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# Challenges in application of ICT in tax administration: A case of Dessie city revenue office, Ethiopia

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**Abstract**
In this Competitive environment, people expects rendering of public service should be speed with good quality, error free, less time and complete the work through online computerized system. The case of Ethiopia is slight different in application of Information Communication Technology (ICT) because the users are not showing interest to utilize the system to enhance effective management of Public Services. This paves a way to the researcher to undergo a study on challenges in application of ICT in Tax administration in Dessie City revenue office. In order to achieve these objectives, both qualitative and quantitative research approach, and survey research method were applied. Sample respondents are taxpayers, civil servants, ICT technicians and head office employees were selected using both probability and non-probability sampling technique. Questionnaire and interview was used to gather relevant information pertinent to the study. From the findings the ICT helped in saving time to complete tax payment, efficient and convenient tax payment, increasing transparency intermesh in assessing of information. ICT also provided significant benefits for effective taxpayer data encoding and help to apply SIGTAS software. Furthermore the study identified challenges that hinder the application of ICT in tax administration are inadequacy of ICT infrastructure, lack of leadership commitment, inefficient training facilities, poor network connection and lack of awareness. This paper suggests the better ways and means to improve the application of ICT in Tax Administration to the study area and also helps the government to eradicate the pitfalls in the tax system.

**Keywords:** Information Communication Technology, Tax Administration, Taxpayers, Civil Servants, SIGTAS and leadership commitment

## 1. Introduction

### 1.1 Background of the Study

The developing world is currently facing serious development challenges resulting from rapid urbanization. It is manifested by high level of population growth and the corresponding increasing level of consumption and services. As a result government officials and citizens are demanding smaller, efficient and effective governments. The enabling role that ICTs can play in facilitating and promoting efficient and effective tax administration is now recognized by most governments.

The role of information and communication Technologies (ICTs) has been growing in the economic and social life in the 21th century. It is now a fact as evidenced by developments from other countries that ICT as a sector can contribute greatly to the national GDP of a nation and that ICT, acting as an enabler, can result in improved market competitiveness of a nation's products and services. ICTs can impact positively on governance and other sectors of the economy. In turn ICT can effectively assist international economic integration, improve living standards, narrow the digital divide, and improve biodiversity utilization and management.

The digital divide can be narrowed and poverty reduction addressed through effective and focused utilization of ICTs in key sectors such as Financial, service, education, industry and agriculture. The adoption of ICT requires a business environment encouraging open competition, trust and security, interoperability and standardization, and financial resources for ICT.

This requires the implementation of sustainable measures to improve access to the Internet and telecommunications infrastructure and increase ICT literacy, as well as development of local Internet-based content. African countries like most developing countries still depend on content developed and managed in the developed world and as a result substantial costs are incurred while trying to access content. One of the causes that discourage access to digital information is culture and language differences.

In general, ICT goals in Africa are: to establish an environment that encourages networking of services and applications; promoting e-commerce and trade promotion programmes for goods and services; promoting Internet access to exchange and access digital content; establishing e-government; promoting e education and on-line services; strengthening network security; building and developing e-society and ICT human resources.

In Ethiopia, the ICT socio-economic impact remains one of the most often discussed issues. Assessing the roles of ICT in tax administration is necessary to indicate that the application of ICT enable solutions in the country that generate revenue and demand for modern tax administration service is increasing in an alarming rate.

The Ethiopian government has made the development of ICT one of its strategic priorities. This ICT policy is expression of

its commitment to the development of ICT both as an industry and as an enabler of socio-economic transformation. As a result, the government of Ethiopia considers the finance sectors as a focal point of ICT application because of the shortcomings of the state to perform their duty efficiently and effectively due to poor revenue mobilization and inefficient tax administration and to minimize public dissatisfaction due to delays, and inefficiency of government services.

### 1.2 Statement of the Problem

According to Rao (2004), Ifinedo (2005), and (kebede, 2004) the role of ICT for tax administration is very minimal and application of ICT infrastructure encountered different problems and challenges. Similarly, According to Abebaye (2011) [1], in improving the existing tax administration in government sectors recently various ICT based applications have been materialized in Ethiopia though it is minimal.

