimma town shared the View that reduction in corruption and favoritism along with decentralization in water supply and sanitation offices could substantially reduce time and cost concern to the respondents.

In water supply and sanitation service delivery there are cumbersome procedures and rules to follow that leads to issues of red-tape, corruption and favoritism (preferential treatment). This, impacts the time factor in service delivery, as it becomes slow and unresponsive to customer needs. This further affects the cost factor. For instance running back and forth to water supply and sanitation service agency, includes lots of money and time resource wastage; which further occurs as a result of the rules/procedures.

Bhatnagar et al., (2007) study on Chile and India public service delivery and Pathak, et al, (2008) study on Ethiopia public service sectors based on the survey responses it was found that in using manual versus computerized systems, the computerized systems have actually reduced the cost of accessing a system as the number of trips required to make to offices were reduced by a significant reduction in waiting time by 50 per cent.

Therefore the application of ICT or computerized system is very advisable to reduce the cost and waiting time in obtaining and sanitation services.
4.6.2 Red tape procedures in water supply and sanitation service delivery and corruption

In the view of respondents, red-tape was a major problem in Jimma town water supply and sanitation service delivery because of excessive centralization, corruption and favoritism. Bureaucratic red-tape procedures are seen to involve more than one agency and also more than one step. This gives important insights in judging the importance of initiatives in citizen centered government, including one-stop shops and measures to cut major problems arising from centralization of decision-making. A large percentage of respondents in Jimma town agreed that public red tape procedures are a major problem because of excessive centralization, corruption and favoritism based on their experiences in service delivery. Only small percentages of respondents considered public red tape procedures in dealing with water supply and sanitation service delivery as not a problematic (see table 4.4).

Generally, based on the average mean computed in the above table 4.4 the survey confirms that time, cost factors and public red-tape procedures were perceived as the major problems in Jimma town water supply and sanitation sector because of excessive centralization, corruption and favoritism.

From this we can infer that reduction in corruption and favoritism along with decentralization, good governance and improvement in government citizen relationships in water supply and sanitation offices could substantially reduce time, cost and red tape procedures concern to the respondents. This is mainly possible through the applications of e-governance in water supply and sanitation sector.
4.7 Role of E-Governance Initiatives in Corruption Reduction

In public service delivery including water supply and sanitation sector agencies, e-governance initiative was highly recommended to dismantle corruption and provide cost effective, efficient, customer focused services through increasing transparency, accountability, integrity, responsiveness etc among water supply and sanitation service provider and facilitators (Pathak et al., 2003). In line with this, Jimma town residents were asked to show their response regarding role of e-governance initiatives in cutting water supply and sanitation service corruption.

Figure 4.3: Respondents’ response about the role of e-governance in reducing water supply and sanitation sector corruption

![Pie Chart]

The role of e-governance in reducing corruption

- Yes: 75.8%
- No: 13.5%
- Neutral: 7.7%

Source: Own survey, 2014

As the above figure shows, most the respondents (75.7%) were believed that e-governance initiatives reduce water supply and sanitation service corruption, while, insignificant number of respondents (13.5%) felt otherwise. The survey also revealed that insignificant number (10.3%) of respondents were unable to say anything concerning the role of e-governance in cutting water supply and sanitation service corruption in Jimma town.
Moreover, interview with Jimma town water supply and sanitation sector officials indicated that e-governance initiatives play a crucial role in addressing water supply and sanitation service corruption and improving transparency, accountability, integrity and responsiveness in water supply and sanitation sector in order to provide customer focused efficient and effective services to the citizens.

4.8 Potential Benefits of E-Governance Initiatives

In relation with removing water supply and sanitation service corruption, the effort has also been made to distinguish and present the potential benefits of e-governance initiatives in comparison with other anti corruption strategy. Understanding the potential benefits of e-governance is the indivisible part of decision making to adopt and successfully implement e-governance as well as to strengthen its impacts on corruption. Thus, respondents were asked to rate the potential benefits of e-governance as high, very high, moderate, low or very low in water supply and sanitation service delivery.

**Figure 4.4: Respondents' response about e-governance potential in removing WSSS corruption**

Source: own survey, 2014
The above chart clearly portrays that, a majority of the respondents (31.3%) were rated the potential benefits of e-governance as either high or very high in reducing water supply and sanitation service corruption and 27.2% of respondents were rated the potential of e-governance initiatives as moderate/medium in curbing WSSS corruption. Whereas, insignificant number of respondents (3.0% and 7.2%) were rated the potential of e-governance as very low and low respectively. From this one can conclude that e-governance initiatives could significantly curb/reduce corruption and increase transparency, accountability, integrity and responsiveness in water supply and sanitation sector agencies to provide customer focused, efficient, timely and effective services to the citizens as compared to other anti corruption mechanism.

Other researchers like Pathak, et al, (2008), J. Plummer (2006), and Ndou (2004) identify similar functions of e-governance in public service institutions. They found that e-governance models has the highest potential in curbing corruption and in increasing efficiency, transparency, accountability, responsiveness and integrity in public service delivery in comparison to other anti corruption strategy that have been introduced and implemented before.

