EFFECTS OF AN INTERGRATED REVENUE COLLECTION SYSTEM AND CHALLENGES FACING ITS IMPLEMENTATION IN MACHAKOS COUNTY

BY:

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DECLARATION

This research project has been done by me and has never been submitted for exam in any college, University or any other institute of higher learning.

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D61/61053/2013

This project has been submitted for examination with my approval as University Supervisor.

Signature…… ……Date……

SUPERVISOR:

DEDICATION

This work is dedicated to my son Shawn Mutisya, daughter Sandra and my wife Jean Kasyoka Mutisya.

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I thank Almighty God for good health and for bringing me this far, His grace was sufficient.

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LIST OF ABBREVIATIONS

CBB	Central Budgeting Bureau
CBK	Central Bank of Kenya
CRA	Commission for Revenue Allocation
ERCS	Electronic Revenue Collection System
FY	Financial Year
GDP	Gross Domestic Product
GoK	Government of Kenya
ICT	Information and Communication Technology
IFIMIS	Integrated Financial Management Information System
LAIFORMS	Local Authority Integrated Financial Operations Management System
SPSS	Statistical Packages for Social Sciences
UNCTAD	United Nations Conference on Trade and Development
US	United States
VAT	Value Added Tax

ABSTRACT

Public revenue collection is an integral component of fiscal policy and administration in any economy because of its influence on national government operations and the grassroots. It is the fuel of every government as it is the main instrument through which government funding is ensured. Research establishes that it is inconsistent for county governments to exclusively look to the national government for revenue to establish or maintain programs whose benefits have a local reach. Following the establishment of devolved governments in Kenya, county governments were expected to collect their own revenue to mitigate between allocation of revenue from central government and their own budget. This called for automation of revenue collection systems from Local Authority Integrated Financial Operations Management System (LAIFORM) to Integrated Financial Management Information System (IFMIS). Automation of revenue collection system involves investing in modern technologies for example: ICT in order to upgrade the revenue system to achieve integration and information sharing in so as to enhance efficiency and effectiveness of the system. This study sought to establish effects of Revenue Collection Automation and implementation challenges faced by the management at Machakos County in Kenya. The study involved a longitudinal causal study supplemented by in-depth qualitative interviews. The population of study was Machakos County consisting of eight (8) sub counties. Judgmental sampling was used in selecting two sub counties from the eight existing sub-counties based on the size and level of activity. The study used both primary and secondary data sources. The primary data was collected using an interview guide while secondary data was obtained from past records and reports of the manual systems from the county's Finance department, from 2011 to 2014. Trend analysis was used to bring out the comparison between the period before and after automation of revenue collection in Machakos County. Chi-square was used to test whether the change in the level of automation has a relationship to the increase in revenue collection in Machakos County. The findings were presented line graphs and tables while explanation to the tables and figures was given in prose. Content analysis was used to analyze the primary data from the interviews. The study established that implementation of integrated revenue collection system influenced revenue collection positively. Challenges that were identified to influence implementation of integrated revenue collection system included resources, staff capacity, political interference, remoteness among others. The study recommends that the county government should be more committed to the implementation to ensure adequate resource allocation and also top offer leadership. Also, it was recommended that the county government should ensure that it builds on its staff capacity through establishment of ICT professional curriculum.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Public revenue collection is an integral component of fiscal policy and administration in any economy because of its influence on national government operations and the grassroots. It is the fuel of every government as it is the main instrument through which government funding is ensured. Revenue collection should comply with best practices of equity, ability to pay, economic efficiency, convenience and certainty (Visser & Erasmus, 2005). For a government to match its performance with the needs and expectations of its citizens, it should increase its fiscal depth without incurring costly recurring overheads (Gidisu, 2012).

Kenya has undergone significant political change in the last two years, the most significant being the recent implementation of a new constitution. In this new constitution the government's operations are being devolved from a national management level to largely independent running County Governments, 47 in total. Each County is self-governing with some support from the national government. The Machakos County Government is in the process of implementing systems that allow for the maximum and effective collection of revenues across the County. This study sought to address the revenue collection objective of the Machakos County Government.

According to Kamolo (2014) it is inconsistent for county governments to exclusively look to the national government for revenue to establish or maintain programmes whose benefits have a local reach. Programmes like feeder roads, garbage collection, establishment and maintenance of sewerage systems, keeping the street clean, rural

access roads, development of markets and urban centers should be financed by local revenues. County governments need to collect much revenue by way of taxes to face the increasing financial expenditures budgeted by the county and to ensure a balance between county budgetary allocations and county revenue collection through tax instruments.

Following the establishment of devolved governments, county governments are expected to collect their own revenue to mitigate between allocation of revenue from central government and their own budget. This has called for automation of revenue collection systems from Local Authority Integrated Financial Operations Management System (LAIFORM) to Integrated Financial Management Information System (IFMIS). This is intended to enhance collection from multiple revenue streams including single business permits, market stalls, parking fees, real estates, land rates, and to achieve real time transaction reports on a secure central server that must be accessible on web and mobile platforms. One major administrative problem today for many county governments is their inability to cost effectively collect fully the revenues due to them. Here emphasis will be on the cost-effectiveness of revenue collection in county governments (UNCTAD, 2008).

1.1.1 Non automated Systems of Revenue Collection

Non automated systems are manual systems of revenue collection which are centrally from one place. Before the introduction of automated systems of revenue collection, local authorities used manual systems of collections by using manual receipts. Problems such as high costs for collection, fraud, underpayment and leakages in revenue were worse by massively expanding the current taxable base without the use of adequate computerized solutions (Fjeldstad & Heggstad, 2012).

None automated systems of revenue are attributable to problems of tracking and identifying fraud or rogue revenue collectors are only compounded by the usage of manual or centralized systems due to the resources and overheads needed to monitor and control such problems. Manual collection of payments at several service points lead to delayed customer service with built-in Risk Of manual cash management Minimal payment channels. Disparate payment applications and Lack of integration to the back office applications bring about delayed and possibly erroneous analysis and reporting (Prichard, 2010).

1.1.2 Automated Systems of Revenue Collection

Automation of revenue collection system involves investing in modern technologies for example: ICT in order to upgrade the revenue system to achieve integration and information sharing in so as to enhance efficiency and effectiveness of the system. All Sectors of the County should put in place an effective and efficient revenue collection system in monitoring framework that ensures adequate supervision of the budgeted programs and project activities to enhance accountability and absorption of resources (Amin, 2013). Automation of revenue collection systems and structures is instrumental in improving and simplifying administration of taxation through utilizing modern technologies for example ICT.

With a modern system of revenue collection, county Government can mobilize additional revenue by increasing collection efficiency as well as by expanding its revenue base. With increased reach and fiscal depth, the many challenges facing government can be addressed in some measures by simply having access to more financial resources. As such, the primary aim of computerized revenue collection

must be to increase cash receipts in order to effectively sustain the utility and generate an acceptable return on investment related to the system. Leakages that occur because of untimely collection, fraud and under-collection could be reduced by streamlining and automating the revenue collection process. Penalties may be automatically applied to late payments. Daily reporting of cash receipts and due payments to be collected should be automatically generated by the system (Kamolo, 2014).

1.1.3 Impacts of Revenue System Automation on Revenue Collection

The public revenue collection challenge should be broadly conceptualized within the tax reform initiatives. System modernization is key in improving the efficiency and effectiveness in revenue collection. No doubt the traditional form of fiscal receipts will always be an essential part of the tax administration system (UNCTAD, 2008). Through system automation, a tax collection agency will be able to meet their revenue collection targets at the grassroots as well as less tax avoidance and evasions. Automation of the custom system falls under the Public Administration sector and its objective is to improve the efficiency and effectiveness both at the national level and in the county governments.

According to Sohne (2003), for a county government to match in performance with the growth and expectations of its constituents, it must dramatically increase its fiscal depth without incurring costly recurring overheads. Sohne (2003) further noted that automated systems have proven to be capable of introducing massive efficiencies to business processes that can result in increased revenue. Applying technological solutions towards achieving key goals by the government is a key step towards transforming government into an entity that can keep abreast of the needs, requirements and expectations of today's modern world.

1.1.4 Machakos County

The County Government of Machakos was established by the Constitution of Kenya 2010, article 176. The County covers an area of 6,208 km2 with a population of 1,098, 584 (2009 National Census).The County of Machakos consists of five (5) former town boards including Machakos, Masaku, Mavoko, Kangundo and Matuu. Former councils were the main collectors of local revenue in the County, mainly because they had a structure in place for revenue collection (CRA, 2014).