Like other urban centers of the country, Dessie city administration revenue office has tried to introduce and utilize ICT infrastructure for efficient and effective tax administration and to satisfy the interest of the taxpayer by having a vision to make the service delivery more flexible, convenient and closer to the taxpayers. However, even if the application of ICT in tax administration activities is encouraged, the application of ICT in tax administration is not efficient and more effective. The cause for the inefficient application of ICT infrastructure are Insufficient network connection between the central office of the tax authority and respective kebeles, limited number of skilled and motivated man power, low satisfaction of the taxpayers towards the technology and scarce ICT infrastructure is mentioned. As a result, it directly or indirectly affects the quality of service delivery, better revenue mobilization and collection, effective taxpayers data encoding, tax assessment monitoring, and investigation activities. Furthermore, taxpayers are also affected by the taxation service deliver by the office. Hence, this makes the researcher to conduct the study on challenges in application of ICT in Tax Administration system in Dessie Tax Revenue office.

### 1.3 Objectives of the Study

2. To examine the current situation of ICT application in tax administration in Dessie city revenue office.
3. To assess the level of extent to which ICT improved tax administration.
4. To identify the major challenges that ICT user faced in administering tax in the city.

### 1.4. Significant of the Study

The study helps to assess the current situation of ICT application in tax administration and examining the challenges that hinder in the application of ICT infrastructure for effective tax administration. Therefore, the study was providing possible solutions to the problem of inefficient application of ICT. More specifically, the study on the challenges in application of ICT infrastructure in tax administration was helped to the taxpayers, government institutions, policy makers, and future researcher.

### 1.5 Delimitation/Scope of the Study

The scope the study would focus on assessing the current situation, benefits and challenges in application of ICT infrastructure in tax administration activities like tax assessment, tax collection, monitoring, and tax planning in the study area. The study area was covered only purposively selected category-A tax payer, However, Due to high number of tax payers, this category of tax payers are more familiar to ICT application, and the ICT infrastructure lined in Dessie by the revenue department for the other category of tax payers is similar, study area has been restricted to those taxpayers which are found in this category in the study area. Moreover, the study as used 266 tax payer samples as a main target population based on scientifically established formula to determine the sample size and it also included 56 ICT users as supplement target population.

### 1.6 Operational Definition of Terms

**1.6.1 ICT Infrastructure:** in this study includes all forms of computer, networks, fixed and mobile phones, internet, fax and websites used to create, store, transmit and manipulate information in Dessie City Administration Revenue Office.

**1.6.2 Tax Administration**: is the department of the government responsible for the management of tax obligations specified by the tax law. Its primary task is to ensure that the right amount of tax is paid by the right taxpayer at the right time, providing the government with the needed revenue to deliver goods and services as planned.

**1.6.3 Category-A tax payers:** in this study means any company in any business having annual turnover of birr 500,000 or more that required to submitted financial report at the end of the year to dessie city administration revenue office.

**1.6.4 Civil Servants:** civil servants mean employees who are working in Dessie City Administration Revenue Office.

### 1.7 Limitations of the Study

The purpose of this study is to get accurate and reliable information about the challenges in application of ICT infrastructure in tax administration. The limitation of this study was to find the respondents of sample taxpayer in the data collection time. Because the city is covered wide area, it was not an easy task to find each and every sample taxpayers. In addition to this, the study was faced with lengthy appointment to meet the responsible administrators.

To minimize the limitations, the researcher has made some efforts to identify the selected taxpayer respondents by using their business name and the place where the business organization is found and also by giving descriptions through telephone and being face-to-face for the respondents.

## 2. Literature Review

### 2.1 ICT in Ethiopia

The first application of ICT in Ethiopia has been started since 1884 when telecommunication introduced in to the country (Mulat and Tadesse, 2006) [5]. But according to (Lishan, 2008), Ethiopian ICT infrastructure is one of the lowest in the world and the development of a broad-based national ICT policy in Ethiopia began in early 1997. The average tele density of Ethiopia on respect of fixed line is found so low at about 1.2. According to (Aman, 2010) [2], Conforming to the African picture, the mobile converge appears better and is reported to be about 4.4. The data of the Ethiopian telecommunication corporation (ETC), which is sole telecom