Thus, the government agencies need to give due attention for the expansion and development of ICT and rising the awareness of levels of the citizens to support the implementation of e-governance initiatives in public sector institutions.

4.9 Capabilities of E-Governance Initiatives in Reducing Water Supply and Sanitation Service Corruption

As the above figure 4.5 shows, e-governance initiatives has a great potential in fighting against corruption in water supply and sanitation service delivery. However, the question here is how and in what e-governance reduces water supply and sanitation service corruption. To answer this question, respondents were asked to provide their response concerning the following capabilities or potential of e-governance in weeping out corruption. The following table 4.6 here under summarized the main capabilities of e-governance initiatives in removing corruption in water supply and sanitation service delivery.
Table 4.6: Results of t test analysis (capabilities of e-governance in reducing corruption).

<table>
<thead>
<tr>
<th>No</th>
<th>Major capabilities of e-governance</th>
<th>TA</th>
<th>MA</th>
<th>SA</th>
<th>DA</th>
<th>TD</th>
<th>MD(t)</th>
<th>Sig. at 5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Change the relationship between government and citizens</td>
<td>94</td>
<td>233</td>
<td>47</td>
<td>15</td>
<td>11</td>
<td>.960</td>
<td>.000</td>
</tr>
<tr>
<td>2</td>
<td>Increasing accountability and transparency</td>
<td>179</td>
<td>126</td>
<td>62</td>
<td>29</td>
<td>4</td>
<td>1.170</td>
<td>.000</td>
</tr>
<tr>
<td>3</td>
<td>Reduce monopoly power</td>
<td>117</td>
<td>190</td>
<td>78</td>
<td>6</td>
<td>9</td>
<td>1.170</td>
<td>.000</td>
</tr>
<tr>
<td>4</td>
<td>Reduce discretionary power</td>
<td>117</td>
<td>190</td>
<td>98</td>
<td>6</td>
<td>9</td>
<td>.980</td>
<td>.000</td>
</tr>
<tr>
<td>5</td>
<td>Bring different actors together to fight against water supply and sanitation service corruption</td>
<td>168</td>
<td>126</td>
<td>46</td>
<td>4</td>
<td>12</td>
<td>1.170</td>
<td>.000</td>
</tr>
<tr>
<td>6</td>
<td>Lead to decentralized model of corruption reduction</td>
<td>164</td>
<td>170</td>
<td>40</td>
<td>15</td>
<td>11</td>
<td>1.150</td>
<td>.000</td>
</tr>
<tr>
<td>7</td>
<td>Streamline bureaucratic procedures to make water supply and sanitation sector operation more efficient</td>
<td>124</td>
<td>188</td>
<td>59</td>
<td>10</td>
<td>10</td>
<td>.970</td>
<td>.000</td>
</tr>
<tr>
<td>8</td>
<td>Increase coordination among the citizens to fight against corruption</td>
<td>163</td>
<td>125</td>
<td>70</td>
<td>31</td>
<td>11</td>
<td>.900</td>
<td>.000</td>
</tr>
<tr>
<td>9</td>
<td>Make water supply and sanitation sector systems more open to interaction</td>
<td>152</td>
<td>173</td>
<td>53</td>
<td>19</td>
<td>3</td>
<td>1.130</td>
<td>.000</td>
</tr>
<tr>
<td>10</td>
<td>Put check on corrupt behaviors and activities</td>
<td>125</td>
<td>211</td>
<td>56</td>
<td>4</td>
<td>4</td>
<td>1.120</td>
<td>.000</td>
</tr>
<tr>
<td>11</td>
<td>Make boundaries of responsibility and actions highly visible</td>
<td>151</td>
<td>201</td>
<td>57</td>
<td>11</td>
<td>0</td>
<td>1.130</td>
<td>.000</td>
</tr>
<tr>
<td>12</td>
<td>Making citizens self sufficient in availing services</td>
<td>129</td>
<td>192</td>
<td>48</td>
<td>23</td>
<td>8</td>
<td>1.030</td>
<td>.000</td>
</tr>
</tbody>
</table>

Key: TA = totally agree, MA = mostly agree, SA = somewhat agree, DA = disagree and TD = totally disagree

Based on the above table 4.5 the perceptions of respondents from Jimma town show that e-governance is expected to bring significant changes in reducing water supply and sanitation service corruption. The surveyed people in the research significantly perceived that e-governance would change the relationship between government and citizens; increase accountability, transparency and interaction; bring different actors in the fight against corruption; reduce monopoly; reduce discretionary power; make boundaries of responsibility and actions highly visible; offer centralized data to citizens; lead to a decentralized model of corruption control; put a check on corrupt activities; and increase coordination among citizens to fight against corruption; streamline bureaucratic procedures and make citizen self sufficient in availing services. This implies that the above mentioned capabilities of e-governance were significantly agreed in removing or reducing water supply and sanitation service corruption.
4.10 Adoption and implementation of e-governance initiatives

The availability of ICT infrastructures like internet broadband facilities in major cities, even with varying degrees of penetration, and its limited or non-availability in local municipalities creates problems in adoption, implementation and utilization of e-governance initiatives. Therefore, the use of e-governance (ICT) for removal or reduction of corruption in water supply and sanitation sector agencies in Jimma town appeared to be unexploited or limited, not because of the failures of technology but because of the limits to its reach among citizens generally.