Machakos County has diversified in their principal sources of revenue in order to increase its tax base. The governor of Machakos County is currently rated among the high performing governors from the 47 counties in Kenya (Victor, 2014). He has developed a strategic plan in which he has deployed the revenue collection instruments for example water charges, land rates, house rents, and sewerage fees land rates and infrastructure-based revenue plot rents, licenses and incomes from less capital-intensive services such as market and bus park fees. These are used to finance key projects in the County for instance road construction projects, people's park and other major development projects (Kirira, 2012).

1.2 Statement of the Problem

In today's competitive, fast-paced business landscape, getting the most out of available resources is not an option but rather a necessity. Organizations are taking a highly proactive approach to systems modernization and operations in an effort to increase efficiency and effectiveness in their operations. System automation allows firms to automate new platforms of their revenue collection systems in order to reap maximum benefits (Bahwan CyberTek, 2012). System modernization provides

measureable improvements in the efficiency and effectiveness of development and maintenance activities with on-time delivery and predictable quality (UNCTAD, 2008).

Local Authority Integrated Financial Operations Management System (LAIFORM) is a World Bank funded project; it is a backend system that was provided to municipalities for free. Though the project has been on implementation for the last ten years, none of the counties is fully automated (Maina, 2013). Previously, LAIFORM was the main platform for recording the collected revenues as a back end financial solution; collections were done using manual receipts. Explicit corrupt practices were rampant due to inherent cartels between collectors/back office and senior officials which saw adverse misappropriation of collected revenues in Machakos County (Kamolo, 2014). This has triggered the need to implement a revenue collection system that minimises revenue leakages, ensures adequate information to the County customers, maximizes on revenue collection to support the County Government's development agenda and services delivery to her citizens.

Globally, several scholars and researchers have reviewed revenue system modernization and revenue collection. Gidisu (2012) did a study on the automation system procedure of the Ghana Revenue Authority on the effectiveness of revenue collection using a case study of customs division. It was established that there was a positive impact of automation system usage and the cost of tax administration, automation and effectiveness of revenue collection. Wasilewski (2000) studied the economic development and taxation system by comparing the case of Brazil and Japan. Japan's experience demonstrated that a country does not need to postpone a

real change in the tax structure until it achieves a high stage of development. Rather, a modern system can stimulate economic growth and enhance the domestic market.

Mitullah (2005) did a survey of 175 local authorities in Kenya on the effectiveness of information systems. Most of these Local authorities faced a number of challenges in realizing their mandate for instance delivery of infrastructure and services due to poor management systems. The study concluded that information system was instrumental in enhancing and proper management of resources at the local authorities. A study carried out by Kibe (2011) shows that the use of geographical information systems will enable the local government to collect more revenues through an improved financial management systems.

Previous studies focused on the back end part and referred it as revenue collection and yet revenue collectors used manual receipt books. A fully automated system needs to capture the entire business process from revenue collection to back office application integration and reporting channels to the central government for proper accountability. This study focused on front end and backend systems, seeking to address the problem by determining the effects and approaches to the challenges facing implementation of automation on revenue collection in Machakos County. Therefore a research question was posed: what is the effect of Integrated Revenue collection automation and how is Machakos county government addressing the challenges?

1.3 Objectives of the Study

The general objective of this study was to determine the effects of Revenue Collection Automation and implementation challenges faced by the management at Machakos County in Kenya.

1.3.1 Specific Objectives

The specific objectives of this study were to establish:

i). The effects of automating revenue collection in Machakos County

ii). How Machakos County addressed challenges faced during implementation of the automated system

1.4 Value of the Study

The findings of this study would be resourceful to other county governments seeking to automate their systems, they stand to benefit with important information on the importance of automating revenue collection systems. This would act as a hypothesis test to most county governments wishing to automate the revenue collection systems to achieve maximum collection of revenues at the grassroots.

The Government especially in the Ministry of Finance (Kenya Revenue Collection Authority) and policy makers stand to benefit from the findings of this study in making key policy decisions whose overall objective is to increase tax base at the grassroots, accountability of revenue collected, influence on the level of economic activity and management of public debt.

To scholars and academicians, the findings of this study would increase the body of knowledge to the scholars interested in revenue system automation and revenue collection in the national and county governments. It would provide a basis for further research to future scholars and academicians on identified gaps.

CHAPTER TWO: LITERATURE REVIEW

2.1 Revenue Collection and Management

Governments are working towards maximizing on their revenue collection methods to ensure that they raise enough revenues to run and manage the affairs of the county government at the grassroots. Increase in revenue collection can be achieved through employing county revenue instruments for tax collection as well as exploiting and harnessing all available sources of revenue in their localities and devising a cost effective means of collecting revenues.

The county government ensures the proper policies and procedures that are in harmony with the citizens to facilitate smooth flow of activities and development initiatives. Ensure proper management of funds, efficient and effective internal control systems to maintain a fair play in the administration and management of county resources (GoK, 2004).

2.2 Methods of Revenue Collection

There two main methods of revenue collection, namely electronic revenue collection and manual systems. Electronic Revenue Collection System (ERCS) is a comprehensive solution for the electronic collection of government fees, taxes and custom duties (Agbeyegbe, Terence, Stotsky & WoldeMariam, 2004). This method serves as a means to achieve a cashless environment via the introduction of virtual funds and automates all revenue collection processes, allowing government agencies to exploit the full capabilities of the technology to transform its services to the public. ERC system provides various electronic methods that enable the government to

collect all revenues related to the government services, customs and taxes and so forth.

Manual systems of revenue collection are centrally from one place and unlike the electronic systems of revenue collection they inhibit autonomy done using manual receipts. Manual systems of revenue collection lead to high costs for collection, fraud, underpayment and leakages in revenue. County governments can apply effective revenue collection methods for example making assessment of taxpayers and ascertaining the number of taxpayers for that year (Ghura, 1998).

This helps in determining the amount of tax to be collected from tax payers annually in order to plan and budget for development agenda (Holger, 2009). A reminder notice is sent to tax payers in a period of 2-3 weeks before taxes are due for collections in order to ensure that there are no tax arrears. This helps tax payers to file returns on time and mitigate irregularities and inconsistencies on revenue collected and thus creating harmony between citizens and county government (Lymer & Oats, 2010).

According to Mitullah, et al. (2005), designate revenue collection points for convenience and efficiency. In addition, losses through corruption and tax evasion need to be reduced by applying stiffer penalties to corrupt officials and tax evaders. This can be achieved by contracting collections to a private collection agency; thus increasing revenues from existing sources and also reducing cost. County governments should adapt this method in order to increase revenues and improve their efficiency in revenue collection.

Traditional rulers should be appointed in collection of community tax; this will lead to reduction of costs for example limiting the number of surplus staff appointed to collect taxes. Most traditional rulers are well respected and can easily collect community tax since they understand the geographical location of communities. Measures are required to enhance taxpayers 'compliance and to improve the accountability of tax collectors for example the local governments can device a means of allowing tax payers to pay their taxes online. Here tax payers are registered and connected using the internet with the revenue office/collector such that they can be reminded or compelled to pay their taxes online as at when due and automatically identify defaulters for further action, this would make the job of revenue collection a lot easier and cheaper (Australian Aid & World Bank, 2012).

2.3. Types of Revenue

There two main types of revenue by the county government which are; Tax revenue and Non tax revenue.

2.3.1 Tax Revenues

Taxes are compulsory payments to government without expecting direct benefit or return by the tax payer. Taxes collected by the government are used to provide common benefits to all mostly inform of public welfare services. Taxes do not guarantee any direct benefit for the person who pays the tax. The government collects tax revenue by way of direct and indirect taxes, direct taxes includes; corporate tax; personal income tax capital gain tax and wealth tax. Indirect taxes include custom duty, central excise duty, VAT and service tax (Blind, 2005).

2.3.2 Non-Tax Revenue

The revenue obtained by the government from sources other than tax is called Non-Tax Revenue. The sources of non-tax revenue such as Fees are other important source of revenue for the government. A fee is charged by public authorities for rendering a service to the citizens. Unlike tax, there is no compulsion involved in case of fees. The government provides certain services and charges certain fees for them. For example, fees are charged for issuing of passports and driving licenses. Fines or penalties are imposed as a form of punishment for breach of law or non fulfillment or certain conditions or for failure to observe some regulations. Like taxes, fines are compulsory payments without quid pro quo. But while taxes are generally imposed to collect revenue, fines are imposed as a form of punishment or to prevent people from breaking the law. They are not expected to be a major source of revenue to the government (Eden, 2009).

Eissen (2010) suggests that the Government also gets revenue by way of surplus from public enterprises. In an article, Guldentops (2001) indicates that gifts are Voluntary contributions by individuals or institutions to the government. Gifts are significant source of revenue during war and emergency. A grant from one government to another is an important source of revenue in the modern days. Grants from foreign countries are known as Foreign Aid. Developing countries receive military aid, food aid, technological aid, etc. from developed countries.