services provider of the nation, tells us that Internet subscription is 0.056 where Internet usage is reported by ITU to be 0.42 in 2008. In regard to usage, the study commissioned by the Ethiopia ICT Development Authority (EICTDA), which is the public administrative agency, tells us that the proportion of Ethiopians living in Ethiopia who have ever used the Internet ever since it's launching in 1998 is just 7.74% of the total population. Speaking of broad band interest subscription, the whole country or nearly 73 million has just 1898 broadband subscribers and that puts the proportion per 100 inhabitants at 0.0026. Similarly the number of computers per 100 inhabitants is as low as just 0.31, while the percentage of people who have ever used computer is just 3.12 of the total population. Another survey on different governmental offices or the federal and regional levels shows that only 27% of public servants are availed computer and 13% availed printers. According to the (ITU world telecommunication/ICT/indicator data) report on Nov, 2015 the Ethiopian average ICT user reaches to 1.1,1.5,1.9 and 2.9 per100 inhabitants in the year 2011,2012,2013 and 2014 respectively. From the ITU report on July, 2014 Ethiopia has a share of 0.06% ICT usage from the world (www.internetlivestats.com)

**2.2ICT and its Impact on Economic Growth**

In an increasingly globalized economy, ICT is one of the key determinants of competitiveness and growth of firms and countries. According to Oshikoya T. and M. Hussain, (2008) argued that, ICT offers new ways of exchanging information, and translating businesses, changes the nature of the financial and other service sectors. ICT can also contribute to the acceleration of economic growth at the country level, when deployed in accordance with the specific needs and capacities of each country. The WB report "E-Development from excitement to effectiveness" (Schwaye, 2006) cited in Adem (2009), high lights that "developed middle income countries and developing nations can reap benefits from having a healthy information technology (IT) supply sector. According to (World Bank, 2006) [9], Research has shown that the use of ICT contributes significantly to the growth of emerging economics. New job have been created, foreign direct investment has increased and national economies have grown as a result of these investments.

**2.3 ICT for Good Governance**

According to Africa Development Bank, (2001) [1] governance in many African countries is still far from "good" because the systems are not as open as they should be. Within the past few years, few African countries have focused on the opportunities provided by information and communication technologies in addressing this complex situation. According to Francise M. and Ramonette S., (2006) ICT promotes good governance in three basic ways: by increasing transparency; by facilitating accurate decision-making and public participation and by enhancing the efficient and effective delivery of services. According to African Development Bank (2001) [10], when South Africa drafted its new constitutions thousands of citizens were able to participate in the process through the constituent assembly's website. Submission by citizens, associations, and political parties were posted on the website in addition to the draft text of the constitution and official documentation. This increased public participation in the process and allowed member's of the assembly to monitor submissions.

**2.4 Indian Experience**

There is an impression that India is world class in IT. A case study of E-seva in Andhra Pradesh "Aditya" in India shows that. The services which is offered by e-seva is water and sewerage bill, tax payment, and internet services such as-internet enabled electronic payments, downloading of government forms and orders and filling of application on the web. As a result, citizens are benefited from the application of ICT by government which saves time, energy, and money and gives hassle free dealings with the administration. All the administrative departments come to customer under one roof affecting the citizen a wide range of citizen friendly services (P.L. Sanjeev, 2006) [7].

**2.5 Research Gap and conclusion**

The literature part has dealing exclusively with the current statues of ICT in developed and developing countries and the benefits and challenges particularly in tax administration. The researcher is certain that there is no previous research conducted on the topic in the study area. This indicates that there is a knowledge gap in the issue there by huge investment on ICT is made without concrete evidences. Therefore, this study was attempted to fill this knowledge gap by reviewing the international literature and collecting data from a case study in the study area.

**3. Research Methodology**

**3.1 Research Design**

**A Descriptive survey** method is employed to identify the challenges that hinder in the application of ICT in the study area. Both qualitative and quantitative types of research approach were used to meet the objectives of the study

**3.2 sources of Data**

To achieve the objectives of the study, multiple data gathering instruments was employ to collect data for the study. The study has been used both primary and secondary sources of data. Structured questionnaires and document analysis was the principal means of gathering the data use in the study. The primary data was obtain from selected experts, category-A taxpayers, and will gather through questionnaires and also from process owner, revenue head official and ICT technician through face to face interview to get reliable information about the existing situation, the benefits/extent and the challenges of ICT application in the city. This study was also used secondary source of data and the researcher was review and browse different published and unpublished materials which is obtained from journals, polices (PASDEP and GTP1), plans (Dessie city Administration Revenue office annual plan), articles, journals and books to get qualitative and quantitative data about the existing situation, benefit and challenges of ICT both in the construction of reviewing literature and in finding and analysis.