In addition to this, lack of access to ICT infrastructures, lack of ICT professionals, and lack of strong and committed leadership also affects the implementation and utilization of e-governance initiatives in Jimma town water supply and sanitation sector. Thus, the perception of respondents about the adoption and implementation of e-governance in Jimma town water supply and sanitation service delivery is indicated in the pie chart here under.

Source: survey, 2014
As the above pie chart (survey result) depicts, of total 400 respondents 278 (69.4%) were said that e-governance (ICT) initiatives are not successfully implemented and utilized in Jimma town water supply and sanitation sector agencies and 109 (27.3%) of respondents were felt otherwise. While the only small number of respondents 13 (3.3%) were fail to say anything as e-governance initiative is successfully implemented and well utilized or not in Jimma town water supply and sanitation sector agencies. This implies that the potential benefit of e-governance is limited in removing or reducing water supply and sanitation service corruption.

This is similar with the findings of Pathak, et al., (2008). They found that e-governance initiatives remains limited in dealing with corruption in Ethiopia public sectors because of lack sustained, strategic and committed leadership, lack of access to ICT, inadequate finance and in adequate manpower in water supply and sanitation sector.

4.11 The main challenges of implementing e-governance initiatives

The effort has been also made to dig out the factors that hinder the adoption and successful implementation of e-governance initiatives in Jimma town water supply and sanitation service agencies. In relation with this, limited (lack) of access to ICT infrastructures to the people and staff; lack sustained, strategic and committed leadership; difficulty to mobilize funds for full scale ICT penetration; lack of ICT professionals, technicians and experts to install and maintain the infrastructure and application; ICT illiteracy or lack of ICT skills among the people; and lack sound ICT policies, standards, strategies, guidelines and legal issues were perceived as the major constraints or challenges in the adoption successful implementation of e-governance in Jimma town water supply and sanitation service sector.

Interview results that made with water supply and sanitation sector officials also indicated that high staff resistance; lack of capital; lack of well qualified manpower and ICT professionals; low working habit; poor or ineffective organizational structures; poor leader commitment and continuity; lack of/low level of collaboration with private sector; and lack of citizens awareness about the importance of e-governance initiatives (its pros and cons) were hinder the adoption and successful implementation of e-governance initiatives to mitigate corruption and increase transparency, accountability, responsiveness, integrity, efficiency and effectiveness in the sector in order to provide quality, timely and affordable services to the citizens.
Generally the survey showed that e-governance initiatives has a great potential in reducing corruption which afflicts water supply and sanitation service delivery through ensuring good governance such as transparency, accountability, capacity, participation, responsiveness, integrity, efficiency, and effectiveness in the sector.

However, it is not successfully implemented and utilized in Jimma town water supply and sanitation service delivery mainly because of lack of access to ICT infrastructures, effective leadership, ICT illiteracy, and capital and man power. This indicates that if the government agencies fulfill the above listed shortages, e-governance initiatives could remove water supply and sanitation service corruption and other related problems like time, cost and bureaucratic procedures.

4.12. Hypothesis Testing

Responses were analyzed to test two hypotheses about perceptions of the potential impacts of e-governance initiatives on cutting water supply and sanitation service corruption. The first hypothesis was that:

**H1.** E- Governance initiatives are positively related to government-citizen relationships and water supply and sanitation service corruption reduction.

Pearson’s correlation coefficient was calculated as a measure of linear association between the following variables: e-governance initiatives; Government-citizen relationships; and water supply and sanitation service corruption reduction. Results are presented in Table 4.9 hereunder.
Table 4.7 Hypothesis 1 Results - Correlations between e-governance and government citizen relationships and water supply and sanitation service corruption reduction

<table>
<thead>
<tr>
<th></th>
<th>E-Governance initiatives</th>
<th>Government-citizen relationships</th>
<th>WSSS corruption reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-governance initiatives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation</td>
<td>1.000</td>
<td>.710**</td>
<td>.493**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>400</td>
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<td>400</td>
</tr>
<tr>
<td>Government - citizen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>relationships</td>
<td>.710**</td>
<td>1.000</td>
<td>.497**</td>
</tr>
<tr>
<td>Correlation</td>
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<td>Sig. (2-tailed)</td>
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<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>400</td>
<td>400</td>
<td>400</td>
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<tr>
<td>WSSS corruption</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>reduction</td>
<td>.493**</td>
<td>.710**</td>
<td>1.000</td>
</tr>
<tr>
<td>Correlation</td>
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<td></td>
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<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>400</td>
<td>400</td>
<td>400</td>
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</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

Analysis of the information (responses) showed that e-Governance initiatives and government-citizen relationships (how water supply and sanitation sector agencies relate to citizens) were significantly correlated (0.710**) at 0.01 level (p < 0.01). The analysis also depicted that e-governance initiatives and water supply and sanitation service corruption reduction were significantly correlated (0.497**) at 0.01 levels (p, 0.01). Thus, in the perceptions of respondents, e-governance initiatives were positively related to improved government-citizen relationships and corruption reduction.
This is similar to the findings of Pathak, et al, (2008) study on Fiji and Ethiopia public service delivery. The study supported the hypothesis that e-governance is positively related to improved government-citizen relationships and water supply and sanitation service corruption reduction.

