



**Factors affecting customers Satisfaction on Tap Water  
Service Delivery in Addis Ababa Water and Sewerage  
Authority: the Case of Guard Shola Branch**

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**Thesis submitted in partial fulfillment for the requirement of  
Masters of art in Marketing Management**

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# APPROVAL SHEET

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## STATEMENT OF CERTIFICATION

This is to certify that Mihret Kiros has carried out her research work on the topic entitled “**Factors affecting customers Satisfaction on Tap Water Service Delivery in Addis Ababa Water and Sewerage Authority: the Case of Guard Shola Branch**” and that this is her original work and is suitable for submission for the award of Master’s Degree in Marketing Management.

**Advisor:** Temesgen Belayneh (Ph.D)

**Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

## DECLARATION

I, Mihret Kiros, declare that this research entitled “**Factors affecting customers Satisfaction on Tap Water Service Delivery in Addis Ababa Water and Sewerage Authority: the Case of Guard Shola Branch**”, is the outcome of my own effort and study and that all sources of materials used for the study have been duly acknowledged. I have produced it independently except for the guidance and suggestion of the research advisor. This study has not been submitted for any degree in this University or any other University. It is offered for the partial fulfillment of the degree of MA in Marketing Management.

**Declared by: Mihret Kiros**

**Signature**\_\_\_\_\_

**Date**\_\_\_\_\_

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## **ACRONYMS AND ABBREVIATIONS**

AAWSA – Addis Ababa Water and Sewerage Authority

GTP – Growth and Transformation Plan

WDR – World Development Report

SWOT – Strength, Weakness, Opportunity and Treats

NUS – National University of Singapore

HKU – Hong Kong University

McU – Macau University

SPSS – Statistical Package for Social Science

VIF – Variance Inflation Factor

## **ABSTRACT**

This study presents the factors affecting customers' satisfaction on tap *water* service delivery in Addis Ababa Water and Sewerage Authority: the case of Guard Shola branch. The general objective of the study was to evaluate factors affecting customers' satisfaction on tap water service delivery in Addis Ababa Water and Sewerage Authority: the case study of Guard Shola branch and suggest best practice that enhances the Authority marketing management system. Quantitative data collection method was used to collect data from customers of Guard Shola branch; then data was gathered using a questionnaire and an interview mainly regarding service delivery and customer satisfaction. The sample size of the study is 120 (100 questionnaires and 20 interview) customers who get a service from Guard Shola branch. The variable used in this research were continuous water supply service, timely response for customers request, customer handling, materials supply, up to date technology and skilled manpower (independent variables) and customer satisfaction (dependent variable). The sampling technique used was simple random sampling. Self-administered close ended five point likert scale questionnaire was used to collect data from customers. Statistical package for social science (SPSS) version 20 was used for the data analysis. The interview method was analyzed using Excel worksheet to summarize the data. Cronbach alpha coefficient was calculated to check the reliability and validity of the questionnaire. The Pearson correlation analysis indicated a positive relationship between service delivery dimensions (continuous water supply service, timely response for customers request, customer handling, materials supply, up to date technology, skilled manpower) and customer satisfaction and also there is a positive relationship between service delivery dimensions themselves. Multiple regression analysis result showed that the R<sup>2</sup> for the model summery of the six service delivery dimensions (continuous water supply service, timely response for customers request, customer handling, materials supply, up to date technology, skilled manpower) was .975 which implies that 97% of the variance in customer satisfaction is explained by the service delivery dimensions. Therefore, continuous efforts should have to make by Addis Ababa Water and Sewerage and by the government in providing potable water supply to the rapidly growing of the city population.

# CHAPTER ONE

## Introduction

### 1.1 Background of the study

Customer satisfaction is a function of service performance relative to the customer expectation. If that is the case, it is essential to recognize how customer expectations are created so that to identify the factors of service affecting customer's satisfaction (Liu, 2000). Reisig & Chandek (2001) indicate that different customers have different expectations, based on their knowledge of a product or service. This implies that a customer may estimate what the service performance will be or may think what the performance ought to be and if service performance meets or exceeds customers' expectation, the customers will be satisfied. On the other hand, customers are more likely to be dissatisfied if the service performance is less than what they have expected.

Businesses' ability to understand the needs and expectations of not only their current customers but also their potential customers and to act in accordance with this is of utmost importance for the realization of high levels of customer satisfaction. Therefore, acting with a customer-focused approach presents itself as a must-have requirement for improving the satisfaction of customers. Being able to act with a customer-focused approach is closely related to the customers' expectations and preferences as well as the level of quality of the services provided by the business to its customers (Kocbek, 2005).

In particular, for the businesses to be able to win customers with potential to add value to them at a higher level in an increasingly growing competitive market structure they need to provide products and services that can satisfy the needs of the customers; this is of vital importance in sustaining their presence in the market. The underlying cause of this can be related to the high level of expectations of customers at all times and under all circumstances concerning the products and services that they have been offered. If the perception of the level of quality of products and services offered to the customer is lower than expected, it can bring about dissatisfaction that is proportionate to the difference between expectation and perception.

In another aspect, if the customers' perceived service quality is high, then it can lead to high levels of satisfaction. Therefore, while businesses engage in certain measurements to determine the satisfaction levels of their customers, they should also determine the differences between customers' expectations and their perceptions about the realized results at the same time. In this way, it would be possible to determine which service quality elements lead to satisfaction or dissatisfaction and guide the customer relations policies accordingly (Ozturk & Seyhan, 2005).

## **1.2 Background of Addis Ababa Water and Sewerage Authority**

Water and Sanitation are one of the key priority sectors for the city of Addis Ababa which have significant impact on the economic growth and development of the city. Water is life and should be delivered to the population without any condition. The sector will contribute to the city (<<https://www.aawsa.gov.et>>).

It was since 1893 E.C (1900 G.C) that piped water service was started in Addis Ababa. In the beginning the provision of potable was delegated by Ministry of works; and following the defeat of Fascist Italian invaders in 1934 E.C., this responsibility is transferred to the newly established City Administration (aawsa, 2012).

In order to cater for the increasingly growing demand for water and waste water disposal services there did rise the need for the establishment of an autonomous body that would primarily focus on the provision of the services. Accordingly, Addis Ababa Water and Sewerage Service Authority was set up as per proclamation No.68/1963 E.C. (1971 G.C). And in 1987 E.C. (1995 G.C.) additional powers were invested on the authority, while being reestablished with a slightly different name, i.e., Addis Ababa Water and Sewerage Authority (AAWSA) (<<http://www.aawsa.gov.et>>).

Addis Ababa Water and Sewerage Authority has eight branches (Gulele, Addis Ketema, Arada, Megenagna, Guardshola, Nefassilk, Mekanisa and Akaki);using these branches it provides potable water distribution and sewer disposal usingsewere trucks and line (except Addis Ketema,Guardshola and Akaki). The water supply is from two main sources: surface water sources: Geferssa dam, Legedadi dam and Dire dam and ground water sources from deep and shallow wells (aawsa, 2012).

There are around 400,000 active connections. Out of these about 86.8% of the connections are domestic connections serving household consumers, 0.5% of the connections are public taps for domestic consumers of low income and 12.7% of the connections are non-domestic connections serving institutional customers (aawsa, 2014).

The branch gives 19 different water services; these services are: new line water connection, water line upgrading, water line transfer, customers water line maintenance, customers water meter test, reconnect the tested water meter, give copy of water contract agreement document to customers based on their request, name and address change request service, disconnect customers water meter who are not pay their water consumption, reconnect the water meter when customers pay their consumption, by removing the water meter make a leakage test based on customers complain due to excessive bill amount, reconnect the tested water meter, water pipe line test and take corrective actions /laboratory test/bacteriology and chemical test/,terminating the contract agreement by disconnecting the water meter, delivering water by using water trucks, public fountain water line connection, preparing customers data change and transfer to information technology department, government water line maintenance and government water line laying (water pipes  $\leq$  4 inch) (aawsa, 2012).

The Authority also gives 10 different sewerage services; these services are: sewer disposal using sewer trucks, customer new sewer line connection, customer's sewer line maintenance, opening of closed sewer line, sewer line transfer, laying sewer lines, monitoring of illegal sewer line connection, cleaning manholes, make a grease and give identification, production of manhole top element and taking of correction action on manholes length (aawsa, 2012).

### **1.3 Statement of the Problem**

The second growth and transformation plan (GTP) has set goals regarded to water supply coverage to be achieved by each country in response to reducing the number of population drinking unsafe water in each country.

In contrast, getting access is a big challenge in developing countries and particularly in Sub-Saharan Africa. The main problems are related to climate change, population growth due to natural and rural urban migration, unplanned cities which are characterized by crowding in slums.

To this point, water vender organization has internal and external problems which impact the customer's perception and purchase intention.

Addis Ababa Water and Sewerage Authority (AAWSA) deliver potable water to the residents of Addis Ababa city. However, AAWSA annual report 2015 shows that service delivered by the Authority not satisfactory and could not meet the needs of the customer.

Water supply interruption is created due to shortage of water supply; not timely maintaining of broken pipe lines and blackout of electric light are the main causes of interruption. The other problems that decrease customer's satisfaction are new customers bill not published timely, customer handling, delayed response for customer's request, Water meter problem, shortage of pipes and fittings on warehouses, communication problem regarding water delivery schedule.

The other reasons that affect customer's satisfaction are the authority not using up-to-date technology that makes the service easy for the customers, skilled manpower handling problem, low Coordination with other utility companies and increase the number of uncollected (unsettled) bills.

#### **1.4 Research Question**

1. How the customers estimate Addis Ababa Water and Sewerage Authority services?
2. What are the factors which highly affect customers' service delivery and customers' satisfaction?
3. What is the relationship between each dimension of service delivery and customer satisfaction?

#### **1.5 Objectives of the Study**

The general objective of the research is to evaluate Factors affecting customers Satisfaction on Tap Water Service Delivery in Addis Ababa Water and Sewerage Authority: The Case study of Guard Shola Branch and suggest best practice that enhances the Authority marketing management system.

## Specific objectives of the research

- Taking the general objective as mentioned above, the following specific objectives are expected to be achieved:
  - To examine the overall service delivery process, provided by Addis Ababa Water and Sewerage Authority in Guardshola branch.
  - To identify the major problems that affect service delivery of Addis Ababa Water and Sewerage Authority in Guardshola branch.
  - To propose best practice that enhances the Authorities marketing management system.

## **1.6 Significance of the study**

The findings of this study will be useful to Addis Ababa Water and Sewerage authority, for the researchers, and policy makers.

### **1.6.1 Addis Ababa Water and Sewerage Authority**

Findings from this study will help the Addis Ababa Water and Sewerage Authority Guard Shola Branch to identify its main problems, give emphases in its problems, and give solutions for the problems and strengthening on its giving better quality service to reach the highest satisfaction level of customers.

### **1.6.2 Academics/Researchers**

Findings from this study will help for academicians or researchers who study on service giving organizations especially in customer satisfaction as an input or additional reference material for their further study.

### **1.6.3 Governmental Policy Makers**

Findings from this study will help policy makers to assist in policy formulation and scale up the experience of the authority for other region cities of the country.



## **1.7 Scope of the Study**

To provide excellent service, an organization needs to exceed customer expectations. An important factor in providing good service is to keep promises always and not to guarantee things that cannot be delivered. This research emphasizes on the whole problems that are seen in Addis Ababa Water and Sewerage Authority; but because of time and resources constraint, the spatial scope or the study is limited at Guard Shola branch. The study focuses on analysis of Factors affecting customers Satisfaction on Tap Water Service Delivery in Ababa Water and Sewerage Authority in Guard Shola branch.