**3.3 Sample Size and Sampling techniques**

For this study both non-probability and probability sampling methods was employed. In the non-probability sampling methods, purposive sampling technique was applied to select Category-A tax payers from the city. In Probabilistic

sampling, simple random sampling techniques was used to ensure equal chance and obtain representative sample of this taxpayer category to get information about the benefits/extent/ of ICT infrastructure in tax administration and census sampling to select the civil servant/experts/ from the revenue office

### 3.3.1 Target Population

The target population is the population that was investigated. The elements of the target population in the study are 56 experts who are working in tax administration department and 873 categories-A taxpayers from the study area were considered as a target population to assess their perception about the current situation, extent and challenges of ICT infrastructure in efficient and effective tax administration.

### 3.3.2 Sample size

The sampling frame of the study was the payroll list of employees who are working at tax department of Dessie city administration revenue office of experts and the list of Dessie city administration revenue office category-A taxpayers.

### 3.3.3 Sample size Determination method

According to dessie city administration revenue office (2015), 873 category-A tax payers were registered and 56 individual employees hired along the selected category tax payers, and the civil servants are available in the study area. To calculate the appropriate sample size of the taxpayer, the formula obtained by (Kothari, 2004) sample size determination formula was adopted to find out the sample size as 266 taxpayers and the proportion of the number of taxpayers from the total kebeles are as follows.

**Table. 1:** Proportion of sample size of Taxpayer

| Taxpayers clustered kebele | Total population | Percentage Share | Total Sample Size |
|---|---|---|---|
| Kebele 1 | 159 | 18% | 48 |
| Kebele 2 | 136 | 16% | 41 |
| Kebele 3 | 38 | 4% | 12 |
| Kebele 4 | 189 | 22% | 58 |
| Kebele 5 | 91 | 10% | 28 |
| Kebele 6 | 260 | 30% | 79 |
| **Total** | **873** | **100.00%** | **266** |

**Source:** Dessie City Administration Revenue Office, December 2016

**Table 2: Proportion of Sample Size of Civil Servants**

| Name of the Office | Total Population | Selected Civil Servants | Sample Civil Servants |
|---|---|---|---|
| Dessie City revenue Office Tax Administration Department | 56 | Tax Assessment Officer | 5 |
| | | Data encoder officer | 3 |
| | | Tax Collection Monitoring | 18 |
| | | Tax Audit and Investigation | 16 |
| | | Cash Register machine | 12 |
| | | Planning and Monitoring | 2 |
| **Total** | | | **56** |

**Source:** Dessie City Administration Revenue Office, December 2016

Therefore, the total number of sample size for the purpose of this study that are taken from the dessie city administration revenue department of category-A are 266 Taxpayers( see. table 3.1) and Civil servants 56 Experts(see table 3.2) that give a total number of 322 sample respondents.

### 3.5 Frame work of Analysis

To analyze the gathered data, the SPSS package version 20 was used in order to come up with the appropriate result. The statistical tools like ratios, percentages, and descriptive statistical methods, secondary/ time series/ analysis was used in condensing the data for the purpose of analysis and interpretation.

## 4. Data Analysis and Presentation

### 4.1 Response Rate

In this study, questionnaires were distributed for 266 taxpayers and 56 civil servant and all were collected. Moreover, the researcher interviewed the tax department process owner, the revenue office head and ICT technicians to find out well information about the study. The response rate of all the questionnaires and interview was 100%.

### 4.2 Demographic Data

#### 4.2.1 Age Composition of Respondents

The age composition of taxpayer's respondents shows in table 4.1 the below that 5%, 25%, 40%, 27% were within the age of 18-27year, 28-37year, 38-47year and 48-57year respectively. The remaining 3% were above 57 years old.