2.4 Impacts on Business Perspective

The previous empirical studies found that most of the tax structures were highly significant and related with the economic and business growth in a country. One of

the earlier studies done by Marsden (1983) mentioned that change in tax policy will affect the economic planning and business activities of a country. According to Gober and Burns (1997), a countries economy may be affected differently due to any changes in each tax components this has a huge implication on the performance of businesses and firms.

Two of the early studies by Hinrisch (1966) and Musgrave (1969) examined the relationship between the ratio of tax revenue to GDP (TAX/GDP) and found it was relatively low in the developing countries and this had a significant impact on the performance of businesses in the country. This explains why some businesses in developing countries perform poorly as compared to the developed countries. In his argument Musgrave indicated that a government is able to collect sufficient revenue in an economy is able to invest more resources in development and this provides an enabling environment for growth of businesses in a country.

Burns (1997) argues that corruption is a strong inhibitor of development of an economy. Corrupt revenue collection officials prevent the government from collection enough revenue for development purposes. This also paves way for inequity and inconsistencies leading to gap between the rich and the poor making it difficult for businesses to thrive due to inequitable circulation of money in an economy.

2.5 Challenges of Automating Revenue Collection

The challenges of automating revenue collection faced by the county government include resistance from the employees in the county. When attempting to change a business culture managers frequently must deal with employee resistance. Most employees are comfortable with the way they operate and do not want change

(Shaver, 2006). The management must continually reinforce the new behaviors and seek to keep employees from reverting to the old ways of doing business for example accountability (Spencer & Casey, 2007).

The other potential problem with implementing organizational change is the training requirements that come with it. Simonson (2005) notes that when you want to change the behavior of an entire company, you have to invest in considerable amounts of training for everyone. This can be expensive and can significantly reduce productivity.

The management of the organization should consider many factors when making a decision to introduce any form of change. When a business is performing poorly it may be obvious that changes are needed (Shields, 1999). Choosing the proper route can be a difficult process. If upper management chooses the wrong way to go about change, it can hurt the company significantly. The managers may not be able to tell if the new system is a bad fit or if the employees are just going through a transitional phase (Simonson, 2005).

The management needs to develop a plan that acts as a guide to the new change, process and procedures they intend to put in place to implement the change. Organizational change requires a comprehensive plan (Simonson, 2005). Most organisations make the mistake of implementing change without seeing it all the way through. The management requires developing a step-by-step plan for the organizational change and then enforcing it.

For example, if an organization is transitioning to a new management system, the management will need to know if the new system is compatible with the old system.

The time line for the change is also a key component for successful implementation of change (Shields, 1999).

Failure to communicate with all employees may be a down to successful change implementation process, particularly if you're facing major changes for example automation of revenue collection systems. Employees should be informed about the change management process (Shaver & Katherine, 2006). Top management should involve employees in the decision making process, employees should be allowed to give their views on the change process this is achieve by keeping employees updated regularly about the plans and progress toward the change implementation. Involve all employees as much as possible through meetings or brainstorming sessions to help during the planning and implementation phase (Schweiger & DeNisi, 1991).

2.6 Theoretical Basis

This study will be guided by transactions cost theory and change management theory.

2.6.1 Transaction Cost Theory

According to Khan and Hildreth (2004), transaction cost theory is a promising perspective for financial management theory for two main reasons: the ambiguity of transactions, and the widely accepted value of efficiency in this area. In principle, revenues could be collected with three different types of contracts between the revenue collecting authority and the revenue collector: wage, share and fixed-rent contracts. Wage contracts mean that the government hires revenue collection agents on fixed wages, and the revenue collection agents agree to turn over to the government all the revenues they collect. Share contract occurs when in lieu of a wage payment, the revenue collection agent holds on to a pre specified share of the

revenues collected. Fixed rent contracts occur when the revenue collectors agree to pay a pre specified sum to the government in return for the right to the entire revenue proceeds (Kahneman & Amos, 1979). Before the 19th century, the fixed-rent contract was the dominant form of revenue collection. The wage contract is the dominant form of revenue collection in modernized systems, so much so that other methods of collecting revenues are seen as anomalous.

Many issues in expenditure management also are contracting, expenditure management is a three stage administrative process that is determination of the policies, objectives, and resources needed, allocation of resources needed for those objects and assurance that specific tasks are carried out economically, efficiently and effectively. Transaction costs (bargaining and decision costs) are involved in determining expenditure policy because such policy is essentially an expenditure contract between elected officials (with assistance of central budgeting bureau, or CBB) and spending agencies which occurs in creating expenditure, a "political transaction cost" (Rabin & Mathew, 1998).

2.6.2 Change Management Theory

Today change is constant and organizational leaders who anticipate change and react rapidly and responsibly are successful. However, the organizational leaders who anticipate and invent the future are even more successful because those who initiate change are the leaders in their industry (Romanelli & Tushman, 1994). Other organizations are followers that adapt to change. Still others are the organizations that do not survive. There are many models that can be used for successful organizational change. Winners respond to the pace and complexity of change (Schein, 1992) they adapt, learn and act quickly. Losers try to control and master change in the

environment. It is important for organizational leaders to identify and use a model for transformation that will help their organizations survive the dynamics in the external environment (Romanelli & Tushman, 1994).

In change management process the critical aspect is the organisations ability to win the buy-in of their organization's employees on the change. Effectively managing organizational change involves four-step processes which include recognizing the changes in the broader business environment, developing the necessary adjustments for their company's needs, Training their employees on the appropriate changes and winning the support of the employees with the persuasiveness of the appropriate adjustments (Romanelli & Tushman, 1994).

As a visible track on transformation projects, Organizational Change Management aligns groups' expectations, communicates, integrates teams and manages people training. It makes use of performance metrics, such as financial results, operational efficiency, leadership commitment, communication effectiveness, and the perceived need for change to design appropriate strategies, in order to avoid change failures or resolve troubled change projects (Reiss, Albert, Roth & Jeffrey, 1993).

2.7 Review of Empirical Studies

Muriithi and Moyi (2003) conducted a survey study tax reforms and revenue mobilization in Kenya. The researchers used primary data which was collected using a questionnaire to achieve the objective of this study. One of the key objectives of tax reforms in Kenya was to ensure that the tax system could be harnessed to mitigate the perpetual fiscal imbalances.

A study conducted by Maina (2013), primary data was collected using a questionnaire, analysis of data was done using a regression model and the results showed LAIFOMS (sig. = 0.017), employee skills explained up to 27% of local authority revenue collection. The study concluded that the revenue collectors appreciated the role of information technology in ensuring effective revenue collection however the availability and accessibility was a hindrance to effective LAIFOMS implementation.

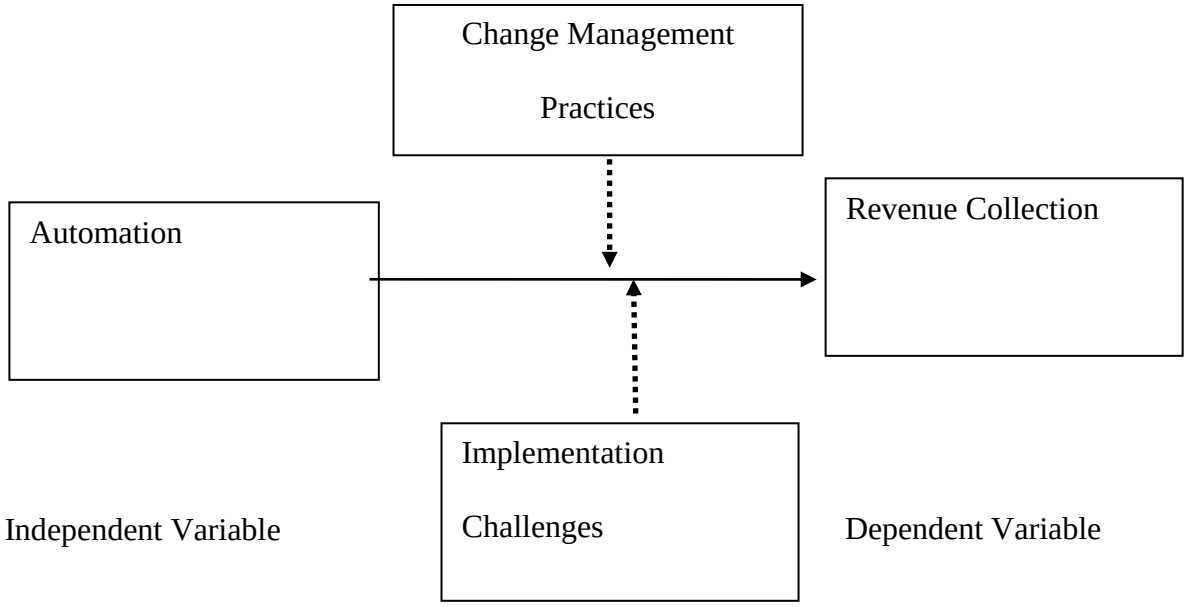
A study was conducted in Homabay County to determine the effects of information systems on revenue collection by Local Authorities. Odoyo, Oginda, Obura, Aila, Ojera and Siring (2013) found that there is a relationship between Information Systems and both efficiency and effectiveness in revenue collection, there is a strong positive relationship between Internal Control Systems and revenue collection as reported by 97% of the respondents, and that resistance to change by the council staff was derailing the full implementation of Information System.