## **1.8 Limitation of the Study**

When the study take place it will face different challenges such as shortage of time, some of the respondents may not be willing to fill the questioners, regarding to documents and secondary data, there were no adequate documents which were relevant to this study, reference books for the study and study area were rarely available and the study is restricted in Guard Shola branch and give emphasis only on tap water service.

## **1.9 Operational Definition of Terms**

**Tap water:** The water that comes into houses and other buildings from the local water system.

**Service delivery:** Service delivery is a component of business that defines the interaction between providers and clients where the provider offers a service.

**Customer satisfaction:** Measures how well the expectations of a customer concerning a product or service provided by the company have been met.

**Water supply:** Supplying of clean water for human use.

**Woreda:** District level of administrative unit.

**Dam:** a barrier constructed to hold back water and raise its level, forming a reservoir used as a water supply.

**Deep well:** A water well, an excavation or structure created to access groundwater in underground aquifers.

**Surface water:** water that collects on the surface of the ground.

**Water supply service:** delivering water services for domestic and non-domestic purposes.

## **1.10 Organization of the Study**

This thesis has basically attempted to describe factors affecting customers Satisfaction on Tap Water Service Delivery in Ababa Water and Sewerage Authority in Guard Shola Branch.

The research is divided in to five different parts. At first, it has an introduction. Introduction area includes background of the study, background of Addis Ababa Water and Sewerage Authority, statement of the problem, research question, objectives of the study, significance of the study, scope of the study, limitation of the study, operational definition of terms and organization of the study.

The second part has review of related literature. It includes an introduction, theoretical literature review, empirical literature review and conceptual framework.

The third part relates to methodology of the study. It includes an introduction, description of the study area, research approach, research design, sampling population, sources of data, data collection methodology, data collection instrument, data analysis method, validity and reliability and research ethics.

The fourth part relates to data analysis and interpretation. It includes an introduction, demographic and background information of the respondents, descriptive analysis, Pearson correlation analysis between customer satisfaction and service delivery dimensions, multiple regression analysis and discussion of the findings

The final part of the research is the summery of findings, conclusion recommendation for the future development of customer satisfaction level of the organization.

## **CHAPTER TWO**

### **Review of Related Literature**

#### **2.1 Introduction**

This chapter presents literature review of the study in relation to service delivery and customer satisfaction. The chapter gives theoretical literature review, empirical literature review and the conceptual framework.

#### **2.2 Theoretical Literature Review**

##### **2.2.1 Tap water**

Tap water is water that is supplied through a water distribution system and intended for human consumption. It can come from either a public or private water supply (Sharon O. Skipton, 2010).

Water is an essential resource and one that is of imperative use. It is needed in everyday life and affects the well-being of each individual. Most of the governments in the world have succeeded to or aim to provide clean and safe drinking water to its residents, and many developed countries have already provided tap water to basic drinking standards (Ashton, D. 2017).

##### **2.2.2 Customer Service Delivery**

Customer service delivery is differentiable and stem from the expectations of customers. Hence, it is necessary to identify and prioritize expectations for customer service and incorporate these expectations into a process for improving customer service delivery (Kassim and Bojei, 2001). Implementing and evaluating customer service is a very complex process. Zeithaml and Bitner (1996) reported that two aspects need to be taken into consideration when evaluating customer services which are Content and Delivery. Customers may be in the best position to evaluate the quality of service delivery, while the service providers are the best judges of the content of the message.

Trust and citizen satisfaction in service delivery is an important factor in maintaining the legitimacy of government authority. Local government has the monopoly on the provision of services, some of which citizens sometimes do not look forward to.

It is important that these services are professionally provided by capable, trained, dedicated staff. Services should be professional, prompt and modestly priced, irrespective of whether the service targets the individual or the collective (Jean Eigeman, 2007).

Service delivery is not an isolated thing, but is part of a much larger whole of relationship patterns between local government and its citizens. It is a dynamic network in which the contacts with companies and citizens need to be of the highest quality. Integrity is all important. No individual can be seen to be personally benefiting (Jean Eigeman, 2007).

The impact of transparency and accountability on service delivery has always been an underlying motif on service delivery. Accountability as a central theme of the debates on service delivery however, only took root after the World Development Report (WDR) of 2004 which identified failures in service delivery squarely as failures in accountability relationships (World Bank 2004). By showing how the ‘long route’ of accountability (via elected politicians and public officials through to providers) was failing the poor, the WDR argued in favour of strengthening the ‘short route’—direct accountability between users and providers. The WDR sparked off a spate of work that examined ways of strengthening the short route: from amplifying voice, increasing transparency and enhancing accountability (Sirker and Cosic 2007; McNeil and Mumvuma 2006).

### **2.2.3 Service Quality**

A service is any act or performance that one party can offer to another that is essentially intangible and does not result in the ownership of anything. Its production may or may not be tied to a physical product” (Kotler 2000).

Quality is one of the things that consumers look for in an offer, which service happens to be one (Solomon, 2009). Quality can also be defined as the totality of features and characteristics of a product or services that bear on its ability to satisfy stated or implied needs (Kotler et al., 2002). It is evident that quality is also related to the value of an offer, which could evoke satisfaction or dissatisfaction on the part of the user.

Service quality is a determinant of customer satisfaction, because service quality comes from outcome of the services from service providers in organizations (Cronin & Taylor,1992).

Public sector services are responsible and accountable to citizens and communities as well as to its customers. The service industry plays an increasingly important role in the economy of many countries. In today's global competitive environment delivering quality service is considered as an essential strategy for success and survival (Parasuraman et al., 1985; Reichheld and Sasser, 1990; Zeithaml et al., 1990). Even the public sector organizations have come under increasing pressure to deliver quality services (Randall and Senior, 1994) and improve efficiencies (Robinson, 2003). Customer needs and expectations are changing when it comes to governmental services and their quality requirements. However, a service quality practice in public sector organizations is slow (Teicher et al., 2002).

According to Parasuraman et al. (1988), service quality can be defined as an overall judgment similar to attitude towards the service and generally accepted as an antecedent of overall customer satisfaction (Zeithaml and Bitner, 1996). Parasuraman et al. (1988) have defined service quality as the ability of the organization to meet or exceed customer expectations. It is the difference between customer expectations of service and perceived service (Zeithaml et al., 1990). Perceived service quality results from comparisons by customers of expectations with their perceptions of service delivered by the suppliers (Zeithaml et al., 1990). If expectations are greater than performance, then perceived quality is less than satisfactory and hence customer dissatisfaction occurs (Parasuraman et al., 1985; Lewis and Mitchell, 1990).

#### **2.2.4 Customer satisfaction**

Customer satisfaction can mean very different things among to the answerer. It may include such factors as delivery time, price, conformity, professionalism, or it is generally just a response to customer' requests (Kuronen, Takala, 2013).

Customer satisfaction is the emotional state for products and services after using (Spreng and Mackoy, 1996). Customer satisfaction is the extent of emotional state of a person derived from a comparison between the results obtained from the consumption of the products / services and his expectations (Kotler et al., 1996). Customer satisfaction also defined as an "evaluation of the perceived discrepancy between prior expectations and the actual performance of the product" (Tse and Wilton, 1988, Oliver 1999).

Satisfaction of customers with products and services of a company is considered as most important factor leading toward competitiveness and customer satisfaction is actually how customer evaluates the ongoing performance (Gustafsson et.al, 2005). According to Kim, Park and Jeong (2004) customer satisfaction is customer's reaction to the state of satisfaction, and customer's judgment of satisfaction level. Customer satisfaction is very important in today's business world as according to Deng et al., (2009) the ability of a service provider to create high degree of satisfaction is crucial for product differentiation and developing strong relationship with customers.

Customer satisfaction is the ultimate goal of business. Customer satisfaction associated with the stable market demand of product/service, loyal customer, profitability, growth, success and positive corporate image. Customer satisfaction is defined as pleasure from product and service utility, fulfillment of expectation. It is obvious that customers are important stakeholders in organizations and their satisfaction is a priority for management. Customer satisfaction has been a subject of great interest to organizations and researchers alike. In recent years, organizations are obliged to render more services in addition to their offers. The quality of service has become an aspect of customer satisfaction (Agbor, 2011).

Customer satisfaction is a customer's overall evaluation of the performance of an offering to date (John-son and Fornell 1991). This overall satisfaction has a strong positive effect on customer loyalty intentions across a wide range of product and service categories, including telecommunications services (Fornell 1992; Fornell et al. 1996). As an overall evaluation that is built up over time, satisfaction typically mediates the effects of product quality, service quality, and price or payment equity on loyalty (Bolton and Lemon 1999; Fornell et al. 1996). It also contains a significant affective component, which is created through repeated product or service usage (Oliver 1999). In a service context, overall satisfaction is similar to overall evaluations of service quality. Compared with more episode-based or transaction-specific measures of performance, overall evaluations are more likely to influence the customer behaviors that help a firm, such as positive word of mouth and repurchase (Boulding et al. 1993). Historically, satisfaction has been used to explain loyalty as behavioral intentions (e.g., the likelihood of repurchasing and recommending).

However, Verhoef (2003) argues that longitudinal data that combine survey measures with subsequent behavior should be used to establish a causal relationship between perceptions and behavior.

For example, Bolton (1998) finds a positive effect of overall customer satisfaction on the duration of the relationship for cellular phone customers, and Bolton and Lemon (1999) show a positive effect of overall satisfaction on customer usage of telecommunications subscription services. In a large-scale study of automotive customers, Mittal and Kamakura (2001) show a strong, albeit nonlinear, effect of customer satisfaction on repurchase behavior, such that the functional form relating satisfaction to repurchase is marginally increasing. They also find large differences in the satisfaction retention relationship across customer characteristics.

#### **2.2.4 Importance of customer satisfaction**

From the view of operations management, it is obvious that customers play important roles in the organizational process (Lee & Ritzman, 2005). Before the placement of strategies and organizational structure, the customers are the first aspect considered by managements. The questions asked in the strategic planning ranges from who will need to consume these offers, where are they and for how much can they buy to how to reach the customers and will it yield them maximum satisfaction? After these questions, the organization will then designs the product, segment the markets and create awareness. This does not only show the importance of customers in the business environment but also the importance of satisfying them.

In modern business philosophy business should be customer oriented and the implementation of the main principles of continuous improvement, justifies the importance of evaluating and analyzing customer satisfaction. In short, customer satisfaction is considered as baseline of standardize and excellence of performance for many business. It also helps to identify the potential market opportunities (Evangelos and Yannis, 2010).

Customer satisfaction is extremely important because it is the way of getting feedback from the customers in a way that they can use it to manage and improve their business. Customer satisfaction is the best indicator of how the business looks like in the future. Customer satisfaction helps in doing strength, weakness, opportunity and threat (SWOT) analysis that could help them to develop their business in an advance and in a systematic way.

Besides this, it will also help in making the right decision to use the appropriate resources while manufacturing the products. Similarly, it maintains the relationship with the existing customers and also creates the possibility to acquire others (SSRS research, 2016).

Customer satisfaction is a key indicator of the marketplace that evaluates the success of the organization. People have varieties of tastes and choices and therefore, satisfaction also differs from one person to another. It also may vary the expectation of the consumer depending on the option they may have (Kotler & Keller, 2006).