**Table 3:** Age Composition of Respondents

| No | Sample Respondent group | Age composition | No of respondents | Percentage (%) |
|---|---|---|---|---|
| 1 | Taxpayers | From 18-27 years | 13 | 5% |
| | | From 28-37 years | 67 | 25% |
| | | From 38-47 years | 106 | 40% |
| | | From 48-57 years | 72 | 27% |
| | | Above 57 years | 8 | 3% |
| | | Total | 266 | 100% |
| 2 | Civil servants | From 20-30 | 25 | 45% |
| | | From 31- 40 | 21 | 37% |
| | | From 41-50 | 10 | 18% |
| | | Total | 56 | 100% |

**Source:** Field Survey, 2016

### 4.2.2 Educational Background of Respondents

The educational background of taxpayers respondents shows that 5% illiterate, 10% below grade 12, 38% 12th complete, 14% have a certificate, college diploma holders are 26%, Degree holders are 6% and above degree 1%. On the other hand, with regard to qualification of civil servants, the percentage of the respondents was 100% Degree.

**Table 4:** Educational Background of Respondents

| No | Sample group | Educational Background | No of respondents | Percentage (%) |
|---|---|---|---|---|
| 1 | Taxpayers | Illiterate | 13 | 5% |
| | | Below grade 12 | 27 | 10% |
| | | 12th | 101 | 38% |
| | | Certificate | 37 | 14% |
| | | Diploma | 69 | 26% |
| | | Degree | 16 | 6% |
| | | Above degree | 3 | 1% |
| | | **Total** | **266** | **100%** |
| 2 | Civil servants | Degree | 56 | 100% |
| | | **Total** | **56** | **100%** |

**Source:** Field Survey, 2016

### 4.2.3 Working Experience of Civil Servants

The highest level of work experience of civil servant respondents was found below ten years (67%). The rest 33% of the respondents was found between 10-20 years' work experience.

**Table 5:** Working Experience of Civil Servants

| Sample group | Working Experience | No of respondents | Percentages (%) |
|---|---|---|---|
| Civil servants | Below 10 Years | 38 | 67% |
| | From 10-20 Years | 18 | 33% |
| | **Total** | **56** | **100%** |

**Source;** *Field Survey, 2016*

### 4.3 Current Situation in Application of ICT

This sub section presents the current situation of ICT infrastructure application in tax administration which including availability, usage frequency of ICT, training of ICT for users, purpose of ICT use and mode of communication between taxpayers and revenue office.

### 4.3.1 Availability of ICT Infrastructure in Tax administration

**Table 6:** Availability of ICT in Tax Administration

| Availability | Types of ICT |
|---|---|
| Available | Computer, Internet, Email, Mobile and Fixed Phone |
| Not Available | Fax, Website and Other types of ICT |

***Source:*** Annual Report of Revenue Office, 2016

In Dessie City Revenue Office, computers, broad band Internet, mobile phone, fixed phone and email were available and fully operational which were used by civil servants for tax administration activities. However other types of ICT like fax and web site were not available in the office.

### 4.3.2 Usage Frequency of ICT in Tax administration

Civil servants responded that the frequencies of ICT usage were varied from one ICT type to another. As civil servant respondents were confirmed that, they use computer and internet very often and sometimes respectively. In addition, mobile phone, fixed phone and email were used sometimes, very often and rarely by civil servants in their day to day activities.

### 4.3.3 Training of ICT for Civil Servants

**Table 7:** Training of ICT for Civil Servant

| Opinion | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | yes | 38 | 67.9 | 67.9 | 67.9 |
| | No | 18 | 32.1 | 32.1 | 100.0 |
| | Total | 56 | 100.0 | 100.0 | |

**Source:** Field Survey, 2016

As can be seen from Table 4.4 *in above*, 67.9% as the respondents were received on job related training to apply and use ICT especially on Taxpayers data base management system and SIGTAS software application on tax revenue assessment and collection activities. However, the rest 32.1% respond that they were not received any formal training to use ICT in TA department.

### 4.3.4 Purpose of ICT Use in Tax Administration

According to the response from the respondents they use computer for tax payer data storing and using, data base management system, and SIGTAS software application to process the tax system. From users of internet all of them explained that they used it for accessing tax related data from any networked computer in the office and searching information that is important for their TA activities. On the other hand from users of email they used it sometimes and rarely for sending and receiving tax related information, reports and plan from different stakeholders such as, regional and zonal revenue bureaus, city administration and service takers (Taxpayers) through internet. According to the respondents of civil servants both fixed and mobile phones were used for tax related information gaining and information transmission. This supports the communication between the revenue office and the customer was mostly face to face.

### 4.3.5 Mode of Communication between Taxpayers and Revenue Office

To identify the mode of communication used by taxpayers and tax administration department, taxpayer's respondents were asked about the mode of communication.