2.7.1 Summary of the Literature Review

From the above studies, it's evident that most of these studies have laid more focus on the back end solution of revenue collection none have focused on the front end solution on revenue collection. In the early days of automation a resident computer system was referred to as automated system. The level of automation today captures the entire business process and is made to reduce human intervention, raising the bar of interference from corrupt officials. Transactional monitoring is very advanced, with instant reporting to various departments, this makes it difficult for officials to making changes of reports to favor a required output. This study therefore seeks to fill this gap

through determining the effect of automating revenue collection system in Machakos County.

2.8 Conceptual Framework



CHAPTER THREE : RESEARCH METHODOLOGY

3.1 Introduction

This section covers the research methodology that the researcher used in the study; this includes the research design, the population of the study, sampling, data collection and data analysis.

3.2 Research Design

The study involved a longitudinal causal study supplemented by in depth qualitative interviews. A Causal study is a method that tests a hypothesis in a situation to better understand the cause and effect (Engelhard, Kohler, & Prskawetz, 2009). A qualitative method investigates the why and how of decision making, hence smaller but focused samples are more often used than large samples. The two methods are to capture both what causes increase in revenue and how the county managed the complexity.

3.3 Population of the Study

The population of study was Machakos County consisting of eight (8) sub counties.

3.4 Sampling

Judgmental sampling was used in selecting two sub counties from the eight existing sub-counties based on the size and level of activity. A census of all the revenue points in the two chosen sub counties was done to select revenue points that are similar for ease of comparison.

Judgmental sampling was used to select three members from the county government and two members from the system providers. The respondents selected had to be members of the system implementation board, which consists of five members from the county government and five members from the system providers.

3.4 Data Collection

The study used both primary and secondary data sources. Secondary data was obtained from past records and reports of the manual systems from the county's finance department, from 2012 to 2014. The data that was obtained was used to compare with the records from January 2014 to September 2014 after the automation of the revenue collection in Machakos County.

The primary data was collected using an interview guide. The researcher interviewed five members of the implementation board who include, the county ICT Director, Director-Revenue collection, Head of enforcement and two members from the system providers.

3.5 Data Analysis

The data collected was sorted, coded then entered into the Statistical Packages for Social Sciences (SPSS) for analysis. A comparison was done before and after automation of revenue collection systems and its effect on revenue collection at Machakos County. The findings were presented line graphs and tables. Trend analysis was used to bring out the comparison between the period before and after automation of revenue collection in Machakos County. Chi-square was used to test whether the change in the level of automation has a relationship to the increase in revenue collection in Machakos County. Chi-square is a statistical test commonly used to

compare observed data with data we would expect to obtain according to a specific hypothesis (Simon, 2002).

Content analysis was used to analyze the primary data. According to Kothari (1990), content analysis involves analyzing the contents of materials such as books, magazines and the content of all other verbal materials which can either be spoken or printed.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the data analysis and interpretation of the study. The study presents data on the effects of an integrated revenue collection system and challenges facing its implementation in Machakos County. The study was conducted in Mavoko and Machakos sub-counties. The study used both primary and secondary data. Primary data was collected using an interview guide and the analysis done through content analysis in order to establish the challenges faced by the county management during the implementation of automation. Also, the interview guide sought to establish the strategies adopted by county government of Machakos to mitigate the challenges. Secondary data on revenue collection before and after implementation of integrated revenue collection system was collected from both sub-counties.

4.2 Background information

The study sought to establish the information on the respondents employed in the study with regards to the departments, their designation, how long they have been working for the county/former municipalities. Since an implementation board was formed between the county and system vendors, two members from the system vendor where interviewed. These bio data showed the appropriateness of the respondents in answering the study questions. The study revealed that the interviewees worked in different departments within the county and the system vendors. It also revealed that they held managerial positions, hence were involved in the strategic decisions within the county and were in a position to offer credible

information as sought by this study. This clearly shows that they were in a position to give accurate information about the county activities.

Secondary data collected by the researcher from the counties finance office. All data for the last three years was available and for ease of understanding and comparison was cumulated to quarterly summaries on each revenue stream. Since automation was introduced at the beginning of the year 1st of January 2014 (3rd quarter of financial year 2013/2014), the study focused on data prior to automation and after automation.

4.3 Revenue collection in Machakos County

This section presents data on revenue collection in Machakos County. Since the study focused on Machakos and Mavoko sub-counties, data presented below is thus from Machakos and Mavoko sub-counties. Tables have been used in presentation of data. The study has also used line graphs to show trends in revenue collection before and after implementation of integrated revenue collection system.

4.3.1 Revenue collection in Mavoko Sub-County

This section has presented data on financial management unit, quarries, markets and car parks. Also, data on overall revenue collection in the sub county was also presented.

4.3.1.1 Financial management

Table 4.1 and Figure 4.1 below, presents data on financial management unit under the headings, Sand, Gravel, and Ballast Extraction Fees, Quarry Extraction Fees, Mineral Extraction Royalties (Cement, Silica, etc.) and Garbage Dumping Fee.

Table 4.1: Financial Management Unit

	2011/2012				2012/2013				2013/2014				2014/2015
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q
Sand, Gravel, and Ballast Extraction Fees	224000	159100	144000	300800	84000	112000	189520	484000	503800	819440	671300	803480	300110
Quarry Extraction Fees	2059640	1688940	2646070	2158680	3160320	1445080	1681920	3046290	98800	2040170	348380	417410	7925890
Mineral Extraction Royalties (Cement, Silica, etc.)	60000	0	0	0	85800	0	0	0	3248140	3018340	12226010	13122790	
Garbage Dumping Fee	681070	438000	564300	397270	406200	1213960	354500	555020	0	0	126560	6280	1486800