Generally it may be inferred that government-citizen relationships can play an important role in reducing corruption in Jimma town water supply and sanitation sector agencies and that it would be worthwhile to strengthen e-Governance (ICT) initiatives in Jimma town water supply and sanitation service agencies.

The second hypothesis was that:

**H2.** Improvements in Government - Citizen Relationships account for more water supply and sanitation service corruption reductions as compared to other variables.

To test the above mentioned hypothesis (the relationship between improvements in government-citizen relationships and corruption reduction in water supply and sanitation service delivery), standard method of regression (enter method) was performed taking WSSS corruption reduction as the dependent variable over two independent variables- e-governance initiatives and government citizen relationships. From the regression output shown in the following table 10 the equation will be: Water Supply and Sanitation Service Corruption Reduction = (Government Citizen Relationships + E-Governance Initiatives).

\[ Y (WSSSCR) = X1(EGI) + X2(GCR) \Rightarrow -1.014 = 0.681 + 0.739 \]
Table 4.8: Hypothesis 2(H2) results- Regressions (Coefficients)

<table>
<thead>
<tr>
<th>Model</th>
<th>Un standardized coefficients</th>
<th>Standardized coefficients</th>
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<tr>
<td></td>
<td>Beta</td>
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<td>1 (Constant)</td>
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<td>.739</td>
<td>.150</td>
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<tr>
<td>E-Governance initiatives</td>
<td>.681</td>
<td>.145</td>
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</table>

1. Dependent Variable: WSSS corruption,
2. Independent variables: Government-citizen relationships and E-governance initiatives
3. Adjusted r square = 0.283

The results for multiple regression showed that the R square equaled 0.283. This means that the model outlined above (which is made up of Government-citizen relationships and e-governance initiatives) helped to explain 28.3 percent of the variance in corruption reduction in water supply and sanitation service delivery (dependent variable). To determine the relative contribution of each of the variables, the beta values were compared.

The beta values in the study showed that e-Governance initiatives equal 0.282, while improving government citizen relationships equaled 0.297. This means the variable which made the strongest unique contribution to explaining the dependent variable - corruption reduction - when the variance explained by all other variables in the model is controlled for, is improvements in government-citizen relationships. The beta value for e-governance initiatives implies it made less of a contribution (as beta value for e-governance 0.282 is less than beta value for government-citizen relationship of 0.297).
To identify the variables making significant contributions, the significance values for the two variables were compared. The significance values show that an e-governance initiative equaled 0.000, and cutting government citizen problems equaled 0.000. Since e-governance initiatives 0.000 and cutting government citizen problems 0.000 were less than p value 0.05, they were making a significant contribution to the prediction of corruption reduction in water supply and sanitation service delivery. Therefore, H2 was confirmed (Table 4.10). It can be concluded that overall, the e-Governance model which alters government citizen relationship, can have at the most 0.283% stake in corruption reduction in water supply and sanitation service delivery in Jimma town.

The analysis is based on the premise that e-governance initiatives will reduce water supply and sanitation service corruption. Meaning e-governance being the variable (object of study) will make greater contribution in explaining any variance/changes or in other words, the reduction in water supply and sanitation sector in Jimma town studied. Thus, e-governance does not cut or reduce water supply and sanitation service corruption in the town directly, but it is only effective indirectly through the improvement of the government-citizen relationship. This means that corruption reduction was dependent/contingent upon both e-governance and Government-citizen relationship. Both these variables explain the reduction in corruption; however, Government-citizen explains a greater degree of reduction in corruption in contrast to e-governance initiatives alone.