**Table 8:** Mode of Communication between Taxpayers and Revenue Office

| Opinion | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Face to face | 176 | 66.2 | 66.2 | 66.2 |
| | Mobile | 64 | 24.1 | 24.1 | 90.2 |
| | Fixed phone | 19 | 7.1 | 7.1 | 97.4 |
| | E-mail | 7 | 2.6 | 2.6 | 100.0 |
| | Total | 266 | 100.0 | 100.0 | |

***Source:*** Field Survey, 2016.

As shown from figure 4.2 in above, 66% of the respondents indicated that they use face to face communication, 24% indicated that they use mobile phone, 7% indicated that they use fixed phone and the remaining 3% indicated that they use email to communicate with the tax administration department.

**4.4 Extent of ICT to improve tax administration on Part of Taxpayers**

In order to assess the benefits of ICT in tax administration; save time to complete tax payment, save money and energy, fast and convenient tax payment system, transparency and efficiency and effectiveness were asked for taxpayer respondents to give their opinions about these issues.

**4.4.1 Saving Time to Complete Tax Payment**

The taxpayer respondents were indicated their level of agreement about the benefits of ICT to complete tax payment in the office.

**Table 9:** Saving Time to Complete Tax Payment

| Opinion | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Strongly agree | 247 | 92.9 | 92.9 | 92.9 |
| | Agree | 19 | 7.1 | 7.1 | 100.0 |
| | Total | 266 | 100.0 | 100.0 | |

***Source:*** Field survey, 2016

As can be inferred from the above figure, 93% of the respondents strongly agreed and the rest 7% of the respondents agreed that ICT has a benefit for saving time of taxpayers to complete tax payment process in the office.

**4.4.2 Saving Money and Energy to Facilitate Tax Assessment**

According to taxpayer respondents the application of ICT in the office were saved their money and energy especially to complete tax payment process in the office

**Table 10:** Saving Money and Energy to Facilitate Tax Assessment

| Opinion | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Strongly Agree | 239 | 89.8 | 89.8 | 89.8 |
| | Agree | 27 | 10.2 | 10.2 | 100.0 |
| | Total | 266 | 100.0 | 100.0 | |

***Source:*** Field survey, 2016

We can observe from the above, 90% of the respondents strongly agreed and the rest 10% of the respondents agreed that ICT has a benefit for saving money and energy to complete tax payment process in the office.

**4.4.3 Efficient and Convenient Tax Payment System**

The following table indicates the benefits of ICT to improve efficiency and convenient tax payment system in the study area.

**Table 10:** Efficient and Convenient Tax Payment System

| Opinion of respondents | No of respondents | Percentages |
|---|---|---|
| Strongly Agree | 85 | 32% |
| Agree | 90 | 34% |
| Disagree | 77 | 29% |
| Strongly Disagree | 11 | 4% |
| I don't know | 3 | 1% |
| Total | 266 | 100% |

***Source:*** Field survey, 2016

As indicated in Table 4.9 above, 32% of the respondents agreed very much on the effect of ICT for fast and convenient tax payment system in TA. Around 34% agreed, 29% disagree, 4% strongly disagree and only 1% did not know about the benefit of ICT for fast and convenient tax payment system in the office.

**4.4.4 Increasing Transparency in terms of Access of Information**

Taxpayers in the questionnaire were requested to give their level of agreement about the benefit of ICT for increasing transparency intermesh of access of information.

**Table 11:** Increasing Transparency in terms of Access of Information

| Opinion | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Strongly disagree | 50 | 18.8 | 18.8 | 18.8 |
| | Agree | 141 | 53.0 | 53.0 | 71.8 |
| | Disagree | 43 | 16.2 | 16.2 | 88.0 |
| | Strongly disagree | 16 | 6.0 | 6.0 | 94.0 |
| | I don't know | 16 | 6.0 | 6.0 | 100.0 |
| | Total | 266 | 100.0 | 100.0 | |

***Source:*** Field Survey, 2016

As the above Table 4.10 reveals that, 19% of the respondents strongly agreed, 53% agreed, 16% disagree, 6% strongly disagreed and the rest 6% did not know about the success of ICT for transparency in terms of access of information.

### 4.5 Improving Efficiency and Effectiveness of Tax Administration

The efficiency and effectiveness of TA were increased by the application of ICT as per the response of the respondents of taxpayers.