### **2.2.5 Factors affecting customer satisfaction**

There are many factors that affect customer satisfaction. According to Hokanson (1995), these factors include friendly employees, courteous employees, knowledgeable employees, helpful employees, accuracy of billing, billing timeliness, competitive pricing, service quality, good value, billing clarity and quick service. In order to achieve customer satisfaction, organizations must be able to satisfy their customers' needs and wants (La Barbera and Mazursky, 1983). Customers' needs state the felt deprivation of a customer (Kotler, 2000). Whereas customers' wants, according to Kotler (2000) refer to "the form taken by human needs as they are shaped by culture and individual personality".

## **2.3 Empirical Literature Review**

However, recent decades have witnessed arising global consumption of bottled water, especially in developed countries where water directly from the tap is drinkable. In the United States, bottled water consumption has been doubled to an average annual per capital volume of 138.17 L in 2015; this figure in the European Union is roughly 104.1 L (Cabejskova, 2016 and Gleick, 2015). Globally, the total bottled water consumption topped 329.33 billion L in 2015, an increase of more than 1/3 in per capita terms over a span of five years (Rodwan, J.G.J, 2015)

Bottled water initially emerged as a large, mainstream commercial beverage category in Western Europe and later expanded remarkably in the US market. In the last few years, several Asian markets have become major bottled water markets. In fact, Asia itself became the largest regional market in 2011, edging out North America and easily outshining Europe (<<http://www.bottledwater.org>>).



In Asia, Singapore, Hong Kong, and Macau are places where local water authorities confidently claim the safety and drinkability of municipal tap water (<[http://www.marine.gov.mo/images/waterreport2013\\_2014.pdf](http://www.marine.gov.mo/images/waterreport2013_2014.pdf)>). However, despite the availability of drinkable tap water, people living in these three regions still consume a large amount of bottled water. Hong Kong has long been among the top 20 countries and regions across the world in annual per capita bottled water consumption, as high as 123.78 L in 2014 (Bottled Water, 2017). In Singapore, the sales volume of bottled water hit \$134 million in 2015, up 24% from five years ago (Lim, L. 2017)

Empirical studies undertaken by Neng Qian (2018) in three regions: Singapore, Hong Kong, and Macau. Besides the common fact that municipal tap water has high direct drinking standards, the three cities have other similarities: they are all islands relying on the import of fresh water from their neighbors, they are categorized as high income cities, their populations consist of a large majority of ethnic Chinese, etc. Further, in the three university campuses of interest: the National University of Singapore (NUS), Hong Kong University (HKU), and Macau University (McU), filtered tap water drinking fountains and dispensers are generally available and commonly in use. It is merely a personal choice of each student to choose between tap water and bottled water as major drinking water source on campus.

## **2.4 Conceptual Framework**

Customer satisfaction has been used as an important construct to predict consumer behavior and over the decades has been developed as a well-known and established concept in consumer research (Yi, 1990). Customer satisfaction is a function of the customers' expectations and perceived performance of the product/service, which is necessary not only to retain the customers but also to attract the new customers. A satisfied customer is the need and demand for the survival and growth of any business. A customer is satisfied when a product performs better than expected, Dissatisfied, when expectations exceed performance. Researchers and writers tend to use satisfaction and quality interchangeably. But in actual, satisfaction is used as a broader concept, whereas service quality focuses specifically on the dimensions of service. Based on this we can say that perceived service quality is a component of customer satisfaction.

The aim of this section is to summarize the idea I got from past literature and to bring out the contributions I have for this study area. Thus this part starts with the idea generated and the contribution follows.

Conceptual framework helps to postulate or hypothesize and test certain relationships. In this research there are independent and dependent variables.

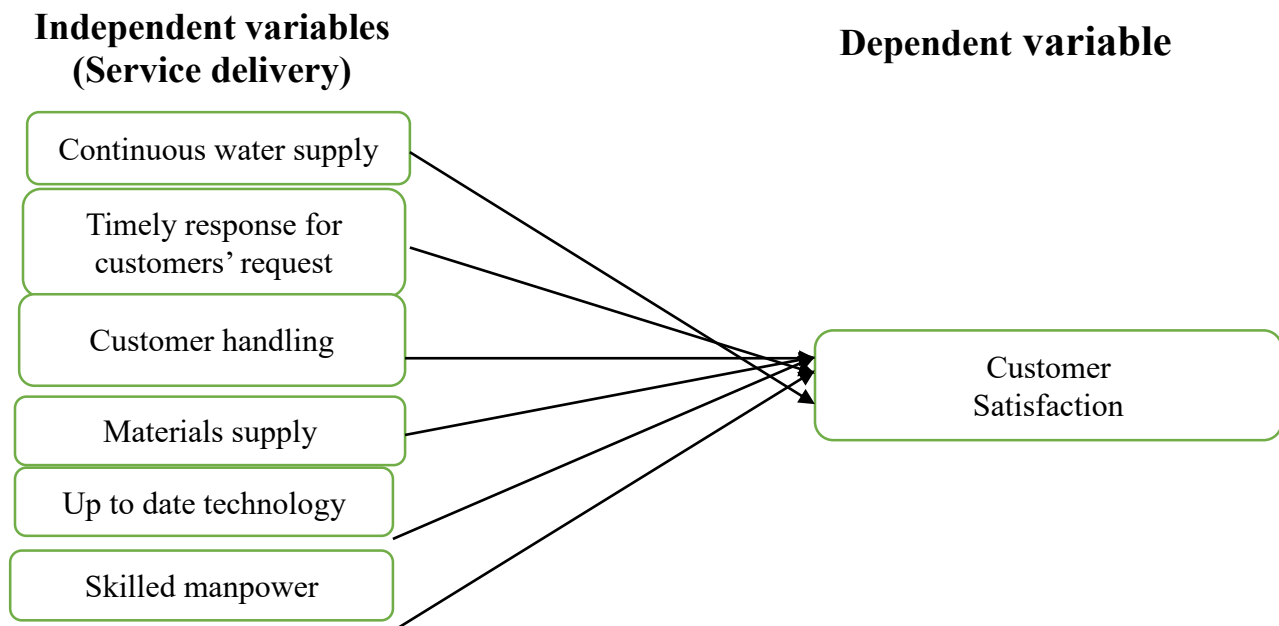


Figure 2.1 (Conceptual framework)

The independent variables (service delivery) are continuous water supply, timely response for customers' request, customer handling, materials supply, up to date technology and skilled manpower. The dependent variable is customer. The relationship expressed and shown in figure 2.1 above.

An independent variable is a variable believed to affect the dependent variable. This is the variable that the researcher, will manipulate to see if it makes the dependent variable change. The dependent variable is the variable a researcher is interested in. The changes to the dependent variable are what the researcher is trying to measure with all their fancy techniques (<<https://study.com>>).

## **CHAPTER THREE**

### **Research Methodology**

#### **3.1 Introduction**

This chapter describes the methodology that was employed in the study. It contains description of the study area, the research approach used, the research design employed, the sampling design, source of data collection, methodology for data collection, instrument used for data collection, methods used for data analysis, the issue of validity and reliability and finally the issue concerning research ethics.

#### **3.2 Description of the Study Area**

Addis Ababa is the capital and largest city of Ethiopia. It is located on a well-watered plateau surrounded by hills and mountains in the geographic center of the country. Addis Ababa is also the capital of the African Union.

Addis Ababa Water and Sewerage Authority have eight branches; from these branches Guard Shola Branch is the one which has a large area size and many number of customers more than 110 thousand customers. The branch is located on the East side of the city and the distribution of water covers 13 Woredas; from Bole Sub City 8 Woredas (6, 7, 8, 9, 10, 11, 13, and 14) and 5 Woredas from Yeka Sub City (9, 10, 11, 12, and 13) (Guard Shola branch, 2017).

#### **3.3 Research Approach**

Researchers usually use one of the two widely known research approaches i.e. deductive and inductive. According to Gratton and Jones (2009) deductive approach involves testing of a pre-determined theory, explanation or hypothesis. This approach helps researchers ascertain a hypothesis by using existing theories. Existing information is dissected to accept or reject the hypothesis in order to achieve the research aims. Furthermore inductive approach generates the

explanation from the data collected. It is the opposite of deductive research. Aims at exploring a new theory. It is about moving from specific observations to broader generalizations and theories.

Another classification of a research is based on the approach employed for data collection techniques and data analysis procedures. Quantitative data collection methods rely on random sampling and structured data collection instruments that fit diverse experiences into predetermined response categories. They produce results that are easy to summarize, compare, and generalize. Quantitative research is concerned with testing hypotheses derived from theory and/or being able to estimate the size of a phenomenon of interest. Depending on the research question, participants may be randomly assigned to different treatments. If this is not feasible, the researcher may collect data on participant and situational characteristics in order to statistically control for their influence on the dependent, or outcome, variable. If the intent is to generalize from the research participants to a larger population, the researcher will employ probability sampling to select participants (<<http://www.people.uwec.edu/piercech/researchmethods/>>)

Qualitative data collection methods play an important role in impact evaluation by providing information useful to understand the processes behind observed results and assess changes in people's perceptions of their well-being. Furthermore, qualitative methods can be used to improve the quality of survey-based quantitative evaluations by helping generate evaluation hypothesis; strengthening the design of survey questionnaires and expanding or clarifying quantitative evaluation findings.

Mixed methods research represents research that involves collecting, analyzing, and interpreting quantitative and qualitative data in a single study or in a series of studies that investigate the same underlying phenomenon (Leech N, Onwuegbuzie A, 2008)

In this study, quantitative data collection method was used to collect data from customers of Guard Shola branch .

### **3.4 Research Design**

This study uses descriptive study to evaluate Factors affecting customers Satisfaction on Tap Water Service Delivery in Addis Ababa Water and Sewerage Authority in Guard Shola branch.

Additionally, the study uses explanatory study to identify the relationship between variables is correlated with an aim of estimating the integrated influence of the factors affecting customer satisfaction.

## **3.5 Sampling Population**

### **3.5.1 Target Population**

The participants for this study were selected from tap water customers of Addis Ababa Water and Sewerage Authority in Guard Shola branch. These were customers of domestic connections (household consumers) within 8 woredas of Bole and 5 woredas of Yeka sub city.

### **3.5.2 Sampling Frame**

This research was conducted in order to examine factors affecting customers' satisfaction on Tap Water Service Delivery in Ababa Water and Sewerage Authority in Guard Shola Branch. This branch is allowed to give water distribution services and sewer disposal service using sewer trucks for 8 woredas of Bole and 5 woredas of Yeka sub city. Currently there are total of about 132,206 customers within the 13 woredas, out of which 116,098 (87.81%) are domestic connections serving household consumers, 651 (0.49%) of the connections are public taps for domestic consumers of low income and 15,457 (11.69%) of the connections are non-domestic connections serving institutional customers.

### **3.5.3 Sampling Technique**

A sample is group of people, objects or items that are taken from a large population for a measurement. The sample should be representative of the population to ensure that we can generalize the findings from the research sample to the population as a whole. (Jopnes, 1955; Salant & Dillman, 1994). There are two sampling techniques: probability sampling and non-probability sampling techniques. In a probability sampling every individual in the population is known and each has a certain probability of being selected. A random process decides the sample based on each individual's probability.

For this study, simple random sampling method which is probability sampling was utilized for selection of participants. With the simple random sample, there is an equal chance (probability) of selecting each unit from the population being studied when creating the sample (<https://www.researchgate.net/publication/313471921>). The reason for choosing this method was that the simple random sample provides us with a sample that is highly representative of the population being studied, assuming that there is limited missing data. A simple random sample can only be carried out if the list of the population is available and complete.