From this, we can conclude that, e-governance and improved Government-citizen both contribute to water supply and sanitation service corruption reduction, but government –citizen relationships is slightly greater in the degree of contribution to corruption reduction in Jimma town. The study by Pathak *et al.*, (2008) also suggests that while e-governance initiatives can make important contributions to improving public services (including water supply and sanitation services) they can best do so by helping improve overall relationships between governments and citizens with specific reference to Ethiopia and Fiji. Thus, e-governance initiatives contribute to water supply and sanitation service corruption reduction both directly and indirectly in Jimma town. However, improvement in government-citizen relationships (indirect) has a great contribution in dismantling corruption and improving water supply and sanitation service delivery.
CHAPTER FIVE

5. SUMMARY OF KEY FINDINGS, CONCLUSION AND POLICY IMPLICATIONS

This study attempted to explore the potential of e-Governance applications to reduce corruption and increase efficiency, responsiveness, accountability and transparency of water supply and sanitation service delivery in Jimma town. The key research questions that guided the study focused on water supply and sanitation service corruption in terms of current status of corruption, ranges, types, forms and factors that generate corruption, constraints in water supply and sanitation service delivery, and awareness and potential of e-governance in reducing corruption, capabilities in which e-governance reduce water supply and sanitation service corruption, implementation and utilizations of e-governance and factors that hinder its successful implementation and utilization in Jimma town water supply and sanitation agencies. This section presents summary of the key findings, the conclusions drawn and the policy recommendations of the study.

5.1 Summary of key Findings

Water supply and sanitation service delivery has received due policy attention by the Ethiopian Government. The adoption of the National Water and sanitation Policy, and the Water and sanitation Strategy and Water and sanitation Sector Development Program (WSSDP) are evidences of the emphasis given to the sector. Furthermore, the new national Growth and Transformation Plan (GTP) aspires to achieve coverage of 98 and 100 percent for rural and urban areas respectively by the year 2015. Current performances of Jimma town, however, show that it’s impossible to reach the targets set because of the wide spread of corruption and governance related problems in water supply and sanitation service delivery. The survey and discussions during interviews show that corruption particularly administrative and political corruption found to be widespread and remain problematic in water supply and sanitation service delivery. The time, cost and red tape procedures associated with water supply and sanitation service delivery are the main cause of discontent among residents of the town.
Respondents felt that monopolistic natures of service delivery, wide discretionary power given to water supply and sanitation sector officials to exercise; lack of good governance (transparency, accountability, capacity, integrity, responsiveness and other features of good governance in the sector); lack of effective punishment on corrupt behaviors and effective corruption reporting mechanism in water supply and sanitation service delivery enticed public officials to accept corruption or bribes in discharging water and sanitation service to citizens. Also respondents identified bribery, theft, fraud or speedy money, embezzlement and collusions as the most common forms of corruption in which administrative and political corruption manifest itself in water supply and sanitation service delivery.

In regard with the widespread of water supply and sanitation service corruption, Jimma town residents perceived that e-governance could highly curb corruption in water supply and sanitation service delivery and increase transparency, accountability, integrity and responsiveness in the sector to provide customer focused transparent, cost effective and efficient services to citizens. Concerning the capabilities of e-governance initiatives, respondents felt that creating sound government-relationships; reducing monopoly; reducing discretionary power given to WSSS officials; decentralization of corruption control models; coordination of different actors including citizens to fight against corruption; streamline bureaucratic procedures to make WSSS operations more efficient; offer centralized data to citizens for easy auditing, put check on corrupt actions and making boundaries of responsibility and actions highly visible could remove or reduce water supply and sanitation service corruption in Jimma town. Also it makes citizens self sufficient in availing water supply and sanitation service through overcoming the key drivers of corruption in the sectors.

Hypotheses test results and discussions during interviews show that e-governance initiatives help to dismantle water supply and sanitation service corruption and mal governance problems mainly by changing/improving government citizen relationship in Jimma town water supply and sanitation service delivery. In comparison to other variables improvements in government citizen relationships accounts more corruption reduction in water supply and sanitation sector agencies.
In general e-governance initiatives which alter government citizen relationships take great role in fighting against corruption in water supply and sanitation service agencies. The paper proposes that governments (water supply and sanitation sector agencies) need to pay increased attention to e-governance initiatives to mitigate corruption and other constraints currently facing water supply and sanitation service delivery by investing huge amount of capital on the expansions and development of ICT infrastructures, hiring well qualified man power, ensuring good governance and educating people about the importance of ICT and initiate them to provide support in implementation and utilizations of e-governance initiatives in Jimma water supply and sanitation sector to address the problems of corruption and improve the internal operations of the sector to provide customer focused, cost effective and efficient services to the people.

5.2 Conclusions

This survey with 400 respondents reveals that corruption found to be prevalent and remain a problematic in water supply and sanitation service delivery. The paper suggested that administrative and political corruption is very common and still an increasing challenge in water supply and sanitation service sector. Time, cost and public red tape procedures also constrained water supply and sanitation service delivery. In relation with the widespread of corruption, it suggested that e-governance can help not only in weeding corruption in water supply and sanitation sector but also in the establishment of sounder government-citizen relationships. However, e-governance initiatives remains un exploited in Jimma town because of limited access to ICT infrastructures, lack of capital and man power, resistance from staff, lack sustained, strategic and committed leadership in water supply and sanitation service agencies. Also lack of sound ICT policies, standards, guidelines, strategy and legal issues and limited participation of private sectors in provisions of telecommunications service might hinder the adoption and successful implementation of e-governance initiatives.

