

E-Governance, Corruption and Public Service Delivery in Ethiopia: Evidence from Jimma Town Water Supply and Sanitation Sector

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Abstract

This paper aims to explore the potential role 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 the potential role of e-governance in reducing 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. 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.

Keywords: E-governance, public service delivery, corruption, water supply and sanitation sector, Ethiopia, Jimma town

1. Introduction

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 (Ministry of Water Resource Development, 2008).

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 initiatives in Ethiopia public sectors (FEAC, 2003 and 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 find out the factors that affect successful implementation of e-governance initiatives to address corruption and governance crisis that occur in water supply and sanitation service delivery.

1.2. 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. The study focuses on the following specific objectives:-

- 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.

1.3. 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.

2. Corruption and E-Governance

2.1. 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: $\text{corruption} = (\text{monopoly} + \text{discretion}) - (\text{accountability} + \text{transparency})$. It was introduced in Bolivia municipal water supply and sanitation sector and get acceptance throughout the world.

Davis, 2003, Rose-Ackermann, 1999, Graay and Mastruzzi, (2005) and Pathak, (2008) also stated monopoly, discretionary power, and lack of transparency, accountability and integrity as the main causes of public service corruption. 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 of effective public service governance) 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 delivery.

2.2. 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-Ackermann 1999). 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).

2.3. 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.

Figure 1: Conceptual framework



3. Methodology

3.1. Research Method

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 quantitative survey is undertaken 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.

3.2. 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. Several 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 in 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.

3.3. Sample size and sampling methods

3.3.1. 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).

$$n = \frac{Z^2 \cdot p \cdot q}{e^2} \quad \text{Where;}$$

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 400 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.

3.3. 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 2 here under for more information.

3.4. 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. 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 the types of corruption in water supply and sanitation service delivery and also applied to examine the implementation of e-governance initiatives and factors that hinder it in reducing corruption in 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.

3.6. Model specification

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 multicollinearity, the rule of thumb, according to Gujarati (2004), is a value ≥ 0.8 in correlation coefficients between variables. Accordingly, Variance Inflation Factor (VIF) was computed for the variables used in regressions and no problem of multicollinearity was found. Similarly, the Breusch-Pagan test revealed that no problem of heteroskedasticity 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. The relationship between EGI, GCR and water supply and sanitation service corruption reduction (WSSSCR) are expressed in the following mathematical notations

$$X1 + X2 = Y$$

Where,

X1= E-governance initiatives (EGI)

X2= Government citizen relationships (IGCR)

Y= Water supply and sanitation service corruption reduction (WSSSCR)

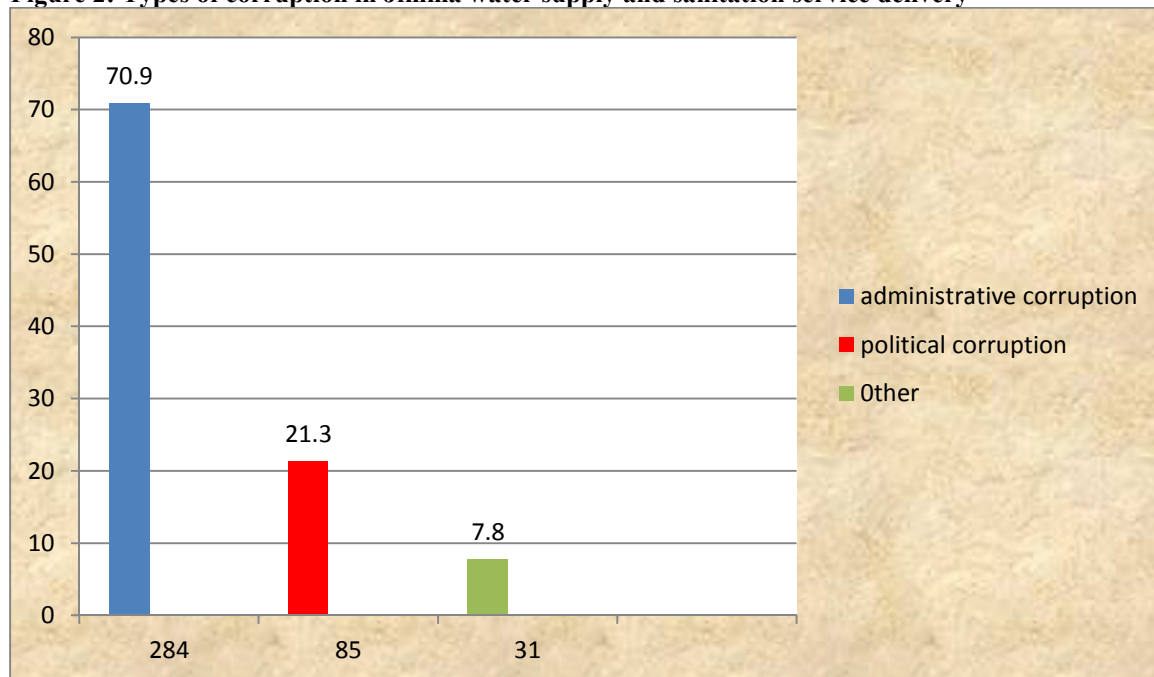
In addition to regression, Pearson correlation, and independent samples t-tests were used to analyze the data.