**Table 12:** Improving Efficiency and Effectiveness of Tax

| Opinion | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Strongly agree | 176 | 66.2 | 66.2 | 66.2 |
| | Agree | 66 | 24.8 | 24.8 | 91.0 |
| | Disagree | 11 | 4.1 | 4.1 | 95.1 |
| | I don't know | 13 | 4.9 | 4.9 | 100.0 |
| | Total | 266 | 100.0 | 100.0 | |

**Source:** Field survey, 2016

The above Table confirms that 66% agreed very much, 25% agreed, 4% did not know, and 5% disagree about the contribution of ICT for efficient and effective tax administration.

### 4.6 Benefits of ICT on Part of Revenue Office

#### 4.6.1 Increasing Quality and Quantity of Information

According to civil servant respondents ICT has a benefit for increasing the quality and quantity of information in TA. ICT helped in storing, processing, manipulating and presenting tax related data and a number of taxpayers file in a well-organized manner.

#### 4.6.2 Reducing Tax Evasion and Fraud

The application of ICT in Revenue office was helped in the areas of minimizing tax evasion and fraud both by taxpayers and civil servants.

#### 4.6.3 Increasing Tax Revenue Collection

According to the survey taken from civil servant respondents currently ICT plays a great role in the activities of tax revenue assessment and collection. The secondary data obtained from report of Dessie city revenue office showed table 4.12 below that total revenue was increased from 33,294,788.45 Birr in 2011 to 146,183,700 Birr in 2015.

**Table 13:** Amount of Tax Revenue Collected by DCARO from 2011-2015

| Year | Planned Revenue | Actual Revenue |
|---|---|---|
| 2011 | 58,600,000.00 | 33,294,789.45 |
| 2012 | 76,310,814.00 | 60,726,110.00 |
| 2013 | 362,497,087.00 | 84,928,830.00 |
| 2014 | 432,411,348.00 | 115,459,870.00 |
| 2015 | 483,723,040.00 | 146,183,766.00 |

**Source:** Secondary data from Dessie City Revenue Office 2016

#### 4.6.4 Effective Taxpayer Data Encoding

According to the response of civil servants the improvement of ICT brought is significant because of the application of software program that helped to easily store and use a large amount of taxpayer's data and file in a well-organized manner. It also improved the system of data processing and presentation.

#### 4.6.5 ICT for SIGTAS and Cash Register Machine

According to the result from civil servant response, the application of ICT for using SIGTAS software, and cash register machine were provided a potential benefits for easily storing and use tax related data.

### 4.7 Challenges for the Application of ICT in Tax Administration

According to the survey taken from civil servant respondents, they were identified different challenges that hinder in the application of ICT in tax administration activities. Some of the major challenges are inadequate provision of ICT, lack of leadership commitment, insufficient ICT training facilities, weak network connection, and lack of awareness.

## 5. Conclusion and Recommendation

### 5.1 Conclusion

#### 5.1.1 Existing Situation of ICT Infrastructure in Revenue Office

In the modern age, ICT are contributing to enormous progress and impacting on different aspects of society. ICT in public sectors in Ethiopia can help governments reinvent themselves and run cheaply, faster, batter and produce new outcomes in their activities. Now a day, however,

From the data analyzed in this chapter it was found that there is an attempt to integrate ICT in to tax administration in Dessie city administration Revenue office. Despite limited number there are ICT hardware and software such as computer, internet, LAN, SIGTAS, fixed and mobile phone

and email used by civil servants in the office in tax administration activities like tax assessment, tax collection, data encoding, tax planning and monitoring activities. However civil servants were not used other types of ICT like fax and website. As a result, the availability of ICT infrastructure is on the balance a very weak and inefficient one by any standard. Regarding on usage of frequency, computer and fixed phone are the highest used form of ICT and it is repeatedly used by employees for tax administration activities. On the other hand internet and mobile phone are often and sometimes used by the employees respectively. Concerning training of civil servants on the use of ICT the study generally conclude that there are, however, attempts to equip ICT users with the basic ICT skills, there is insufficient training given to ICT users as a result the skill of ICT users is quite in adequate. The study found that majority of taxpayers (66%) used face to face communication to share and receive tax related information and the dual communication between the Revenue office and taxpayers are dominated by face to face communication. As a result, they are suffering from high compliance cost. In addition to this, some (24%) of taxpayers has used mobile phone to facilitate tax payment process.