### **3.5.4 Sampling Size**

Determining the size of sample that is needed for a particular piece of research is a complex issue. Kent (2007) suggests that for any kind of quantitative analysis, a minimum sample size of 100 or so is needed even to be able to calculate simple percentages for each variable. In thinking about sample size it is helpful to draw a distinction between:

- The size of sample attempted or drawn from a list
- The number of questionnaire returned
- The number of usable returns
- Data Sources and Types

So, for this research a sample size of 120 customers were used.

### **3.5.5 Sampling Procedure**

Based on the sample size determined above 100 questioners was distributed to the customers (respondents) in household survey during the scheduled time for the survey. As mentioned earlier the questioners were self-administered and the selection of respondents was done by simple random sampling method. Furthermore 20 customers who came to the branch for water service also interviewed.

## **3.6 Sources of Data**

### **3.6.1 Primary Source**

The data that was utilized as an input for analysis of empirical evidence for the main research question were only primary data (questionnaire and interview) that was collected from primary sources customers who are users of tap water service in Addis Ababa Water and Sewerage Authority in Guard Shola branch.

### **3.6.2 Secondary Source**

Published reports, books of Addis Ababa Water and Sewerage Authority, web sites and different books were utilized as an input.

## **3.7 Data collection Methodology**

For this study, primary data was collected from primary sources or tap water user customers of AAWSA- Guard shoal branch. And self-administered questionnaire survey was employed as the main means of data collection instrument. For analysis of empirical evidence the questions were made under five point Likert scale. And also the researcher used an interview for few customers who came to the branch for water service.

## **3.8 Data Collection Instrument**

To measure the Independent Variables (Continuous water supply, Timely response for customers request, Customer handling, Materials supply, Up to date technology and Skilled manpower) and Dependent Variable (Customer Satisfaction), the research used a questionnaire and an interview. The reason for this choice of data capture instrument was based on the research method which was quantitative method. Questionnaire and interview are the best way to collect quantitative data collection. The researcher used a structured and non-disguise questionnaire were the respondents were limited with their answers.

The first part of the questionnaire contained 4 items which were based on general information about the respondents.

The second part of the questionnaire was designed to measure service delivery quality of the branch: Continuous water supply, Timely response for customers request, Customer handling, Materials supply, Up to date technology and Skilled manpower. The questions were made under Likert scale based on the five-point Likert scale response; these were: Strongly Agree (1), Agree (2), Neutral (3), Disagree (4), and Strongly Disagree (5).

The third part of the questionnaire contained 1 item which was designed to measure the level of customer satisfaction with five point Likert scale response; these were: Strongly Agree (1), Agree (2), Neutral (3), Disagree (4), and Strongly Disagree (5).

The fourth part of the questionnaire contained 2 items which were open ended questions about overall water service delivery of the branch and customers comments for the better service delivery of the branch.

Finally the English version of the questionnaire was translated into Amharic Version through the involvement of professional translators to distribute the questionnaire for the respondents.

### **3.9 Data Analysis Method**

The method of data analysis used for this study was quantitative data analysis method. This was because to better understand the effects of service delivery quality on customer satisfaction. Statistical Package for Social Science (SPSS) software version 20 was employed to analyze and present the data collected in questionnaire method through the statistical tools used for this study, namely: descriptive analysis, Pearson correlation analysis and multiple regression analysis. Hence, in order to analyze the data of this study using quantitative analysis the researcher utilized both descriptive and inferential statistics. The reason for using descriptive statistics was to summarize the data collected in tables and charts and also to easily examine the results. Hence to present a descriptive statistics for this study, the researcher used frequency distributions, percent, mode, mean, standard deviation scores and bar and pie charts. Inferential statistics was also utilized for data analysis, namely Pearson correlation analysis which was used to determine the relationship between service delivery quality (Continuous water supply, Timely response for customers request, Customer handling, Materials supply, Up to date technology and Skilled manpower) and customer satisfaction and multiple regression analysis, which was used to investigate the effect of the six service delivery quality dimensions on customer satisfaction. The interview method was analyzed using Excel worksheet to summarize the data.



## **3.10 Validity and Reliability**

### **3.10.1 Validity**

Validity is the degree to which a test measures what it purports to measure (Creswell, 2009). Validity defined as the accuracy and meaningfulness of the inferences which are based on the research results. It is the degree to which results obtained from the analysis of the data actually represents the phenomena under study. He contends that the validity of the questionnaire data depends on a crucial way the ability and willingness of the respondents to provide the information requested.

A pilot study was conducted to refine the methodology and test instrument such as a questionnaire before administering the final phase. Questionnaires was tested on potential respondents to make the data collecting instruments objective, relevant, suitable to the problem and reliable as recommended by John Adams et al. (2007). Issues raised by respondents were corrected and questionnaires were refined. Besides, proper detection by an advisor was also taken to ensure validity of the instruments. Finally, the improved version of the questionnaires was printed, duplicated and dispatched.

The instruments selected can help to show factors that affect customer satisfaction. It can clearly address how these factors affect the performance of medium enterprises. The relevant data was collected on the factors of customer satisfaction that can better indicate the relationship between factors and customer satisfaction.

### **3.10.2 Reliability**

The reliability of instruments measures the consistency of instruments. Creswell (2009) considers the reliability of the instruments as the degree of consistency that the instruments or procedure demonstrates. The reliability of a standardized test is usually expressed as a correlation coefficient, which measures the strength of association between variables. Such coefficients vary between -1.00 and +1.00 with the former showing that there is a perfect negative reliability and the latter shows that there is perfect positive reliability.

**Table 3.1: Reliability test results for the 6 service delivery quality dimensions**

**Reliability Statistics**

Dimensions	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Continuous water supply	.978	.980	5
Timely response for customers' request	.973	.975	5
Customer handling	.973	.976	5
Materials supply	.981	.983	5
Up to date technology	.982	.984	5
Skilled manpower	.984	.985	5

*Source: Own survey data (2018)*

### **3.11 Research Ethics**

The researcher informs objective of the study and announce importance of the result to informant. The data generate from respondents keep their confidentially, not transfer their personal information to others bodies without willingness of them.

In addition to this informed consent form is prepared based on the ethical principles of confidentiality, privacy and used only for the research purpose. All information gathered was not changed or modified; rather it was presented as it is.

## CHAPTER FOUR

### Data Presentation and Interpretation

#### 4.1 Introduction

This chapter describes the results of the study and their interpretation. It starts with presenting demographic and background information of the respondents and descriptive analysis of the measurement results of service delivery quality and customer satisfaction is presented. Correlation analysis and regression analysis results are then presented respectively.

Out of 100 questionnaires distributed to the respondents the researcher was able to collect 85 questionnaires. Among 85 questionnaires collected 9 of them were non usable due to incomplete response of the data; so 76 questionnaires with a complete data were used for analysis purpose.

#### 4.2 Demographic and background information of the respondents

##### I. Gender profile of the respondents

As shown on table 4.1 below from the total of 76 respondents 27(35.5%) of them are female and 49(64.5%) of them are male; from this result male respondents took the majority.

**Table 4.1: Gender profile of the respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Female	27	35.5	35.5	35.5
Valid Male	49	64.5	64.5	100.0
Total	76	100.0	100.0	

*Source: Own survey (2018)*

##### II. Age profile of the respondents

As shown on table 4.2 below from the total of 76 respondents 16(21.1%) of them are in the age category of 18-29, 31(40.8%) of them are in the age category of 30-39, 22(28.9%) of them are in the age category of 40-59 and 7(9.2%) of them are in the age category of 60 & above.

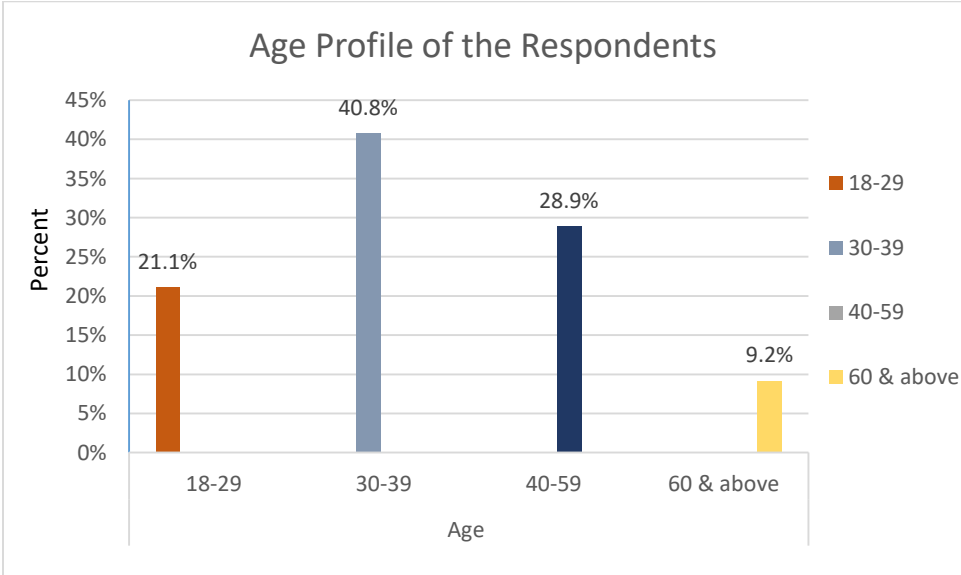
From this result 30-39(40.8%) age category took the majority of the respondents and follow 40-49(28.9%) and 18-29(21.1%) respectively. Those respondents included in the age category of 60 and above (9.2%) contain the minority of the respondents. Percentage representation of each age group also shown on bar chart in figure 4.1 below the table 4.2.

**Table 4.2: Age profile of the respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18-29	16	21.1	21.1	21.1
30-39	31	40.8	40.8	61.8
40-59	22	28.9	28.9	90.8
60 & above	7	9.2	9.2	100.0
Total	76	100.0	100.0	

Source: Own survey (2018)

**Figure 4.1: Bar chart representation of age categories**



### III. Educational background of the respondents

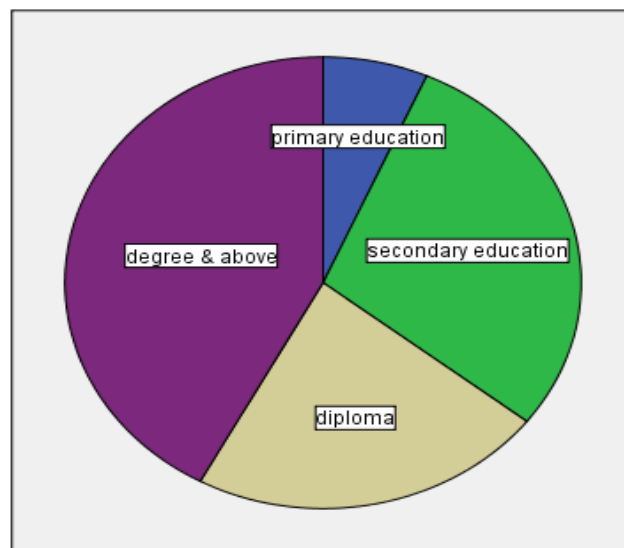
From table 4.3 it can be seen that out of 76 respondents 5(6.6%) of them are at the level of primary education, 22(28.9%) them are at the level of secondary education, 17(22.4%) are diploma holders and 32(42.1%) are degree and above holders. From this analysis majority of the respondents are under the category of degree and above holders' then secondary education level, diploma holders and primary education level respectively. Percentage representation of each age group also shown on bar chart in figure 4.2 below the table 4.3.