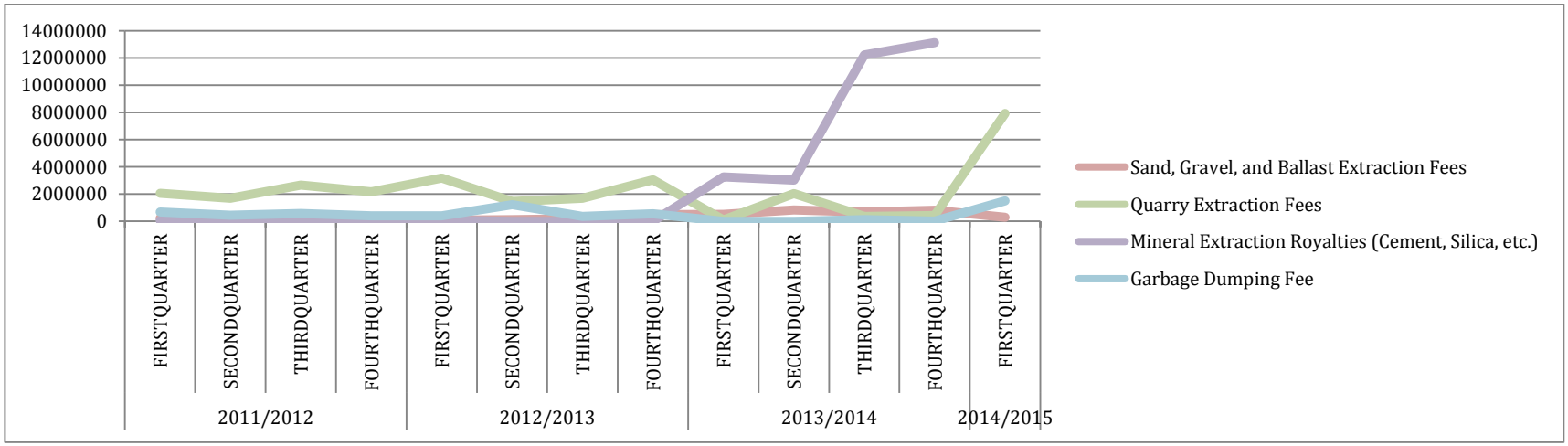


Figure 4.1: Financial Management Unit

According to the data presented, revenue on Sand, Gravel, and Ballast Extraction Fees showed fluctuations from 1st quarter of financial year (FY) 2011/2012 to the 2nd quarter of financial year 2013/2014 when implementation of integrated revenue collection system was done. After implementation, (shown by shaded area on the table above) revenue collection fall from Kshs 819440 to Kshs 671300 in the 3rd quarter of financial year 2013/2014, then rose to 803480 only to fall to Kshs. 300110 in the 1st quarter of financial year 2014/2015. Similarly, Mineral Extraction Royalties (Cement, Silica, etc.) after implementation of integrated revenue collection system was done fell from Ksh 3018340, to Ksh 12226010 in the third quarter of FY 2013/2014 and then rose again in the last quarter of FY 2013/2014 to Kshs 13122790. Also, Garbage Dumping Fee revenue collection registered a high of Kshs 126560 in the 3rd quarter of FY 2013/2014 then fell to Kshs 6280 in the last quarter of FY 2013/2014 and then rose to Kshs 1486800 in the 1st quarter of FY 2014/2015. Quarry Extraction Fees revenue collection showed erratic patterns before implementation of integrated revenue collection system but increased from Kshs 2040170 to 348380 in the 3rd quarter of FY 2013/2014, then rose to Kshs 417410 in the 4th quarter of FY 2013/2014 and finally rose again to Kshs 7925890 in the 1st quarter of FY 2014/2015.

4.3.1.2 Revenue Collection in Quarries in Mavoko Sub-County

From the Table 4.2 and Figure 4.2 below, Lukenya Quarry revenue collection showed erratic patterns from 1st quarter of FY 2011/2012 and increased to Kshs 5903177 in the 2nd quarter of 2013/2014. After implementation of the integrated revenue collection system, revenue collection fell to 4036680, then increased to Kshs 4475949 in the 4th quarter of FY 2013/2014.

Table 4.2: Revenue collection in Quarries in Mavoko Sub-County

	2011/2012				2012/2013				2013/2014				2014/2015
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q
Lukenya quarry	2310500	1790690	1734040	2241080	2734960	2818601	1765780	3508930	3038389	5903177	4036680	4475949	4326202
Mlolongo quarry	21403270	19955460	20603100	13585880	20310070	23115230	20723120	21703030	27795840	24927990	20146030	22325130	35447030
Ruai-Koma-Lukenya	2174000	1320000	1879280	1475400	1597000	1321000	1123000	2157950	1890000	1517710	1648860	1559090	1564160
Pozzollana Quarry	309700	322340	534740	412120	249510	390050	249360	217000	292040	814340	455840	1033000	2378734
Kinane - Sand	200220	202440	160920	407800	267820	126320	98000	280000	279520	294900	207200	137240	132800
Pozzlana Royalties (Portland Cement)	0	0	0	1567904	0	0	0	0	0	0	60000	0	0
Pozzlana Royalties (Athi Stoers)	540000	120000	0	210000	0	0	0	0	0	6380	0	0	0

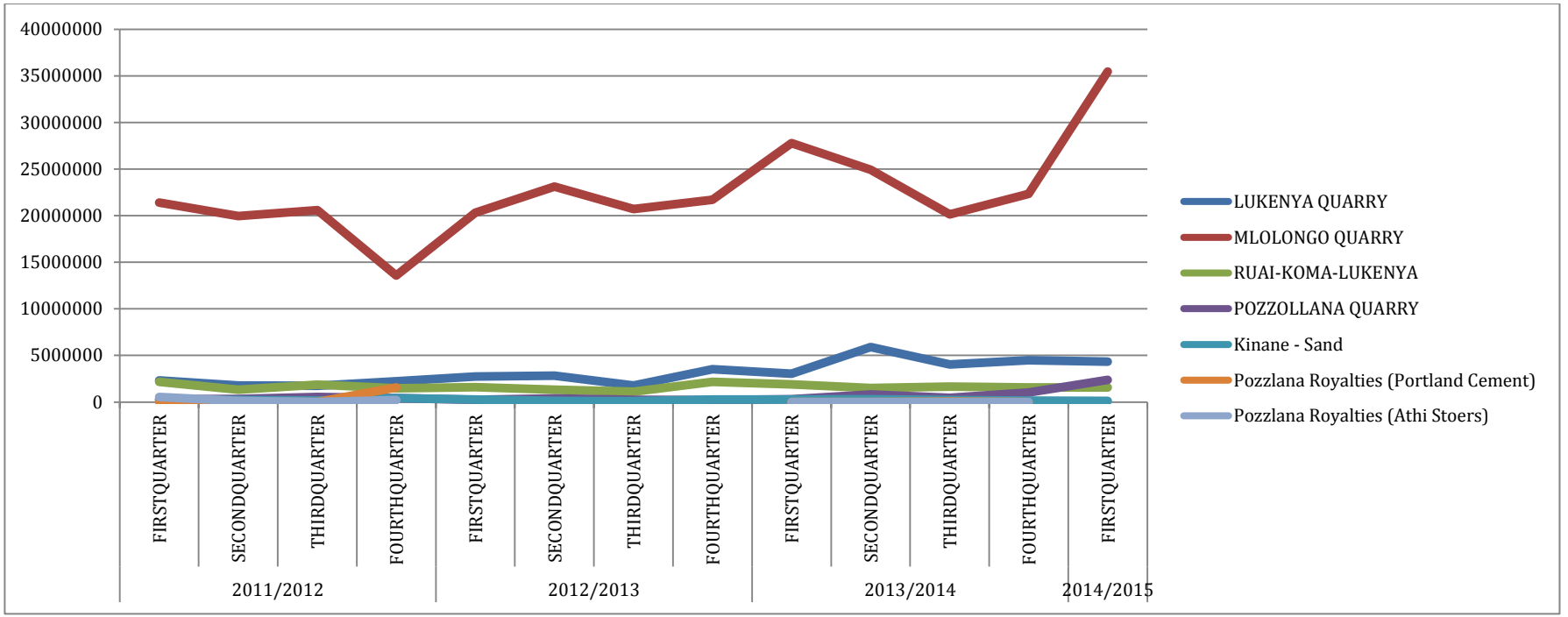


Figure 4.2: Revenue collection in Quarries in Mavoko Sub-County

Also, Mlolongo quarry also showed a similar trend, however, after implementation of the integrated revenue collection system, though revenue collection first fell from Kshs 24927990 to Kshs 20146030 in the 3rd quarter of FY 2013/2014, it steadily increased to attain an all high of Khs 35447030 in the 1st quarter of FY 2014/2015. Similarly, after implementation of the integrated revenue collection system, revenue collection in Ruai-Koma-Lukenya increased from Kshs 1517710 to 1648860 in the 3rd quarter of FY 2013/2014 to 1559090 in the 4th 3rd quarter of FY 2013/2014 and to Kshs 1564160 in the 1st quarter of FY 2014/2015. Also, revenue collection from Pozzollana

Quarry showed erratic patterns even after implementation of the integrated revenue collection system. However, it reached an all time high of Kshs 1033000 in the 4th quarter of FY 2013/2014.

4.3.1.3 Revenue collection in Markets in Mavoko Sub-County

Table 4.3: Revenue collection in Markets in Mavoko Sub-County

	2011/2012				2012/2013				2013/2014				2014/2015
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q
Market Plots Rent	385250	360000	153800	103500	715300	1181700	318300	258450	267100	243900	391000	292600	927500
Athi -River Old Town (Market Entrance / Gate Fee)	600210	570980	675540	486540	575850	706720	595570	701560	666244	858660	1339692	1573748	3772100
Makadara Market (Market Entrance / Gate Fee)	77744	67180	71380	55360	78200	65740	60120	66240	42340	132790	169810	201830	504430
Mlolongo Market (Market Entrance / Gate Fee)	603985	544870	622710	571660	952350	604460	624450	767990	1051010	1432170	1652730	1548230	4633130
Kyumbi Market (Market Entrance / Gate Fee)	175850	222880	172210	184870	171000	167120	153060	124600	227500	314860	406270	419140	1140270
Kinanaie Market (Market Entrance / Gate Fee)	12880	34280	29320	19640	39920	31980	22460	31060	45700	55100	302930	173520	531550
K.M.C Market (Vehicle Parking Fees)	5680	16140	0	0	3720	14060	7960	14080	2240	138230	195940	387140	13560
Kyumbi Market (Vehicle Parking Fees)	302900	555800	486300	412300	359500	353300	838500	1111600	1307200	1287470	650450	448160	721310
Makadara (Vehicle Parking Fees)	861700	486800	826930	630800	703700	717900	194600	47000	8350	2650	447750	498200	2386080
Mlolongo(Vehicle Parking Fees)	252300	162250	286050	257250	243700	224850	187300	289250	332880	556250	2166250	3693890	948600
Athi - River Old Town (Vehicle Parking Fees)	99300	6800	24400	400	1200	1000	0	0	0	13700	0	0	0