#### 5.1.2 Benefits of ICT in Tax Administration

These benefits includes; save time to complete tax payment, saving money and energy to complete tax assessment, make the tax payment system fast and convenient, increase transparency intermesh of access of information, and increase the efficiency and effectiveness of service delivery on the side of taxpayers. Whereas on the side of Revenue office, increase quality and quantity of tax related information, reducing tax evasion and fraud, improve tax revenue assessment and collection, effective taxpayers data encoding and for using SIGTAS software and cash register machine are the major benefits identified by the study.

#### 5.1.3 Challenges in the Application of ICT in Tax Administration

The study found major factors (challenges) that limit the application of ICT in the office. Inadequate ICT infrastructure provision in the office is the major challenges for effective application of ICT for effective tax administration. Specially, computer and fixed phone are not adequate in the office. Lack of leadership commitment is another challenge and city administrators are not active and reluctant to allocate adequate budget and inefficient to bring better solutions for the existed problems. As the findings, insufficient training facilities are another major challenge in the application of ICT in the office and as a result the skill of ICT users is quite in adequate. The study found that, there is a problem regarding on network connection and poor network connection is a series problem because it creates slow motion in systems and affects the service delivery of tax assessment and collection, and also it delays in decisions making of taxpayers complain. Furthermore, some experts in the office have not adequate awareness about the operation of ICT technology in efficient way especially on computer and email. Not only civil servants but also higher officials have low awareness about the importance of technology and don't give full attention on the application of the technology.

### 5.2 Recommendations

Based on the above conclusion the following recommendations are suggested to improve the application of ICT infrastructure in TA.

#### 5.2.1 Providing Sufficient ICT Infrastructure

Sufficient and good ICT infrastructure like computer and internet should be developed in the office for better application of ICT for satisfaction of customers (taxpayers). The research results provided that the existing types of ICTs are not adequate. There is no website and fax in the office which are very useful technology that plays a great role to accomplish government duties easily.

Furthermore, there is no online service delivery by the office. Therefore, there should be adequate ICT infrastructure (computer and fixed phone) provision for better TA performance and it should be provided by the coordination of different stakeholders such as Amhara Regional Tax and Custom Authority, Dessie City Administration and Revenue Office within a short period of time.

#### 5.2.2 Commitment of Leadership should be improved

Leadership is one of the main driving forces for the application of ICT on TA activities. In order to effectively implement the I**C**T policy and program the administrative and political leaders should be committed on the issue because if the leader goes the organization goes however, if the leader sleeps the organization sleep. Therefore, government officials and workers should have common understanding and awareness about the use of IT with in the management body of each infrastructure uses by taking action on allocating adequate budget for purchasing ICT equipments and for training facilities.

#### 5.2.3 Providing Adequate Training Facilities to Civil Servants

One of the critical challenges in the application of process of ICT based TA is shortage of skilled human resource. Technical skills for the implementation of ICT infrastructure as well as for using and managing ICT based TA are necessary. Thus, the development of human resource is very important for the success of improved ICT based TA, in increasing employee productivity, transparency and government efficiency and effectiveness. Therefore, it is recommended that the Regional Tax and Custom Authority and Dessie City Revenue office should prepare and provide practical and sufficient ICT related training to the civil servants to make them more competent and confidential on their work within a short period of time.

#### 5.2.4 Improving Network Connection

To solve the problem of network connection, the network of the system should be improved by collaborative work of the Revenue office, Dessie city administration and Ethio-telecom Dessie district to increase the speed of execution. To make the service delivery more transparent the revenue office has to provide information on-line to the customers (taxpayers) and stake holders by using broadband networked internet. Moreover, the Revenue office should improve internet connection to create on-line taxation service delivery with the cooperation of Regional Tax and Custom Authority and Ethio-Telecom Dessie district may be few years later.

### 5.2.5 Increasing Awareness of the Technology

Without adequate wariness about the use and importance of new technology it is not possible to implement government policy and programs in the country. Similarly, to get full support from different actor's adequate awareness should be created. Specially, the regional government should increase the awareness of local administrators by using short seminars and training before the application of new technology at local level. Dessie city administration and Revenue office also create the use of new technology to the ICT users to increase the skill and experience of civil servants and for better out comes.

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