**Table 4.3: Educational background of the respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
primary education	5	6.6	6.6	6.6
secondary education	22	28.9	28.9	35.5
diploma	17	22.4	22.4	57.9
degree & above	32	42.1	42.1	100.0
Total	76	100.0	100.0	

*Source: Own survey (2018)*

**Figure 4.2: Pie chart representation of Education**



*Source: Own survey (2018)*

### 4.3 Descriptive Analysis

#### 4.3.1 Descriptive analysis of service delivery quality

To measure the service delivery quality along its six dimensions which are continuous water supply, timely response for customers request, customer handling, materials supply, up to date technology and skilled manpower. To make the analysis suitable all the items within each dimension are designated differently as shown below in table 4.4.

**Table 4.4: service delivery quality measurement items and their designations**

No	Items	Designation
1	The Branch always maintains broken water pipe lines timely/quickly	Continuous water supply service 1
2	The Branch always offers all materials that are needed for the customer service	Continuous water supply service 2
3	No blackout of electric light for the water supply service	Continuous water supply service 3
4	There is no water interruption	Continuous water supply service 4
5	When water supply problem occurs the Branch announce early to the customers	Continuous water supply service 5
6	There are trained and professional workers in the Branch	Timely response for customers' request 1
7	Customer service staff knows where to pass to query especially if it is technical in nature and requires expert advice	Timely response for customers' request 2
8	Staffs have easy access to all and any information they require to serve the customers	Timely response for customers' request 3
9	There are sufficient number of customer staffs	Timely response for customers' request 4
10	There is information disk	Timely response for customers' request 5
11	There are brochures to educate new users	Customer handling 1
12	Customers' complaint always gets solution	Customer handling 2
13	Customer staffs communication is very good when serving customers	Customer handling 3
14	Employees are always ready to help customers	Customer handling 4
15	Employees are fast when serving customers	Customer handling 5
16	The Branch offers working materials timely	Materials supply 1
17	There is no work break because of shortage of materials	Materials supply 2
18	The Branch offers quality working materials	Materials supply 3
19	The Branch has enough storage	Materials supply 4
20	The cost of working materials are fair	Materials supply 5

21	The Branch use different technologies to make the work easy for the customers	Up to date technology 1
22	When customers need any information they can use communication instruments instead of coming to office	Up to date technology 2
23	The Branch provide current information on website	Up to date technology 3
24	The branch has strong integration and coordination with stakeholders	Up to date technology 4
25	All the customers information is recorded on hard and soft copy	Up to date technology 5
26	All the workers are professionals	Skilled manpower 1
<b>No</b>	<b>Items</b>	<b>Designation</b>
27	The workers have no any skill gap	Skilled manpower 2
28	The branch give capacity building training on time	Skilled manpower 3
29	The branch gives induction for new entering employees	Skilled manpower 4
30	The branch employees have competency for their duty	Skilled manpower 5

**Table 4.5: Summary of means and std. deviations of all the six**

**Service delivery dimensions**

Dimensions	N	Mean	Std. Deviation
Up to date technology	76	3.16	1.144
Continuous water supply service	76	3.07	1.268
Skilled manpower	76	2.89	1.090
Materials supply	76	2.86	1.174
Customer handling	76	2.64	1.116
Timely response for customers' request	76	2.36	.989

*Source: Own survey (2018)*

As it shown on the table above the dimension with the highest mean score is up to date technology which has mean 3.16 and std. deviation 1.144, Continuous water supply service which has mean 3.07 and std. deviation 1.268. The other four have got moderate mean scores compared to the other two.

These are skilled manpower which has mean 2.89 and std. deviation 1.090, materials supply which has mean 2.86 and std. deviation 1.174, customer handling which has mean 2.64 and std. deviation 1.116. The last one timely response for customers' request which has the least mean score and std. deviation of 2.36 and 0.989 respectively. The detailed of the measurements and scores for each measuring items are given and discussed below.

### 1. Mode, mean scores and standard deviations for Continuous water supply service

There are five items for measuring continuous water supply service. The mean scores, the mode and standard deviations for each item are given on the table 4.6 below.

**Table 4.6: Mode, mean scores and standard deviations of Continuous water supply service items**

Continuous water supply service items	N	Mean	Mode	Std. Deviation
The Branch always maintains broken water pipe lines timely/quickly	76	2.83	3	.985
The Branch always offers all materials that are needed for the customer service	76	2.89	3	1.184
No blackout of electric light for the water supply service	76	2.87	2	1.300
There is no water interruption	76	3.58	5	1.319
When water supply problem occurs the Branch announce early to the customers	76	3.07	2	1.310

*Source: Own survey (2018)*

As shown on table 4.6 above the fourth item of continuous water supply service which is there is no water interruption has got the highest mean score compared to the other 4 items. Its mean score (average score) is 3.58 and its mode or highest frequent value is 5 which is above to the moderate or neutral score based on the five point likert scale.



The second one which has got the highest mean score is the fifth item; it's mean score (average score) is 3.07 and it's mode or highest frequent value is 2; the other three items which are the branch always maintains broken water pipe lines timely/quickly, the branch always offers all materials that are needed for the customer service, no blackout of electric light for the water supply service have got lower mean (average score) less than 3 and their mode is 3, 3 and 2 respectively.

## 2. Mode, mean scores and standard deviations for Timely response for customers' request

There are five items for the dimension of Timely response for customers' request. The mean scores, the mode and standard deviations for each item are given on the table 4.7 below.

**Table 4.7: Mode, mean scores and standard deviations of  
Timely response for customers' request items**

Timely response for customers' request	N	Mean	Mode	Std. Deviation
There are trained and professional workers in the Branch	76	2.39	3	.834
Customer service staff knows where to pass to query especially if it is technical in nature and requires expert advice	76	2.33	3	.929
Staffs have easy access to all and any information they require to serve the customers	76	2.26	3	.870
There are sufficient number of customer staffs	76	2.59	2	1.110
There is information disk	76	1.96	2	.930

*Source: Own survey (2018)*

As indicated on table 4.7 above the first three items has got the mode value of 3 and the last two items got 2; and all performed mean values of 2.39, 2.33, 2.26, 2.59 and 1.96 respectively with std. deviation of .834, .929, .870, 1.110 and .930 respectively.

From their mean score it can be seen that the fifth one related to information disk has got the poorest performance score as perceived by the respondents then the third item which is related to staffs information access about the branch service to serve customers with relatively high values of mode (3). The second and the first items has got high mode values and poor mean scores (mean = 2.33, mode = 3 with std. deviation .929 and mean = 2.39, mode = 3 with std. deviation .834) respectively. On the other hand the fourth item related to sufficient number of customer staffs has got a better mean score relatively from others (mean = 2.59, mode = 2 with std. deviation 1.110).

### 3. Mode, mean scores and standard deviations for Customer handling

**Table 4.8: Mode, mean scores and standard deviations of Customer handling**

Customer handling	N	Mean	Mode	Std. Deviation
There are brochures to educate new users	76	2.79	3	1.147
Customers' complaint always gets solution	76	2.97	3	1.189
Customer staffs communication is very good when serving customers	76	2.37	3	.877
Employees are always ready to help customers	76	2.54	3	1.026
Employees are fast when serving customers	76	2.41	3	.969

*Source: Own survey (2018)*

As shown on the table above the mode or the most frequent value for all the items of the dimension customer handling is 3 which is moderate. Compared to other items customers' complaint always gets solution has got a mean score of 2.97 which is better than the other 4 items and approaches to the moderate or neutral score based on the five point likert scale. The other 4 items has got poor mean values of 2.79, 2.37, 2.54 and 2.41 respectively with a std. deviation of 1.147, .877, 1.026 and .969 respectively. From their mean score it can be seen that the especially the fifth one related to customer staffs communication is very good when serving customers has got the least performance.

#### 4. Mode, mean scores and standard deviations for Materials supply

**Table 4.9: Mode, mean scores and standard deviations of Materials supply**

Materials supply	N	Mean	Mode	Std. Deviation
The Branch offers working materials timely	76	2.97	3	1.143
There is no work break because of shortage of materials	76	3	3	1.306
The Branch offers quality working materials	76	2.50	3	1.125
The Branch has enough storage	76	3.07	3	1.215
The cost of working materials are fair	76	2.72	3	.988

*Source: Own survey (2018)*

As it can be seen from the above table all the items mode (the most frequent value) is 3. The branch has enough storage has got a highest mean score of 3.07 comparing from others with a std. deviation of 1.215; then there is no work break because of shortage of materials and the branch offers working materials timely has got a mean score of 3 and 2.97 with a std. deviation of 1.306 and 2.97 (approach to 3) respectively. The rest items, the cost of working materials are fair and the branch offers quality working materials score a mean value of 2.72 and 2.50 with std. deviation of .988 and 1.125 respectively.

## 5. Mode, mean scores and standard deviations for Up to date technology

**Table 4.10: Mode, mean scores and standard deviations of Up to date technology**

Up to date technology	N	Mean	Mode	Std. Deviation
The Branch use different technologies to make the work easy for the customers	76	3.22	3	1.150
When customers need any information they can use communication instruments instead of coming to office	76	3.43	4	1.204
The Branch provide current information on website	76	3.45	4	1.124
The branch has strong integration and coordination with stakeholders	76	3.16	4	1.059
All the customers information is recorded on hard and soft copy	76	2.59	3	.926

*Source: Own survey (2018)*

As shown on the table above the mean score of all the items except the last one exceeds (3) and the mode (the most frequent value) also 3 and 4 with std. deviation of 1.150, 1.204, 1.124, 1.059 and .926 respectively.

## 6. Mode, mean scores and standard deviations for Skilled manpower

The scores for the mean, mode and std. deviations of skilled manpower five items are given on table 4.11 below.

**Table 4.11: Mode, mean scores and standard deviations of skilled manpower**

skilled manpower	N	Mean	Mode	Std. Deviation
All the workers are professionals	76	2.89	3	1.114
The workers have no any skill gap	76	3.01	3	1.101
The branch give capacity building training on time	76	3.08	3	1.129
The branch gives induction for new entering employees	76	2.74	3	1.038
The branch employees have competency for their duty	76	2.64	3	.890

*Source: Own survey (2018)*

As it can be seen from the above table all the items mode (the most frequent value) is 3, which is good. The branch give capacity building training on time and the workers have no any skill gap have got highest mean score of 3.08 and 3.01 with a std. deviation of 1.129 and 1.101 respectively. These show that the branch has a good performance on these activities. The other three items all the workers are professionals, the branch gives induction for new entering employees and the branch employees have competency for their duty score a mean value of 2.89, 2.74 and 2.64 with a std. deviation of 1.114, 1.038 and .890 respectively.

### **4.3.2 Descriptive analysis of customer satisfaction**

**Table 4.12 a: Mode, mean scores and standard deviations of Customer satisfaction**

N	Valid	76
	Missing	0
Mean		2.97
Mode		3
Std. Deviation		1.405

*Source: Own survey (2018)*

From the results on table 4.12a the mean value for customer satisfaction item is 2.97 with std. deviation of 1.405 and the mode value is 3.

The percentage and frequency of the different levels of customer satisfaction which is based on the five point likert scale is shown on table 4.12 b below.