4. Results and Discussion

4.1. 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. It takes different kinds/types in water supply and sanitation service delivery. Regarding this the findings of the study illustrates the dominance of administrative/petty corruption in water supply and sanitation service delivery consisting 71 percent, followed by political or grand corruption accounts for 21 percent. The rest insignificant number of respondents (8 percent) were identified other types of corruption (economic and state capture) in the provision of water and sanitation service.

Figure 2: Types of corruption in Jimma water supply and sanitation service delivery



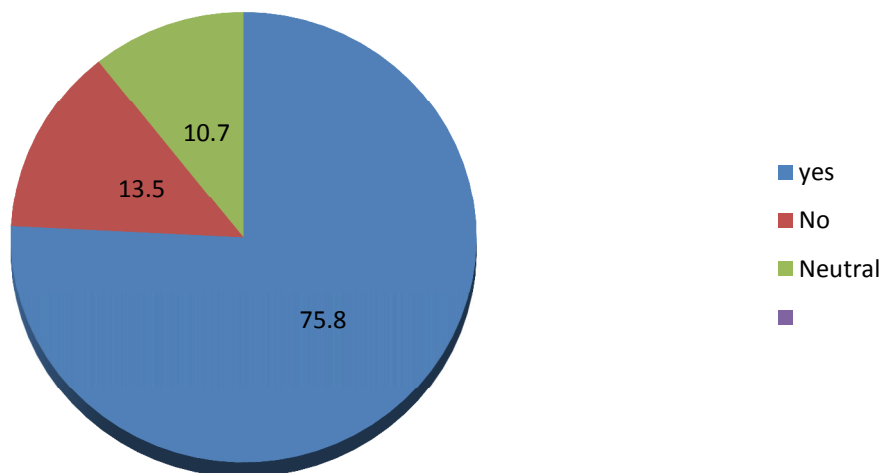
According to the discussions held with water supply and sanitation sector officials, administrative and political corruption is very common and a major and increasing challenge or obstacle in water supply and sanitation service delivery. This is similar to the finding of Davis (2003). She found administrative and political corruption in the 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 the 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 the 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. From this we conclude that administrative corruption is currently very common and remains a great challenge in Jimma town water supply and sanitation service delivery and it manifests itself in the form of bribery, nepotism, fraud or speedy money and theft.

4.2. The Role of E- Governance Initiatives in Corruption Reduction

In public service delivery including water supply and sanitation sector agencies, e-governance initiatives were 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 providers and facilitators (Pathak *et al*, 2003). In line with this, Jimma town residents were asked to show their response regarding the role of e-governance initiatives in cutting water supply and sanitation sector corruption. Figure 3: The role of e-governance in reducing water supply and sanitation sector corruption