As a result concrete steps need to be taken to strengthen the impacts of e-governance initiatives on water supply and sanitation service corruption. Particularly strategic implementation of e-governance can help the critical variable in combating water supply and sanitation service corruption- government citizen relationships.
5.3 Policy Implication

Based on the above analysis, findings and conclusions drawn, some potential entry points were identified for promoting the implementation of e-governance initiatives to reduce corruption in water supply and sanitation service delivery. As corruption and governance issues remain an increasing challenge in water supply and sanitation service delivery, operational implications are not always clear-cut and there is no magic bullet solution to solve corruption and other challenges facing water supply and sanitation sector. Nonetheless, the findings should enable government agencies, NGOs, private sector, practitioners and other stakeholders to develop interventions which are more effective and convincing in promoting and strengthening the impacts of e-governance on corruption which afflicts water supply and sanitation service delivery. Thus, the following suggestions and recommendations are forwarded:

- **The need to build stable environment and good governance for the implementation of e-governance initiatives:** The paper reveals that corruption was prevalent and has afflicted water supply and sanitation service delivery in Jimma town. It also indicated that e-governance can help in weeding corruption and time, cost, and red tape procedures which affect water supply and sanitation service delivery. However, its potential remains unexploited in Jimma town. Thus, government agencies and its officials need to put considerable efforts to ensure stable and good governance which creates stable environments, build trust, and mitigate uncertainty regarding implementation and utilization of e-governance initiatives. They should also develop a sustainable marketing strategy to communicate e-governance initiatives and its benefits to internal and external stakeholders to increase the impacts of e-governance over water supply and sanitation service corruption.

- **The need to give prioritization for ICT:** As the study shows the potential benefits of e-governance was limited in weeding out water supply and sanitation service corruption because of lack of limited access to ICT infrastructures. Access to ICT infrastructures was constrained in terms of availability of modes of communication such as telephones, mobiles and TV broadcasts; computer systems and Internet services; and Knowledge of computers.
To solve this problem and increase the impacts of e-governance over corruption federal, regional, local government and other concerned body should have to give due attention to expand and develop ICT infrastructures through integrating it with the development agenda of government plans. In order to curtail lack of access to ICT infrastructures in Jimma town and other urban areas, the government need to formulated other different alternatives which help the application and implementation of e-governance in water supply and sanitation sector to curb corruption and other governance crisis which constrain the healthy functioning of water supply and sanitation service agencies.

- **The need to promote a dialogue on water and sanitation service delivery options:** Suspicions have been raised that self-supply has been promoted in the A-UAP because it is politically expedient and useful, as it reduces government costs and ‘boosts’ official coverage figures. However, there is some evidence that self-supply may opens the ways for the widespread of corruption and rent seeking in the sector. Thus, monopolization of service delivery by government sector may not provide adequate, quality, and safe water and sanitation services to the citizens. A dialogue should be strengthened with government over the strengths and weaknesses of self-supply and prioritizing privatization of the sector, supported by a solid evidence base. This dialogue could help counteract the risks of politically expedient cost-cutting and/or the manipulation of coverage figures. Thus, government should support the participation of other stakeholders in provisions of water supply and sanitation services.

- **The need to privatize telecom sector:** The inflexibility caused by monopoly in the telecom sector imposed major obstacles to growth and expansions of ICT infrastructures in the country. Therefore, government needs to review its policies concerning monopolies in the telecom sector in order to introduce competition in provisions of telecommunication services.
• **The need to strengthen Transparency and Accountability:**
  The study also identified lack of transparency and accountability as the main cause of corruption and favoritism in water supply and sanitation service delivery. Thus, water supply and sanitation sector (WSSS) should introduce a system of information that is sensitive to supply and demand oriented information. They have to introduce a system that ensures periodic flow of information to customers with and without specific request. In order to promote accountability, citizens should be given opportunities to participate in the planning, design and management of water and sanitation services. Furthermore, service providing agencies need to introduce performance-based evaluation system that captures customers’ viewpoints.

• **The need for strengthening partnerships between state and non-state actors in fight against water supply and sanitation service corruption:** The survey shows that e-governance could play a great role in bringing different actors together to fight against corruption in water and sanitation service delivery. Previously, certain partnerships are already established to fight against corruption in water supply and sanitation services. However, there is no well formulated strategy that would promote and sustain the partnerships. Thus, there is need for clear strategies that establish the basis for and promote effective partnerships between state and non-state actors towards fighting corruption in water supply and sanitation service delivery with the use of e-governance initiatives.

• **The need to design specific strategies:**
Government needs to design specific strategies that curb corruption and demands in bribes in water supply and sanitation service agencies and public service institutions. Reliance on solely on e-governance initiatives to curb corruption might be not effective in dealing with existing which, in turn might adversely affect the implementation of e-governance initiatives. In addition e-governance couldn’t cure all structural factors that breed corruption in water supply and sanitation sector and also it may open the door for corruption in the sector. Thus, government need to take close supervision over the staff by designing specific strategies and policies that curb corruption directly or indirectly in water supply and sanitation sector. Moreover, the government agencies need to give priority to build sound government citizen relationships in water supply and sanitation service delivery.
• **The need to improve the capacities of the sectors:**

Water supply and sanitation services agencies would improve its capacity particularly in recovering cost of services. However, water supply and sanitation sectors have no the requisite capacity to ensure effective service delivery. Thus, donors and NGOs need to focus on building the capacities of water supply and sanitation sector to make them financial capable in providing water supply and sanitation services to the community.