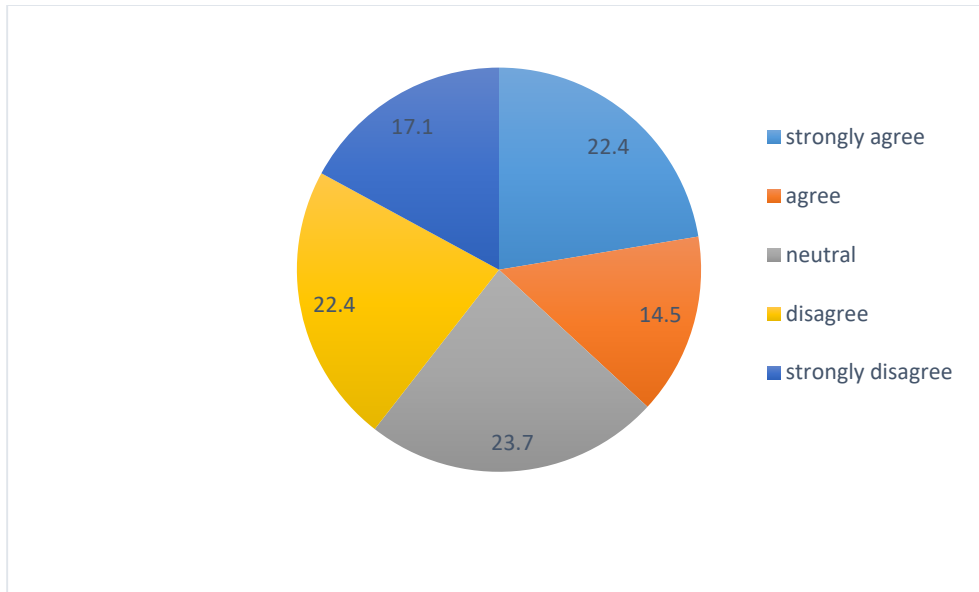
**Table 4.12 b: Frequency and percent for the different levels of customer satisfaction**

customer satisfaction level	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	17	22.4	22.4	22.4
agree	11	14.5	14.5	36.8
neutral	18	23.7	23.7	60.5
Valid disagree	17	22.4	22.4	82.9
strongly disagree	13	17.1	17.1	100.0
Total	76	100.0	100.0	

*Source: Own survey (2018)*

As it is shown on table 4.12b above from the total of 76 respondents 17 respondents (22.4%) are strongly agree, 11 respondents (14.5%) are agree, 18 respondents (23.7%) have the overall satisfaction level which is neutral (neither satisfied nor dissatisfied) and this result is highest frequent level of customer satisfaction, 17 respondents (22.4%) are disagree and 13 respondents (17.1%) are strongly disagree. The percentage for different level of satisfaction is also presented by pie-chart on figure 4.3 below.

**Figure 4.3: Pie chart for different level of satisfaction**



Source: Own survey (2018)

### 4.3.3 Customers response from interview

As I interviewed 20 customers about how they describe the overall water service provided by the branch. Out of these 20 respondents 18 of them (80%) said most of the time there is no water and there is an interruption, when the tap water comes after interruption it is not clean, most of the time there is no water on condominium buildings 3rd and 4th floor and the service provided by the branch is not fast are mainly repeated answer of the customers. The rest 2 customers (20%) said there is no water interruption and the service is good so the branch keep on going.

The second question which is customers comment for better service delivery: out of 20 respondents 13 of them (65%) give the following comments like: there should be an improvement in water distribution, the quality of the water mostly after interruption have no quality so the branch must give attention for this problem, customers must get 24 hour water service, using up to date technologies for the service will decrease repeated coming of the customers, bill paying services “lehulu” are not enough for the customers and timely maintain broken water pipe lines. The rest 7 (35%) not want to give comment. So from these reply the branch should have improve the quality of water mainly after disruption and by enhancing the water production the organization must give 24 hours water service for the customers.

#### 4.4 Pearson correlation analysis between customer satisfaction and service delivery dimensions

Pearson correlation analysis was performed for this study to determine the relationship that exists between the six service delivery quality dimensions and customer satisfaction and also to see the relationship that exists among service delivery quality dimensions themselves. The results are presented on table 4.13 below.

**Table 4.13: Pearson correlation of customer satisfaction and service delivery dimensions**

		Customer satisfaction	Continuous water supply service	Timely response for customers' request	Customer handling	Materials supply	Up to date technology	Skilled manpower
Customer satisfaction	Pearson correlation Sig. (2-tailed) N	1  76						
Continuous water supply service	Pearson correlation Sig. (2-tailed) N	.966** .000 76	1  76					
Timely response for customers' request	Pearson correlation Sig. (2-tailed) N	.918** .000 76	.895** .000 76	1  76				
Customer handling	Pearson correlation Sig. (2-tailed) N	.921** .000 76	.921** .000 76	.913** .000 76	1  76			
Materials supply	Pearson correlation	.935** .000	.946** .000	.906** .000	.937** .000	1		



	Sig. (2-tailed) N	76	76	76	76	76		
Up to date technology	Pearson correlation Sig. (2-tailed) N	.941** .000 76	.939** .000 76	.928** .000 76	.901** .000 76	.921** .000 76	1 76	
Skilled manpower	Pearson correlation Sig. (2-tailed) N	.912** .000 76	.921** .000 76	.888** .000 76	.922** .000 76	.957** .000 76	.922** .000 76	1 76

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

Source: Own survey (2018)

It can be seen from the table above all the six service delivery dimensions were significantly correlated with customer satisfaction. The dimension that was highly correlated with customer satisfaction was continuous water supply service with correlation coefficient of .966 followed by up-to-date technology with correlation coefficient of .941, materials supply with correlation coefficient of .935, customer handling with correlation coefficient of .921, timely response for customers' response with correlation coefficient of .918 and finally was found to be skilled manpower; that was least correlated customer satisfaction with correlation coefficient of .912. These result shown us continuous water supply service is the major and most important service delivery dimension as observed by customers of AAWSA – Guardshola branch compared to the other five dimensions of service delivery dimensions; but it is significant enough to correlate with customer satisfaction and hence to improve the level of customer satisfaction. Generally an improvement in the level of service delivery quality with respect to all the six dimensions will bring an improvement on the level of customer satisfaction.

The correlation result shown on table 4.13 also indicates that there was a significant positive correlation among the six service delivery dimensions themselves. The highest correlation was found between skilled manpower and materials supply with correlation coefficient of .957 followed by materials supply and continuous water supply service with correlation coefficient of .946, up to date technology and continuous water supply service with correlation coefficient of

.939, materials supply and customer handling with correlation coefficient of .937, up to date technology and timely response for customers' request with correlation coefficient of .928, skilled manpower with customer handling and up to date technology with correlation coefficient of .922, up to date technology with materials supply and skilled manpower with continuous water supply service and customer handling continuous water supply service with correlation coefficient of .921, customer handling and timely response for customers' request with correlation coefficient of .913, materials supply and timely response for customers' request with correlation coefficient of .906, up to date technology and customer handling with correlation coefficient of .901, timely response for customers' request and continuous water supply service with correlation coefficient of .895, skilled manpower and timely response for customers' request with correlation coefficient of .888.

## **4.5 Multiple Regression Analysis**

Multiple regression was performed to see the extent to which the variance in the dependent variable (customer satisfaction) is explained by the service delivery dimensions to analyze the nature of relationship that exists between the dependent variable (customer satisfaction) and a group of independent variables (continuous water supply service, timely response for customers' request, customer handling, materials supply, skilled manpower, up to date technology); and also to test the hypothesis based the standardized coefficients of beta and the corresponding p-values.

### **4.5.1 Multicollinearity test**

In order to confirm the acceptance of the regression model, collinearity diagnostics test was performed to check the acceptance of multicollinearity problem. Good regression model should not happen correlation between the independent variables or not happen multicollinearity. If the variance inflation factor (VIF) value lies between 1 – 10, then there is no multicollinearity. But if the  $VIF < 1$  or  $> 10$ , then there is multicollinearity. As indicated on table 4.13 a minimum tolerance value for the model was .363 and a maximum VIF for the model was 2.755 which is by far less than 10. Therefore, both cases indicated the absence of multicollinearity problem.

**Table 4.14 : Collinearity diagnostics result**

	Collinearity statistics	
	Tolerance	VIF
Continuous water supply service	.686	1.458
Timely response for customers' request	.654	1.629
Customer handling	.442	2.262
Materials supply	.444	2.252
Up to date technology	.447	2.237
Skilled manpower	.363	2.755

Dependent variable: Customer satisfaction

Source: Own survey (2018)

#### 4.5.2 Model Summary

**Table 4.15 : Model Summary for the five service delivery dimensions**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.975 <sup>a</sup>	.950	.946	.327

a. Predictors: (Constant), Skilled manpower, Timely response for customers' request, Continuous water supply service, Customer handling, Up to date technology, Materials supply

Source: Own survey (2018)

#### 4.5.3 Regression coefficients

**Table 4.16 : Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.452	.116		3.889	.000
Continuous water supply service	.678	.113	.612	6.013	.000
Timely response for customers' request	.257	.118	.181	2.172	.033
Customer handling	.301	.047	.244	6.166	.000
Materials supply	.287	.030	.256	7.344	.000
Up to date technology	.252	.034	.224	6.458	.000
Skilled manpower	.271	.037	.262	7.269	.000

a. Dependent Variable: Customer satisfaction

Source: Own survey (2018)

As shown on table 4.16 the ‘B’ coefficients which indicate the extent or the strength of the influence of each independent variable on the dependent variable of customer satisfaction for continuous water supply service, timely response for customers’ request, customer handling, materials supply, up to date technology and skilled manpower were .678, .257, .301, .287, .252 and .271 respectively. The simple interpretation of this table shows that for a unit increase of continuous water supply service, timely response for customers’ request, customer handling, materials supply, up to date technology and skilled manpower the corresponding increase in customer satisfaction are .678, .257, .301, .287, .252 and .271 respectively. Except timely response for customers’ request the p-values for all other service delivery dimensions are less than the significance level of 0.01 and the p-value of timely response for customers’ request is less than the significance level of 0.05.

#### **4.5.4 The equation for the regression line for the model**

Based on the above result of ‘b’ coefficients on table 4.15 for the six independent variables (service delivery dimensions) it is possible to derive the equation for the regression line as shown below.

$$CS = c + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + \dots$$

$$= -.452 + .678Cwss + .257Trcr + .301Ch + .287Ms + .252Udt + .271Sm$$

Where CS = Customer satisfaction

C = Constant

Cwss = Continuous water supply service

Trcr = Timely response for customers’ request

Ch = Customer handling

Ms = Materials supply

Udt = Up to date technology

Sm = Skilled manpower

#### **4.5.5 Hypothesis Testing**

##### **Hypothesis 1**

H1: Continuous water supply service has a positive effect on customer satisfaction in the context of AAWSA – Guardshola branch.

H0: Continuous water supply service not has a positive effect on customer satisfaction in the context of AAWSA – Guardshola branch.

The multiple regression results on table 4.16 proved that continuous water supply service has a positive significant effect on the dependent variable of customer satisfaction, since the p-value 0.000 which is less than the significant level 0.05 and the coefficient of continuous water supply service .678 was positive and 67.8% of customer satisfaction is explained by continuous water supply service. Therefore, when the supply of water to the customers is continuous customer satisfaction will also be high. Thus, based on this result the null hypothesis H0 is rejected and the alternative hypothesis 1: ‘Continuous water supply service has a significant effect on customer satisfaction in the context of AAWSA – Guardshola branch’ is accepted.