Figure 2: The role of e-governance in reducing WSSS corruption

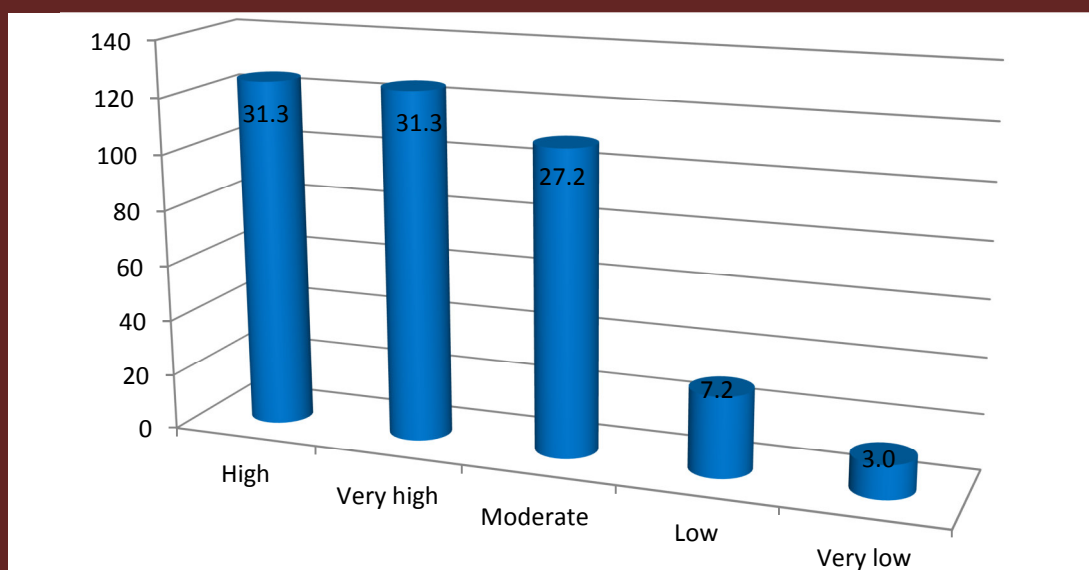


As the above figure shows, most the respondents 303(75.8) were believed that e-governance initiatives reduce water supply and sanitation service corruption while 54(13.5%) of respondents felt otherwise. The survey also revealed that insignificant number(10.3%) of respondents were unable to say anything 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.

4.3. 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. The potential benefits of e-governance in removing WSSS corruption



Source: own survey, 2014

The above chart shows that, a majority of the respondents (31.3%) were rated the potential benefits of e-governance as either high or very high in reducing corruption in water supply and sanitation service 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.

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

As shown in various literature 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.

Table 1: The main capabilities of e-governance initiatives in removing corruption in WSSS

Major capabilities of e-governance	TA	MA	SA	DA	TD	MD(t)	Sig. of t at 5%
1. Change the relationship between government and citizens	94	233	47	15	11	.960	.000
2. Increasing accountability and transparency	179	126	62	29	4	1.170	.000
3. Reduce monopoly power	117	190	78	6	9	1.170	.000
4. Reduce discretionary power	117	190	98	6	9	.980	.000
5. Bring different actors together to fight against water supply and sanitation service corruption	168	126	46	4	12	1.170	.000
6. Lead to decentralized model of corruption reduction	164	170	40	15	11	1.150	.000
7. Streamline bureaucratic procedures to make water supply and sanitation sector operation more efficient	124	188	59	10	19	.970	.000
8. Increase coordination among the citizens to fight against corruption	163	125	70	31	11	.900	.000
9. Make water supply and sanitation sector systems more open to interaction	152	173	53	19	3	1.130	.000
10. Put check on corrupt behaviors and activities	125	211	56	4	4	1.120	.000
11. Make boundaries of responsibility and actions highly visible	151	201	57	11	0	1.130	.000
12. Making citizens self-sufficient in availing services	129	192	48	23	8	1.030	.000