**The need for community participation in the adoption and implementation of e-governance initiatives:**

To successfully implement e-governance and strengthen its impacts on water supply and sanitation service corruption, community participation should be encouraged in all aspects like decision making and resource contributions in adoption and post implementation of e-governance initiatives. The higher officials at different levels should listen to the voice of community and understand their interests rather than selling their ideas to the people. Community need assessment should be conducted by preparing different forums to understand the opinions of the community on how to solve e-governance initiative adoption and implementation in water supply and sanitation sector

• **The need for further research:**

This study did not cover all types and forms of corruption that occur in water supply and sanitation service agencies, and their instructional efficiencies and preparedness in implementing e-governance to curb corruption in the production and delivery of sanitation and water services. Thus, further research should be conducted in this direction.


OCED. *Service Delivery in Fragile Situations. Key Concepts, Findings and Lessons*.


Appendix
Appendix I: Questionnaires for respondents

Dear respondents, this questionnaire is prepared by Feleke Solomon as an instrument to conduct an academic research which is entitled on “E-Governance, Corruption and Public Service Delivery in Ethiopia: Evidence from Jimma Town Water Supply and Sanitation sector” for the fulfillment of MA Degree in Public Management (MPM) from Jimma University.

The main objective of the Research is to investigate and explore the potential of E-Governance applications to reduce corruption and increase efficiency, responsiveness, accountability and transparency of water supply and sanitation service delivery in Jimma town- Oromia National regional state.

The information you will provide is very important for successful accomplishment of this research. Furthermore, the information you give will be used for only the academic research. Therefore, you are kindly requested to read all the questions and fill honestly without any hesitation. Thank you in advance for your cooperation!!

Instruction:

1. Do not write your name
2. Read the question carefully before providing your response
3. Please circle your appropriate response and kindly write your opinion briefly for the short answer questions on the space provided.

A: Demographic Characteristics of the Respondents

1. Sex: A, Male    B, Female
3. Educational status: A, No formal education   B, Primary education (1-8)
   C, Secondary education (9-12)   D, Certificate   E, Diploma   F, Degree   G, Professionals

5. Job Status: A, Self Employee B, Government Employee C, Students D, Unemployed others

6. Do you aware the existence of corruption in water supply and sanitation service delivery?
   A, yes B, No C, I don’t know

7. Do you have awareness about the importance of e-governance (electronic governance?)
   A, yes B, No C, I don’t know

**B: Water Supply and Sanitation Sector Corruption**

1. What do you think about the current status of water supply and sanitation service corruption?
   A, Increasing B, Decreasing C, I don’t know

2. Based on your answer for Q1, rate the ranges of water supply and sanitation service corruption in Jimma town?
   A, High B, Very high D, Moderately High E, Low F, Very low

3. Which type of corruption is/ are the most common and serious problems in water supply and sanitation service delivery? A, Administrative corruption B, Political corruption

4. What is/ are the most common forms of corruption in water supply and sanitation service delivery? A, Bribery B, Embezzlement C, Nepotism D, Extortion E, Fraud F, Speedy money G, Theft H, Collusions

5. Which functions of water supply and sanitation sector highly prone to corruption practice?
6. Major causes of water supply and sanitation service corruption

Many factors contribute for the occurrence of corruption in water supply and sanitation service delivery. In light of this the following question were prepared to differentiate the main causes of corruption in Jimma town water supply and sanitation sector based on the perception of respondents. Please insert (X) marks while providing your response.

**Key:** TA = Totally Agree, MA = Mostly Agree, SA = Somewhat Agree DA = Disagree, TA = Totally Disagree

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<th>Item</th>
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<th>SA</th>
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<td>Poor institutional incentives</td>
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<td>Lack of punishment and effective corruption reporting mechanism</td>
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<td>6</td>
<td>Inflation, social, cultural and custom of the society</td>
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</tbody>
</table>
C. Constraints in water supply and sanitation service delivery

7. Time and cost factors in dealing with water supply and sanitation service delivery and corruption. Please insert (x) marks.