##### **Hypothesis 2**

H2: Timely response for customers’ request has a significant effect on customer satisfaction in the context of AAWSA – Guardshola branch.

H0: Timely response for customers’ request not has a significant effect on customer satisfaction in the context of AAWSA – Guardshola branch.

The multiple regression results on table 4.16 proved that: timely response for customers’ request has a positive significant effect on the dependent variable of customer satisfaction, since the p-value 0.033 which is less than the significant level 0.05 and the coefficient of timely response for customers’ request 0.257 was positive and 25% of customer satisfaction is explained by timely response for customers’ request. Therefore, when there is timely response for customers’ request customer satisfaction will also be high. Thus, based on this result the null hypothesis H0 is rejected and the alternative hypothesis 1: Timely response for customers’ request has a significant effect on customer satisfaction in the context of AAWSA – Guardshola branch’ is accepted.

### **Hypothesis 3**

H3: Customer handling has a positive effect on customer satisfaction in the context of AAWSA – Guardshola branch.

H0: Customer handling not has a positive effect on customer satisfaction in the context of AAWSA – Guardshola branch.

The multiple regression results on table 4.16 proved that: Customer handling has a positive significant effect on the dependent variable of customer satisfaction, since the p-value 0.000 which is less than the significant level 0.05 and the coefficient of customer handling 0.301 was positive and 30% of customer satisfaction is explained by customer handling. Therefore, when there is good customer handling customer satisfaction will also be high. Thus, based on this result the null hypothesis H0 is rejected and the alternative hypothesis 1: customer handling has a significant effect on customer satisfaction in the context of AAWSA – Guardshola branch' is accepted.

### **Hypothesis 4**

H4: Materials supply has a positive effect on customer satisfaction in the context of AAWSA – Guardshola branch.

H0: Materials supply not has a positive effect on customer satisfaction in the context of AAWSA – Guardshola branch.

The multiple regression results on table 4.16 proved that: Materials supply has a positive significant effect on the dependent variable of customer satisfaction, since the p-value 0.000 which is less than the significant level 0.05 and the coefficient of materials supply 0.287 was positive and 28% of customer satisfaction is explained by materials supply. Therefore, when there is good enough materials supply customer satisfaction will also be high. Thus, based on this result the null hypothesis H0 is rejected and the alternative hypothesis 1: materials supply has a significant effect on customer satisfaction in the context of AAWSA – Guardshola branch' is accepted.

### **Hypothesis 5**

H5: Up to date technology has a positive effect on customer satisfaction in the context of AAWSA – Guardshola branch.

H0: Up to date technology not has a positive effect on customer satisfaction in the context of AAWSA – Guardshola branch.

The multiple regression results on table 4.16 proved that: Up to date technology has a positive significant effect on the dependent variable of customer satisfaction, since the p-value 0.000 which is less than the significant level 0.05 and the coefficient of materials supply 0.252 was positive and 25% of customer satisfaction is explained by up to date technology. Therefore, when there is up to date technology customer satisfaction will also be high. Thus, based on this result the null hypothesis H0 is rejected and the alternative hypothesis 1: materials supply has a significant effect on customer satisfaction in the context of AAWSA – Guardshola branch' is accepted.

### **Hypothesis 6**

H6: Skilled manpower has a positive effect on customer satisfaction in the context of AAWSA – Guardshola branch.

H0: Skilled manpower has a positive effect on customer satisfaction in the context of AAWSA – Guardshola branch.

The multiple regression results on table 4.16 proved that: Skilled manpower has a positive significant effect on the dependent variable of customer satisfaction, since the p-value 0.000 which is less than the significant level 0.05 and the coefficient of materials supply 0.271 was positive and 27% of customer satisfaction is explained by skilled manpower. Therefore, when there is skilled manpower customer satisfaction will also be high. Thus, based on this result the null hypothesis H0 is rejected and the alternative hypothesis 1: skilled manpower has a significant effect on customer satisfaction in the context of AAWSA – Guardshola branch' is accepted.

## **4.6 Discussion of the findings**

This study has attempted to throw light on the issue of service delivery dimensions (continuous water supply service, timely response for customers' request, customer handling, skilled manpower, up to date technology and materials supply) and its effects on customer satisfaction. The theoretical review suggested that high level of service delivery leads to high level of customer satisfaction. Service quality is a determinant of customer satisfaction, because service quality comes from outcome of the services from service providers in organizations

The empirical review analysis generally confirmed the existence of positive relationship between service delivery quality and customer satisfaction.

Continuous water supply service is the major and most important service delivery dimension as observed by customers of AAWSA – Guardshola branch compared to the other five dimensions of service delivery dimensions; but it is significant enough to correlate with customer satisfaction and hence to improve the level of customer satisfaction.

**Mean scores** of Continuous water supply service items (The Branch always maintains broken water pipe lines timely/quickly, The Branch always offers all materials that are needed for the customer service, No blackout of electric light for the water supply service, There is no water interruption, When water supply problem occurs the Branch announce early to the customers) showed that, there is no water interruption and when water supply problem occurs the Branch announce early to the customers have got mean score of 3.58 and 3.07 respectively; these implies that the performance of the two items is good and keeping on these services. The other three items have got lower mean score less than 3. So, this indicates that the branch should have to focus on these activities for better progress of the service.

**Mean scores** for Timely response for customers' request items (There are trained and professional workers in the Branch, Customer service staff knows where to pass to query especially if it is technical in nature and requires expert advice, Staffs have easy access to all and any information they require to serve the customers, There are sufficient number of customer staffs, There is information disk) showed that, poor mean values of 2.39, 2.33, 2.26, 2.59 and 1.96 respectively. Therefore, all items need improvements.

**Mean scores of Customer handling items** (There are brochures to educate new users, Customers' complaint always gets solution, Customer staffs communication is very good when serving customers, Employees are always ready to help customers, Employees are fast when serving customers) showed that, a mean value of 2.79, 2.97, 2.37, 2.54 and 2.41 respectively. It can be seen that especially the fifth one related to customer staffs communication is very good when serving customers has got the least performance; thus the branch should have to give attention in this item to create satisfied customers.



**Mean scores** of Materials supply items (The Branch offers working materials timely, There is no work break because of shortage of materials, The Branch offers quality working materials, The Branch has enough storage, The cost of working materials are fair) showed that, a mean value of 2.97, 3, 2.50, 3.07 and 2.72 respectively. These results indicate that there is a good performance items of there is no work break because of shortage of materials and the branch offers working materials timely and for the rest more attention should be given by the branch to offer quality service for the customers.

Mean scores for Up to date technology (The Branch use different technologies to make the work easy for the customers, When customers need any information they can use communication instruments instead of coming to office, The Branch provide current information on website, The branch has strong integration and coordination with stakeholders, All the customers information is recorded on hard and soft copy materials are fair) showed a mean value of 3.22, 3.43, 3.45, 3.16 and 2.59 respectively. The result shows that the branch uses up to date technology on these five items and have a good performance on these activities. Therefore, keeping on these activities is the best to communicate customers easily to make the work easy and improvement should have to take for the last item.

Mean scores for Skilled manpower (All the workers are professionals, The workers have no any skill gap, The branch give capacity building training on time, The branch gives induction for new entering employees, The branch employees have competency for their duty) showed a mean value of 2.89, 3.01, 3.08, 2.74 and 2.64 respectively. A mean score of 3.01 and 3.08 how that the branch has a good performance on these activities and the other three items result indicates an improvement should be given to the Guard Shola branch employees.

From the descriptive analysis of customer satisfaction, the mean value for customer satisfaction is 2.97 below the neutral score (3) but near to 3; the mode (the most frequent value) is 3 indicates the satisfaction level is neither poor nor best which is neutral.

An attempt has been made by this study to analyze the service delivery quality of AAWSA – Guardshola branch and how the customers are satisfied with the service delivery of the branch.

The percentage and frequency of the different levels of customer satisfaction which is based on the five point likert scale shown that the total number of respondents which are either satisfied or strongly satisfied adds up 28 (17+11) or 36.9 % (22.4 %+14.5%). By the same token, those who are either dissatisfied or strongly dissatisfied are 30 (17+13) or 39.5% (22.4%+17.1%). The rest are neutral (neither satisfied nor dissatisfied). Therefore, the results and justification clearly show the existence of poor level of customer satisfaction. This is an indication that much effort should be done on the services given by AAWSA of Guardshola branch to improve the level of customer satisfaction. So the branch should have given severe attention on activities that enhance the level of customer satisfaction.

The study also attempted to analyze the relationship that exists between each of the six service delivery dimensions and customer satisfaction. Pearson correlation of customer satisfaction and service delivery dimensions indicated that all the six service delivery dimensions were significantly correlated with customer satisfaction. Generally an improvement in the level of service delivery quality with respect to all the six dimensions will bring an improvement on the level of customer satisfaction. The correlation result also indicates that there was a significant positive correlation among the six service delivery dimensions themselves. This result indicates that an improvement in one service delivery dimension will bring a significant improvement on the other dimensions.

The results of multiple regression analysis table 4.15 showed that the R<sup>2</sup> for the model summery of the six service delivery dimensions was .975 which implies that 97 % of the variance in customer satisfaction is explained by the service delivery dimensions.

From interview of 20 customers about how they describe the overall water service provided by the branch and customers comment for better service delivery; most of the customers are not satisfied by the service given; so the authority should have to increase the sources of water supply to give enough water supply and to answer the demand of the customers.

## CHAPTER FIVE

### Summary, Conclusion and Recommendation

#### 5.1 Summary

- This was performed to examine the effect of service delivery quality on customer satisfaction in AAWSA – Guardshola branch. Primary source of data was used for the study: 100 questionnaires were distributed to respondents in random sampling method and 20 interviews were used. Out of 100 questionnaires 76 questionnaires were collected with a complete data for analysis by the researcher and 24 of them were not usable due to incomplete data.
- The gender profile of the respondents showed that from the total of 76 respondents 27(35.5%) of them are female and 49(64.5%) of them are male; from this result male respondents took the majority.
- The age profile of the respondents showed that from the total of 76 respondents 16(21.1%) of them are in the age category of 18-29, 31(40.8%) of them are in the age category of 30-39, 22(28.9%) of them are in the age category of 40-59 and 7(9.2%) of them are in the age category of 60 & above. From this result 30-39(40.8%) age category took the majority of the respondents and follow 40-49(28.9%) and 18-29(21.1%) respectively. Those respondents included in the age category of 60 and above (9.2%) contain the minority of the respondents.
- The educational background of the respondents showed that out of 76 respondents 5(6.6%) of them are at the level of primary education, 22(28.9%) them are at the level of secondary education, 17(22.4%) are diploma holders and 32(42.1%) are degree and above holders. From this analysis majority of the respondents are under the category of degree and above holders' then secondary education level, diploma holders and primary education level respectively.
- Based on descriptive analysis of service delivery quality the highest mean score is up to date technology which has mean score of 3.16 and std. deviation 1.144, Continuous water supply service which has mean score of 3.16 and std. deviation 1.268. The other four have got moderate mean scores compared to the other two. These are skilled manpower which has mean score of 2.89 and std. deviation 1.090, materials supply which has mean score of 2.86 and std. deviation 1.174, customer handling which has mean score of 2.64 and std. deviation 1.116. The last one timely response for customers' request which has the least mean score and std. deviation of 2.36 and 0.989 respectively.