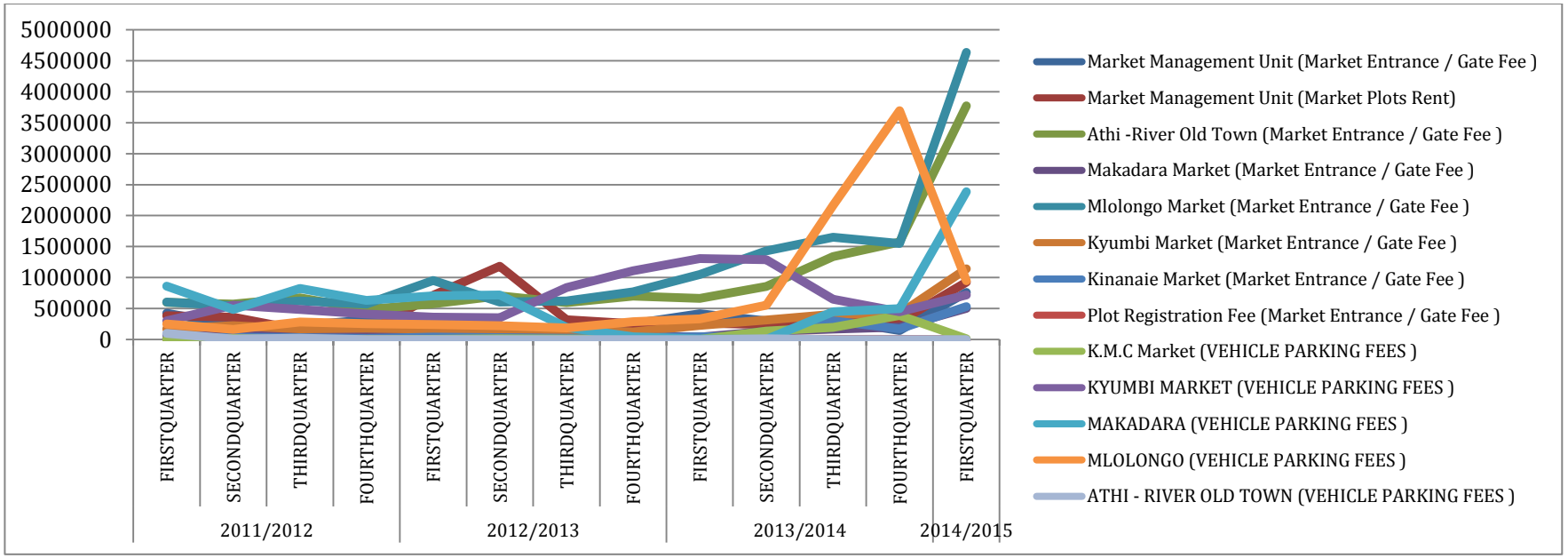


Figure 4.3: Revenue collection in Markets in Mavoko Sub-County

The study also sought to establish the influence of automation on revenue collection in various markets in Mavoko Sub-County. The data findings are as presented on Table 4.3 and Figure 4.3. The data presented shows that, there was an increase in revenues collection in all market. Particularly, there was a steady increase in revenue collection (Market Entrance/Gate Fee) in the three quarters following automation (implementation of integrated revenue collection system) for Athi -River Old Town, Makadara Market, Mlolongo Market and Kyumbi Market.

However, even though there was an increase revenue collection for the first two quarters after implementation, revenue collection in Kinanaie Market decreased in the 1st quarter of FY 2014/2015. Revenue collection in Kinananie Market declined from Kshs 55100 in the 2nd quarter of FY 2013/2014 to Ksh 302930 in the third quarter and declined further to Kshs 173520 in the forth quarter of FY 2013/2014 only to rise in the 1st quarter of FY 2014/2015 Kshs 531550. Also, revenue from market plots rent increased from Kshs 243900 to Kshs 391000 in the third quarter of FY 2013/2014 and then declined to Kshs 292600 in the fourth quarter of FY 2013/2014 and then rose to Kshs 927500 in the first quarter of FY 2014/2015. The decline in revenue collection in Kinanaie Market and market plots rent can be attributed to challenges of integrated revenue collection system implementation which could be unfamiliarity with the system and resistance to change from users.

On vehicle parking fee revenue collection, data collected indicates that there was an increase in revenue collection in the 1st quarter after implementation of integrated revenue collection system (3rd quarter of FY 2013/2014) in K.M.C Market, and Makadara. Vehicle parking fee revenue collection for Makadara rose steadily from Kshs 447750 (3rd quarter FY 2013/2014) through Kshs 498200 (4th quarter FY 2013/2014) to 2386080 in the 1st quarter of FY 2014/2015. However, there was declined in the 1st quarter of FY 2014/2015 for KMC market and Mlolongo Market, from Kshs 387140 in 4th quarter FY 2013/2014 to Kshs 13560 and from Kshs 3693890 in 4th quarter FY 2013/2014 to Kshs 948600 respectively. Kyumbi Market showed a decline in the 3rd quarter of FY 2013/2014 and a further decline in the 4th quarter of FY 2013/2014 after implementation of the integrated revenue collection system. Vehicle parking fee revenue collection for Kyumbi Market for 2nd, 3rd and 4th quarter of FY 2013/2014 and 1st quarter of FY 2014/2015 was Kshs 1287470, Kshs 650450, Kshs 448160 and Kshs 721310 respectively.

4.3.1.3 Revenue collection in Mavoko Sub-county

Table 4.4: Combined Data on Revenue for Mavoko Sub-county

	2011/2012				2012/2013				2013/2014				2014/2015
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q
Quarries	26937690	23710930	24912080	19900184	25159360	27771201	23959260	27866910	33295789	33464497	26554610	29530409	43848926
Markets	2293659	2044110	1952760	1735310	2770680	2935750	1982710	2217940	2717064	3483750	4776892	4743078	4629017
Vehicle parking	1516200	1211650	1623680	1300750	1308100	1297050	1220400	1447850	1648430	1860070	3264450	4640250	5888475
Local levies	50138909	47116302	76014266	25278295	53108747	92797516	74474706	37257015	28975673	32011590	109264292	42167753	27661099
Housing	346200	423500	502400	491500	604700	526500	793400	475000	462200	535800	584300	413300	375500
Education department	118800	88600	135000	146400	97700	109100	116100	63700	110200	103100	85700	114100	117300
Engineering & Urban Planning Management Unit	15527067	13286430	15665235	8949781	18101786	16703499	14657718	15833831	22084644	23711879	21294221	38240202	34213364