**Key:** TA= Totally Agree, MA =Mostly Agree, SA = Somewhat Agree DA= Disagree, TA= Totally Disagree

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<tr>
<th>No.</th>
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<tr>
<td>3</td>
<td>Time and cost factor is not a problematic in water supply and sanitation service delivery</td>
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</tbody>
</table>

8. Experience of Red tape procedures in water supply and sanitation service delivery and corruption. please insert (X) mark

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>TA</th>
<th>MA</th>
<th>SA</th>
<th>DA</th>
<th>TD</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Public Red-tape procedures are problematic in water supply and sanitation service delivery</td>
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<td>2</td>
<td>Public Red-tape procedures make no difference in water supply and sanitation service delivery</td>
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<tr>
<td>3</td>
<td>Public Red-tape procedures are not problematic in water supply and sanitation service delivery</td>
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</tbody>
</table>
D: E-Governance initiatives and corruption

1. Does e-governance (ICT) reduce corruption in water supply and sanitation service delivery?  
   A, Yes  B, No  C, I don’t know

2. If your answer is “yes” how you rate the potential benefits of e-governance in comparison to other anti corruption strategy?  
   A, High  B, Very high  C, Moderate  E, Low  F, Very low

3. The capabilities of e-governance initiatives in reducing corruption

E-governance initiatives have different potential which could help to reduce corruption in water supply and sanitation service delivery. In line with this the following questions are prepared to differentiate the extents at which each capability of e-governance reduces water supply and sanitation service corruption. Please insert tick mark (✓) or “X” to show your response from the given likert scales.

Key: TA= Totally Agree, MA= Moderately Agree, SA= Somewhat Agree, D= Disagree Agree and TD= Totally Disagree

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>TA</th>
<th>MA</th>
<th>SA</th>
<th>D</th>
<th>TD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Change the relationship between government and citizens</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>Increasing accountability and transparency</td>
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<tr>
<td>3</td>
<td>Reduce monopoly power</td>
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<td>4</td>
<td>Reduce discretionary power</td>
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<td>5</td>
<td>Bring different actors together to fight against water supply and sanitation service corruption</td>
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<tr>
<td>6</td>
<td>Lead to decentralized model of corruption reduction</td>
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<tr>
<td>7</td>
<td>Streamline bureaucratic procedures to make water supply and sanitation sector operation more efficient</td>
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<tr>
<td>8</td>
<td>Increase coordination among the citizens to fight against corruption</td>
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<tr>
<td>9</td>
<td>Make water supply and sanitation sector systems more open to interaction</td>
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<tr>
<td>10</td>
<td>Put check on corrupt behaviors and activities</td>
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<tr>
<td>11</td>
<td>Make boundaries of responsibility and actions highly visible</td>
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<tr>
<td>12</td>
<td>Making citizens self sufficient in availing services</td>
<td></td>
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</tr>
</tbody>
</table>
12. Does e-Governance (ICT) initiatives are positively related to government-citizen relationships and corruption reduction?  
   A, Yes  B, No  C, I don’t know

13. Do improvements in government-citizen relationships account for more corruption reduction as compared to other variables?  
   A, Yes  B, No  C, I don’t know

14. Do e-governance initiatives successfully implemented and utilized in Jimma town water supply and sanitation agencies? A, Yes  B, No  C, I don’t know

18. If your answer is “no” what might be a reason behind it?  

19. What you comment WSSS agencies should have to do to strengthen the impacts of e-governance (ICT) on water supply and sanitation sector corruption?  

20. What do you think communities themselves and other stakeholders could do to help solve the problem of corruption in water supply and sanitation service?
Appendix II: Interview Questions

1. Is corruption increasing and remain problematic in water supply and sanitation service delivery?
2. What is the current status of corruption in water supply and sanitation service delivery?
3. What is/are the main drivers of corruption in water supply and sanitation service delivery?
5. What factors limit the successful implementation and utilization of e-governance initiatives in Jimma town water supply and sanitation agencies?
6. What WSSS agencies, community and other stakeholders need to do to strengthen the impacts of e-governance on WSSs corruption?
### Table 4.4: Forms Water Supply and Sanitation Service Corruption

<table>
<thead>
<tr>
<th>Item</th>
<th>Number of respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bribery</td>
<td>99</td>
<td>24.70</td>
</tr>
<tr>
<td>Nepotism</td>
<td>72</td>
<td>18.00</td>
</tr>
<tr>
<td>Embezzlement</td>
<td>29</td>
<td>7.30</td>
</tr>
<tr>
<td>Extortion</td>
<td>20</td>
<td>5.00</td>
</tr>
<tr>
<td>Fraud or speedy money</td>
<td>88</td>
<td>22.00</td>
</tr>
<tr>
<td>Theft</td>
<td>78</td>
<td>19.50</td>
</tr>
<tr>
<td>Collusions</td>
<td>14</td>
<td>3.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>400</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

### Table 4.5: Concentrated Areas of Water Supply and Sanitation Service Corruption

<table>
<thead>
<tr>
<th>Item</th>
<th>Number of respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy making &amp; regulation</td>
<td>38</td>
<td>9.40</td>
</tr>
<tr>
<td>Planning, budgeting &amp; transfers</td>
<td>82</td>
<td>20.50</td>
</tr>
<tr>
<td>Design, tendering &amp; procurement</td>
<td>82</td>
<td>20.50</td>
</tr>
<tr>
<td>Construction &amp; operation</td>
<td>92</td>
<td>23.00</td>
</tr>
<tr>
<td>Management &amp; payment systems</td>
<td>106</td>
<td>26.60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>400</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>