- The descriptive analysis of customer satisfaction showed that the mean value for customer satisfaction item is 2.97 with std. deviation of 1.405 and the mode value is 3. The mean score is below the neutral score which is 3 but near to 3; the mode (the most frequent value) is 3 indicates the satisfaction level is neither poor nor best which is neutral. From the total of 76 respondents 17 respondents (22.4%) are strongly agree, 11 respondents (14.5%) are agree, 18 respondents (23.7%) have the overall satisfaction level which is neutral (neither satisfied nor dissatisfied) and this result is highest frequent level of customer satisfaction, 17 respondents (22.4%) are disagree and 13 respondents (17.1%) are strongly disagree.
- Pearson correlation analysis was performed for this study to determine the relationship that exists between the six service delivery quality dimensions and customer satisfaction and also to see the relationship that exists among service delivery quality dimensions themselves. The dimension that was highly correlated with customer satisfaction was continuous water supply service with correlation coefficient of .966 followed by up-to-date technology with correlation coefficient of .941, materials supply with correlation coefficient of .935, customer handling with correlation coefficient of .921, timely response for customers' response with correlation coefficient of .918 and finally was found to be skilled manpower; that was least correlated customer satisfaction with correlation coefficient of .912. the correlation result also showed that there was a significant positive correlation among the six service delivery dimensions themselves. The highest correlation was found between skilled manpower and materials supply with correlation coefficient of .957 followed by materials supply and continuous water supply service with correlation coefficient of .946, up to date technology and continuous water supply service with correlation coefficient of .939, materials supply and customer handling with correlation coefficient of .937, up to date technology and timely response for customers' request with correlation coefficient of .928, skilled manpower with customer handling and up to date technology with correlation coefficient of .922, up to date technology with materials supply and skilled manpower with continuous water supply service and customer handling continuous water supply service with correlation coefficient of .921, customer handling and timely response for customers' request with correlation coefficient of .913, materials supply and timely response for customers' request with correlation coefficient of .906, up to date technology and customer handling with correlation coefficient of .901, timely response for customers' request and continuous water supply service with correlation coefficient of .895,

skilled manpower and timely response for customers' request with correlation coefficient of .888.

- Multiple regression was performed to see the extent to which the variance in the dependent variable (customer satisfaction) is explained by the service delivery dimensions to analyze the nature of relationship that exists between the dependent variable (customer satisfaction) and a group of independent variables (continuous water supply service, timely response for customers' request, customer handling, materials supply, skilled manpower, up to date technology); and also to test the hypothesis based the standardized coefficients of beta and the corresponding p-values. The results of multiple regression analysis therefore showed that the R<sup>2</sup> for the model summary of the six service delivery dimensions was .975 which implies that 97 % of the variance in customer satisfaction is explained by the service delivery dimensions. The 'B' coefficients which indicate the extent or the strength of the influence of each independent variable on the dependent variable of customer satisfaction for continuous water supply service, timely response for customers' request, customer handling, materials supply, up to date technology and skilled manpower were .678, .257, .301, .287, .252 and .271 respectively.
- From interviewed 20 customers about how they describe the overall water service provided by the branch. Out of these 20 respondents 18 of them (80%) said most of the time there is no water and there is an interruption, when the tap water comes after interruption it is not clean, most of the time there is no water on condominium buildings 3rd and 4th floor and the service provided by the branch is not fast are mainly repeated answer of the customers. The rest 2 customers (20%) said there is no water interruption and the service is good so the branch keep on going. The second question which is customers comment for better service delivery: out of 20 respondents 13 of them (65%) give the following comments like: there should be an improvement in water distribution, the quality of the water mostly after interruption have no quality so the branch must give attention for this problem, customers must get 24 hour water service, using up to technologies for the service will decrease repeated coming of customers, bill paying services "lehulu" are not enough for the customers and not timely maintain broken water pipe lines. The rest 7 (35%) not want to give comment.

## 5.2 Conclusion

From the descriptive analysis out of six services delivery dimensions results the mean score of two which are up to date technology and continuous water supply service are above the neutral score (3); the other four dimensions fall below the neutral score of (3) of the five point likert scale. So, there is a need for performance improvement especially in the four services delivery dimensions.

The descriptive analysis results for customer satisfaction clearly showed that the existence of poor customer satisfaction. Therefore, there is a gap for satisfying customers so, much effort should be done by AAWSA and Guardshola branch to improve the level of satisfaction of customers.

From the results of correlation analysis and multiple regressions analysis it can be concluded that improvement in the level of service delivery through each of the six dimensions will also result in an improvement in customer satisfaction and also an improvement in one service delivery dimension will result a significant improvement on the other service delivery dimensions as well.

From the results of multiple regressions analysis all of the null hypothesis are rejected and their entire corresponding alternative hypothesis are accepted.

Customers response from interview showed that when the tap water comes after interruption it is not clean, most of the time there is no water on condominium buildings 3rd and 4th floor and the service provided by the branch is not fast are mainly repeated response of the customers, here should be an improvement in water distribution, the quality of the water mostly after interruption have no quality so the branch must give attention for this problem.

### **5.3 Recommendations**

Based on correlation analysis results and the multiple regression analysis results of the study discussed earlier the six service delivery dimensions affect customer satisfaction through their degree of correlation; so, these recommended actions should take to minimize the challenge.

The first dimension that was highly correlated and has the strongest effect in customer satisfaction of tap water users of AAWSA – Guardshola branch was continuous water supply service. Thus, those aspects of service quality which brings final improvement in this dimension should be improved; so, to bring this the organization should increase additional water sources by building new dams, by decreasing the water leakage by changing old water pipes and by maintaining quickly broken water pipes; additionally by digging deep shallow wells and continuously using mass medias teach the people not to use the tap water improperly.

The second dimension that was correlated with customer satisfaction was up to date technology. The proposition of the result is that customers always want time consuming work flows; therefore, the organization should have to use mass medias, social medias and telecommunication to translate messages easily for the customers and to increase the satisfaction of customers.

The third dimension that was correlated with customer satisfaction was materials supply; the results of this study indicated that when customers come to the branch for service they need quality materials with fair price from the organization so, the organization should have offer according to the need of the customers.

The fourth dimension that was correlated with customer satisfaction was customer handling; the results of this study showed that the ability to effectively handle customer complaints and problems is vital for customer service contacts. Though providing service throughout the working process is beneficial and great customer service typically results from effective listening, followed by articulate and clear verbal messages. So the workers of the organization should have to listen any comments and complaints of customers and give solution for their complaint appropriately.

The fifth dimension that was correlated with customer satisfaction was timely response for customers request; the results of this study showed that customers always want appropriate and full response for their inquiry timely. Thus, the organization staffs should have to give enough response for their service needs to increase the satisfaction level of customers.

The six dimension that was correlated with customer satisfaction was skilled manpower. Skilled man power is the major thing for providing quality service for the customers. Therefore, to make the workers knowledgeable the organization should have provide capacity building trainings to fulfill the gap of the staffs and to make them competence and to give as wanted service for the customers.

Customers' response from interview indicated that the quality of water after interruption has no quality so the branch must give solution for this problem to increase the satisfaction of customers; and bill paying services "lehulu" are not enough for the customers thus, to enhance the organization revenue the organization should have to increase the number of paying services 'lehulu' and using prepaid cards for the service is also the best choice.



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## **ANNEX**

### **Addis Ababa University School of Commerce**

#### **Questionnaire for the study conducted on Factors affecting customers Satisfaction on Tap Water Service Delivery in Ababa Water and Sewerage Authority: the Case study of Guard Shola Branch**

Dear respondents,

I am prospective graduate of Masters of Marketing Management in Addis Ababa University School of Commerce. I am conducting a thesis entitled “Factors affecting customers Satisfaction on Tap Water Service Delivery in Ababa Water and Sewerage Authority in Guard Shola Branch.”. Your response to this questionnaire will be used only for the academic purpose and be sure that the information you provide will be used for this research only. Your full support and willingness to respond the question is very essential for the success of the study. Therefore, you are kindly requested to answer all questions and give reliable information on the issues.

Thanks in advance for your cooperation!

#### **Part I: General Information**

**Direction: Choose the suitable answer for each question and circle on it.**

1. Gender

1. Female

2. Male

2. Age

1. 18-29

2. 30-39

3. 40-59

4. 60 & above

3. Educational level

1. Primary education

2. Secondary education

3. Diploma

4. Degree & above

**Part II. Service delivery item**

**Direction: Please use this mark √ to select your choice.**

1= Strongly Agree 2= Agree 3= Neutral 4= Disagree 5= Strongly Disagree

No	Questions and item	1= Strongly Agree	2= Agree	3= Neutral	4= Disagree	5= Strongly Disagree
	<b>Continuous water supply service</b>	1	2	3	4	5
1	The Branch always maintains broken water pipe lines timely/quickly	1	2	3	4	5
2	The Branch always offers all materials that are needed for the customer service	1	2	3	4	5
3	No blackout of electric light for the water supply service	1	2	3	4	5
4	There is no water interruption	1	2	3	4	5
5	When water supply problem occurs the Branch announce early to the customers	1	2	3	4	5
	<b>Timely response for customers' request</b>	1	2	3	4	5
1	There are trained and professional workers in the Branch	1	2	3	4	5
2	Customer service staff knows where to pass to query especially if it is technical in nature and requires expert advice	1	2	3	4	5
3	Staffs have easy access to all and any information they require to serve the customers	1	2	3	4	5
4	There are sufficient number of customer staffs	1	2	3	4	5
5	There is information disk	1	2	3	4	5
	<b>Customer handling</b>	1	2	3	4	5
1	There are brochures to educate new users	1	2	3	4	5

2	Customers' complaint always gets solution	1	2	3	4	5
3	Customer staffs communication is very good when serving customers	1	2	3	4	5
4	Employees are always ready to help customers	1	2	3	4	5
5	Employees are fast when serving customers	1	2	3	4	5
	<b>Materials supply</b>	1	2	3	4	5
1	The Branch offers working materials timely	1	2	3	4	5
2	There is no work break because of shortage of materials	1	2	3	4	5
3	The Branch offers quality working materials	1	2	3	4	5
4	The Branch has enough storage	1	2	3	4	5
5	The cost of working materials are fair	1	2	3	4	5
	<b>Up to date technology</b>	1	2	3	4	5
1	The Branch use different technologies to make the work easy for the customers	1	2	3	4	5
2	When customers need any information they can use communication instruments instead of coming to office	1	2	3	4	5
3	The Branch provide current information on website	1	2	3	4	5
4	The branch has strong integration and coordination with stakeholders	1	2	3	4	5
5	All the customers information is recorded on hard and soft copy	1	2	3	4	5
	<b>Skilled manpower</b>	1	2	3	4	5
1	All the workers are professionals	1	2	3	4	5
2	The workers have no any skill gap	1	2	3	4	5
3	The branch give capacity building training on time	1	2	3	4	5
4	The branch gives induction for new entering employees	1	2	3	4	5
5	The branch employees have competency for their duty	1	2	3	4	5
	<b>Customer satisfaction</b>	1	2	3	4	5
1	The tap water is always pure and clean	1	2	3	4	5

2	When the tap water comes after interruption there is no any change in its quality	1	2	3	4	5
3	Bill paying services “lehulu” are enough for the customers	1	2	3	4	5
4	The organization provide quick service for customers request	1	2	3	4	5
5	Water meter readers monthly read the water meter of the customers	1	2	3	4	5