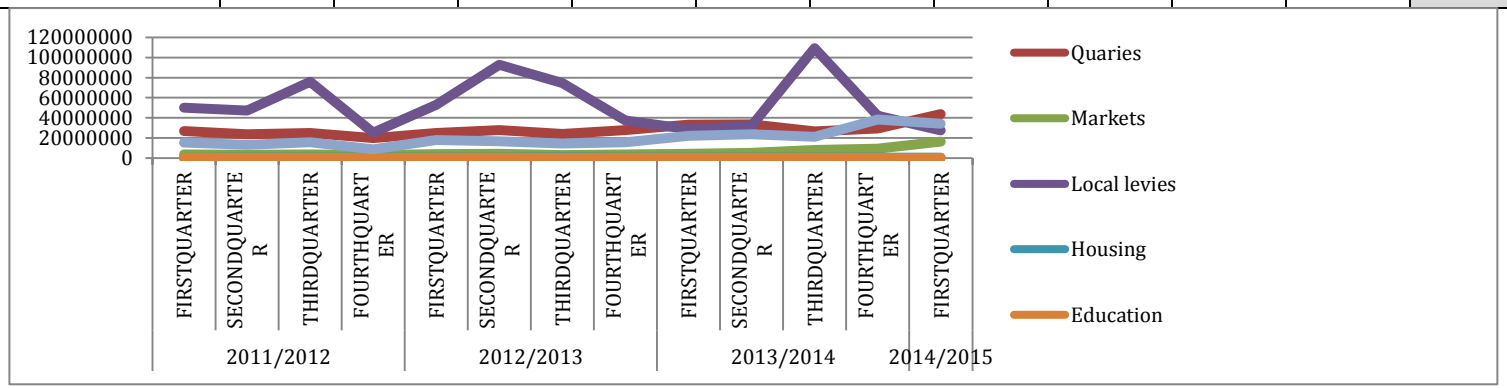


Figure 4.4: Combined Data on Revenue for Mavoko Sub-county

On the combined data on revenue collection for Mavoko Sub-county, Table 4.4 and Figure 4.4 presents the data findings. According the data findings, revenue from quarries in Mavoko Sub-County first dropped from Kshs 33464497 in the 2nd quarter of FY 2013/2014 to Kshs 26554610 in the 3rd quarter of FY 2013/2014 after implementation of integrated revenue collection system then rose steadily to Kshs 29530409 and the Khs 43848926 in 4th quarter of FY 2013/2014 and 1st quarter of FY 2014/2015. Revenue from the markets had erratic patterns before implementation of integrated revenue collection system and then rose from Kshs 3483750 in the 2nd quarter of FY 2013/2014 to Kshs 4776892 in 3rd quarter of FY 2013/2014 to Kshs 4743078 in 4th quarter of FY 2013/2014 and dropped slightly to Ksh 4629017 in 1st quarter of FY 2014/2015. There was also a drop in education department revenue collection after implementation of integrated revenue collection system in the 1st quarter after implementation (fall from Ksh 103100 to Ksh 85700 in 2nd and 3rd quarters of FY 2013/2014). However, the data findings indicate an increase in local levies revenue collection after implementation of integrated revenue collection system. Revenue collection from local levies shot from Kshs 32011590 to Kshs 109264292 to Kshs 42167753 then fell to Kshs 27661099 in 2nd, 3rd, and 4th quarters of FY 2013/2014 and 1st quarter of FY 2014/2015 respectively. Similarly, vehicle parking revenue collection increased from Kshs 1860070 to Ksh 3264450 after implementation of integrated revenue collection system. Further, revenue collection rose steadily in 4th quarter of FY 2013/2014 and 1st quarter of FY 2014/2015 from Kshs 4640250 to Kshs 5888475. The peaks and troughs in local levies revenue collection can be explained by the enforcement activities by the counties to ensure revenue collection. The peaks occur when enforcement activities are on going while trough occurs when enforcement activities are relaxed.

4.3.2 Revenue collection in Machakos Sub-County

This section has presented data on revenue collection in markets, vehicle parking and also combined data on total revenue collection in Machakos Sub-County.

4.3.2.1 Revenue Collection in Markets in Machakos Sub-County

Table 4.5 and Figure 4.5 below presents data on revenue collection in markets in Machakos Sub-County. The data presents indicates that there was an increase in revenue collection after implementation of the integrated revenue collection system in the all markets. Revenue collected in the main market rose from Ksh 3378544 in the 2nd quarter of FY 2013/2014 to Ksh 3691613 in the 3rd quarter of FY 2013/2014 and then rose to Ksh 3465086 in the 4th quarter same year. However, revenue collection fell by close to a half in the 1st quarter FY 2014/2015 to Ksh 1815723. This trend was replicated in Kimutwa Market and Mutituni Market where revenue rose in the 3rd and 4th quarter of FY 2013/2014 after implementation of integrated revenue collection system. However, in Keseve market, revenue collection rose in the 1st quarter of implementation from Kshs 47580 to Ksh 119860 in 2nd and 3rd quarters of FY 2013/2014. The revenue then fell to Khs 88390 and then to 72330 in 4th quarter of FY 2013/2014 and 1st quarter of FY 2014/2015 respectively. The data presented also shows that revenue collection for Konza market, Kola Market, Muumandu Market, Kalama Market and Kyangala market increased. The revenues however decreased in the 4th quarter of FY 2013/2014 for these markets and further decreased in the 1st quarter of FY 2014/2015 for Muumandu Market. The data findings are as presented on Table 4.5 and Figure 4.5 below.

Table 4.5: Revenue Collection in Markets in Machakos Sub-County

	2011/2012				2012/2013				2013/2014				2014/2015
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q
Main Market	2229495	2306414	2340085	2506573	3002100	2802847	2759980	2823178	3352732	3378544	3691613	3465086	1815723
Kimutwa Market	13200	12640	11610	11280	16720	18990	20460	22910	17600	33255	61275	69420	570
Mutituni Market	77850	62020	43630	61770	84130	74005	69145	67815	84140	82660	184430	238750	13880
Kaseve Market	149500	98760	77195	116060	149035	131105	96030	125505	94190	47580	119860	88390	72330
Konza	1460	0	0	0	0	0	1790	1370	5500	12700	17800	0	
Kola Market	0	0	0	0	0	0	0	0	0	137330	266670	256085	26010
Muumandu Market	0	0	0	0	0	0	0	0	0	15680	44898	31840	10300
Kalama Market	0	0	0	0	0	0	0	0	0	2600	15735	4030	4520
kyangala market	0	0	0	0	0	0	0	0	0	3610	11840	5160	6600

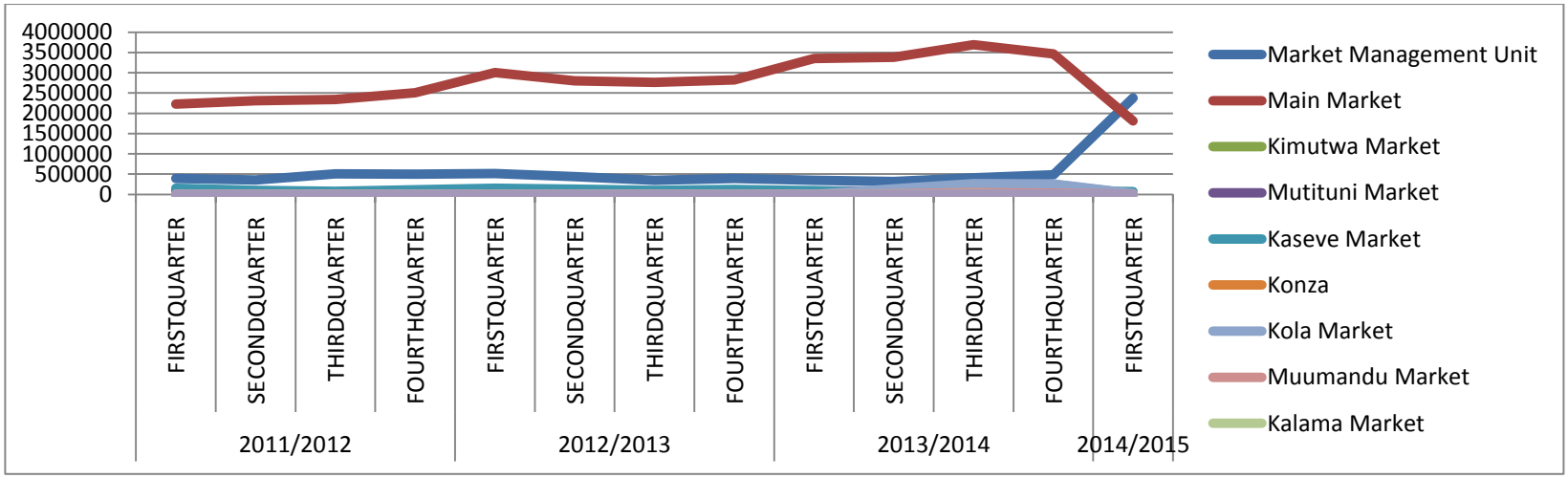


Figure 4.5: Revenue Collection in Markets in Machakos Sub-County

4.3.2.1 Revenue collection for Vehicle Parking

In this section, the study presents data on produce inspection fee, enclosed bus park fee, registration fees, parking fees, bus park stalls rent, repair charges, off street parking, delivery permits, vehicle clamping, motorcycle parking, off street parking and motorcycle registration. Data presented below on Table 4.6 and Figure 4.6 below shows an increase in revenue collection for all elements except for delivery permits and vehicle clamping. Revenue collection for delivery permits fell from Ksh 323380 in the 2nd quarter of FY 2013/2014 to Ksh 301690 in the 3rd quarter of FY 2013/2014. It however rose to Ksh 334250 and then to Ksh 387250 in subsequent quarters. Similarly, revenue collection for vehicle clamping dropped from Ksh 4500 in 2nd quarter of FY 2013/2014 to Ksh 2500 in the 3rd quarter of FY 2013/2014 and then rose to Ksh 20000 and Ksh 41500 in subsequent quarters.