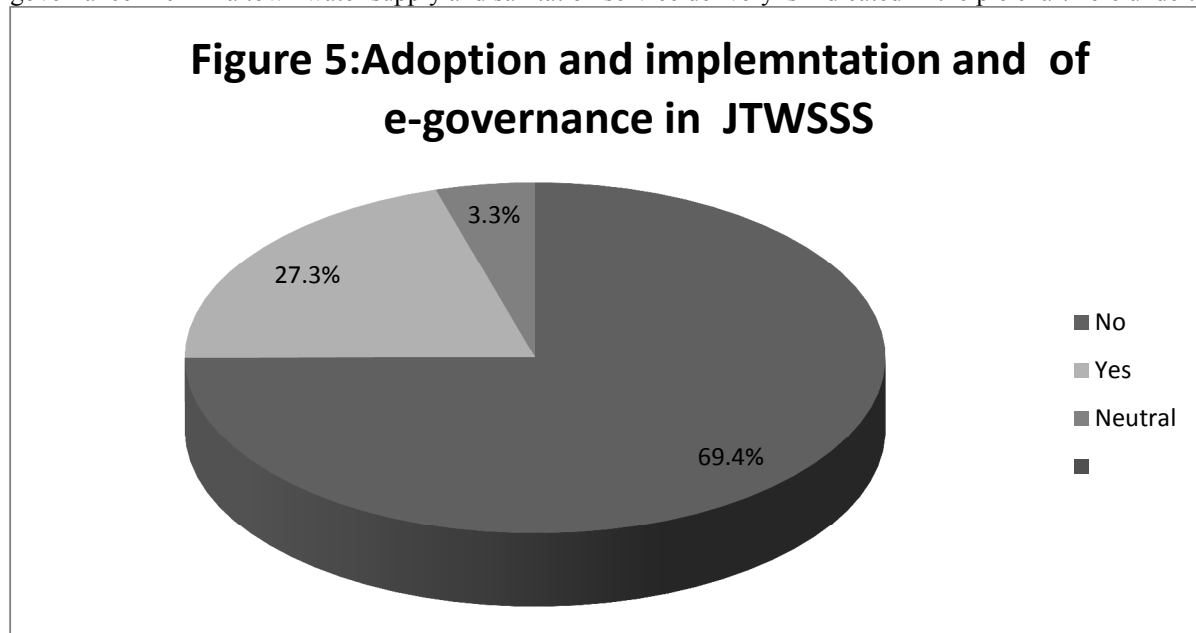
Key: TA= totally agree, MA= mostly agree, SA= somewhat agree, DA= disagree and TD= totally disagree

Based on the above table the perceptions of respondents from Jimma town shows 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.

4.5. Adoption and implementation of e-governance initiatives

The availability of ICT infrastructures like internet broad band facilities in major cities, even with varying degrees of penetration, and its limited or non-availability in local municipalities creates a 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 is 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 utilizations 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.



As the above pie chart (survey result) depicts, out 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.

4.6. 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.

4.7. 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 hereunder.

Table 1: Hypothesis 1 Results - Correlations between e-governance and government citizen relationships and water supply and sanitation service corruption reduction

		E-Governance initiatives	Government- citizen relationships	WSSS corruption reduction
E-governance initiatives	Pearson Correlation	1.000	.710**	.493**
	Sig. (2-tailed)	.000	.000	.000
	N	400	400	400
Government – citizen relationships	Pearson Correlation	.710**	1.000	.497**
	Sig. (2-tailed)	.000	1.000	.000
	N	400	400	400
WSSS corruption reduction	Pearson Correlation	.493**	.710**	1.000
	Sig. (2-tailed)	.000	.000	.0000
	N	400	400	400

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

Analysis of the information (responses) shows 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 comparable 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. The 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).

$$Y (\text{WSSSCR}) = X1(\text{EGI}) + X2(\text{GCR}) \Rightarrow -1.014 = 0.681 + 0.73$$

Table 2: Hypothesis 2(H2) results- Regressions (Coefficients)

Model	Un standardized coefficients		Standardized coefficients		
	Beta	Std. Error	Beta	t. scores(MD)	Sign.
(Constant)	-1.014	.227		-4.460	.000
Government-Citizen Relationships	.739	.150	.297	4.932	.000
E-Governance initiatives	.681	.145	.282	4.693	.000

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 shows that the R square equal 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 2). 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.

This illustrates that both e-governance and improved Government-citizen 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. This is consistent with the study that conducted by Pathak *et al.*, (2008). It 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.

5. Conclusion and Recommendation

5.1. Conclusion

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. In relation with the widespread of corruption, it suggested that e-governance can help not only in reducing 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.

5.2. Recommendation

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 remains an increasing challenges 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 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 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

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