Table 4.6: Revenue collection for Vehicle Parking

	2011/2012				2012/2013				2013/2014				2014/2015
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q
Produce Inspection Fee					0	41060	117865	191325	210340	152760	167780	104350	135820
Enclosed Bus Park Fee	5992290	5914270	5736990	5757490	5860960	5978680	5485640	5747790	6295900	8540150	9344600	7240380	7941230
Registration Fees	283380	307550	970080	237640	269250	178500	1056000	163250	273800	873750	1132520	279100	275400
Parking Fees	212520	189350	270950	296930	0	0	0	0	0	0	246350	631650	51100
Bus Park Stalls Rent	3960	0	3120	0	244200	251080	165000	248090	258730	261140	252790	150140	112950
Repair Charges	19990	162660	48960	12910	0	3000	0	0	0	0	0	3000	3000
Delivery Permits	0	0	0	0	0	13740	16600	19850	306200	323380	301690	334250	387250
Vehicle Clamping	1000	5000	0	0	20500	2500	5500	2000	9500	4500	2500	20000	41500
Motorcycle parking	740	168350	29250	101160	125240	78650	49900	110950	98500	164600	316100	381060	426115
Off Street Parking	2797240	2923390	3022105	2855740	3159080	3276520	3161590	3584850	4400700	4297000	4809960	4482630	4851650
Motorcycle Registration	35000	132500	221620	105370	95000	36250	236500	113750	66250	35000	406700	278750	241250

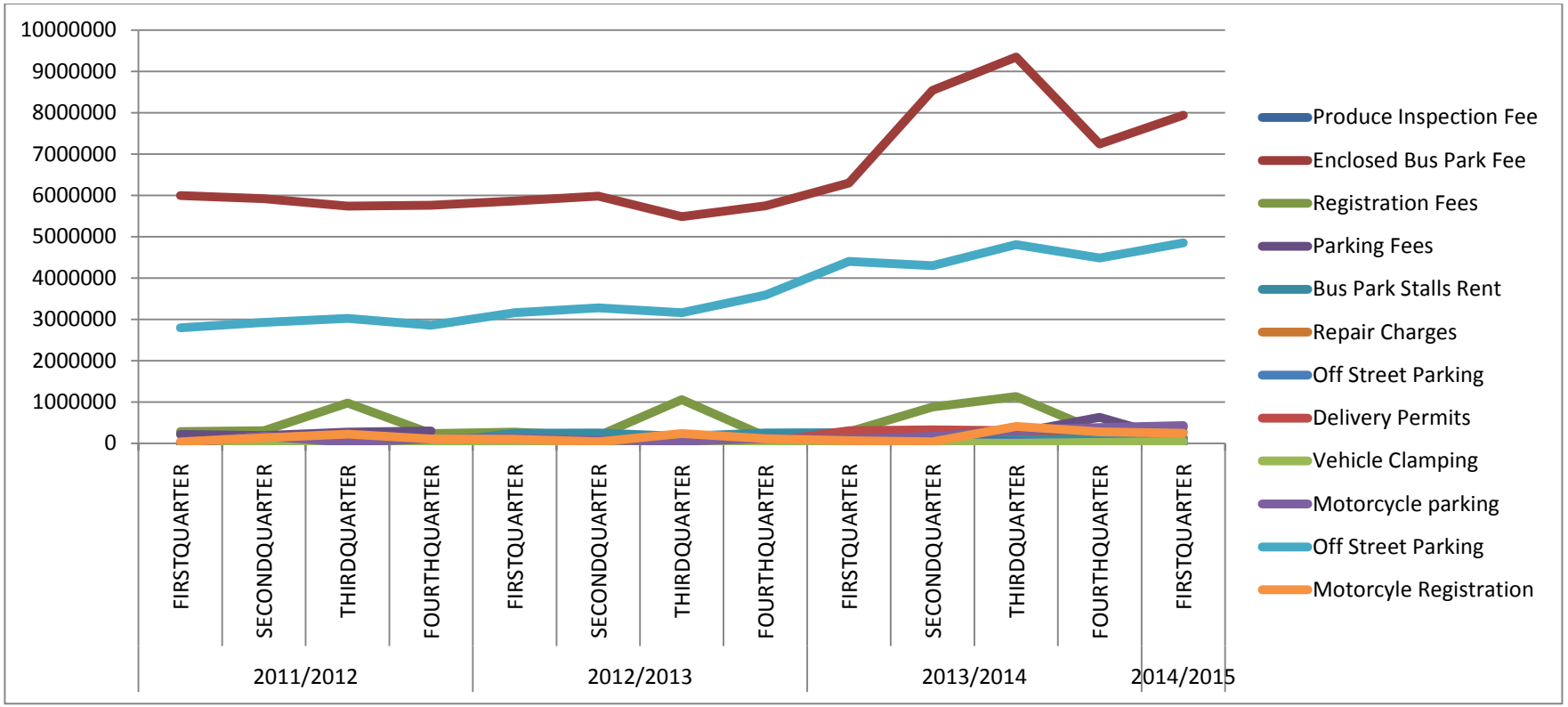


Figure 4.6: Revenue collection for Vehicle Parking

From table 4.6 and figure 4.6 above, the data showed an increase in enclosed bus park revenue after implementation of integrated revenue collection systems. Prior to the integrated revenue collection systems implementation, revenue from the enclosed bus park showed fluctuation reaching highs of Ksh 8540150 in the 2nd quarter of FY 2013/2014 and then rose to Ksh 9344600 in the 3rd quarter of FY 2013/2014. Although it dropped to ksh 7240380 in the 4th quarter that FY, it increased to Ksh 7941230 in the 1st quarter of FY 2014/2015. Also, revenue from off-street parking increased after implementation of integrated revenue collection system. The increase was from Ksh 4297000 in the 2nd quarter of FY 2013/2014 to Ksh 4809960 in the 3rd quarter of FY 2013/2014. It however dropped to Ksh 4482630 in the 4th quarter of FY 2013/2014 and rose again to Ksh 4851650 in the 1st quarter of FY 2014/2015.

Revenue collection on motorcycle registration increased in the 1st quarter (from Ksh 35000 in 2nd quarter of FY 2013/2014 to Ksh 406700 in the 3rd quarter of FY 2013/2014) after implementation and then dropped steadily in subsequent quarters. For bus park stalls rent, the revenue dropped after implementation of integrated revenue collection system from Ksh 261140 in the 2nd quarter of FY 2013/2014 to Ksh 252790. It further dropped to Ksh 150140 then to Ksh 112950 in 4th quarter of FY 2013/2014 and 1st quarter of FY 2014/2015 respectively.

4.3.2.1 Total Revenue collection for Machakos Sub-county

Revenue data on general management unit, enforcement management unit, municipal court, market sector, vehicle parking, local levy section, social services section, housing section, health services section, environment section, slaughter house section, engineering & urban planning management unit, roads maintenance section and fire fighting and ambulance services.

Table 4.7: Combined data on Revenue collection for Machakos Sub-county

	2011/2012				2012/2013				2013/2014				2014/2015
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q
General Management Unit	82000	92000	48000	104000	107150	92000	140500	86000	144000	107850	227500	140650	118000
Enforcement Management Unit	2036076	3794290	2849770	4521105	4130030	2153865	1570480	2522370	2307190	1441680	3940200	2582600	3410045
Municipal Court	159785	456367	287740	252265	624800	731925	514595	1226390	841400	745190	567880	1142560	687800
Market Sector	2863781	2832730	2977031	3194263	3763747	3469290	3296501	3431531	3901535	4030288	4823694	4643022	4324500
Vehicle Parking	9356120	9816070	10306575	9372740	9786010	9871120	10317545	10193455	11928300	14675680	17008290	13924160	14473265
Local Levy Section	4617176	6358569	18332433	45849333	6619295	4243332	17388146	13461502	5425736	2977017	28682281	13307311	4874307
Social Services Section	307600	360400	417600	422600	414600	320400	375200	223200	122100	127800	519240	1646330	155500
Housing Section	58343	20867	6830	5326	2350	55540	30323	65330	133240	16940	43406	54042	47366
Health Services Section	52400	18400	17400	11600	3010	9000	37640	21480	36400	47455	80350	87980	40880
Environment Section	411280	283850	2513345	1168585	609365	264880	2161840	2055740	354070	223198	3687500	1386340	463380
Slaughter House Section	318985	271785	269145	270240	275130	261965	223450	216460	238285	224905	231230	234330	227460
Engineering & Urban Planning Management Unit	2364260	2293580	4812342	3072780	8464096	4435767	3352668	5850838	3566959	2887379	10477207	10683993	9187260
Roads Maintenance Section	59100	25900	47235	182710	110820	89200	95140	60000	35550	2400	42650	35700	14200
Fire Fighting and Ambulance Services	254940	191467	1404275	575770	254165	121885	1176925	991530	242110	119135	1613370	601055	196610

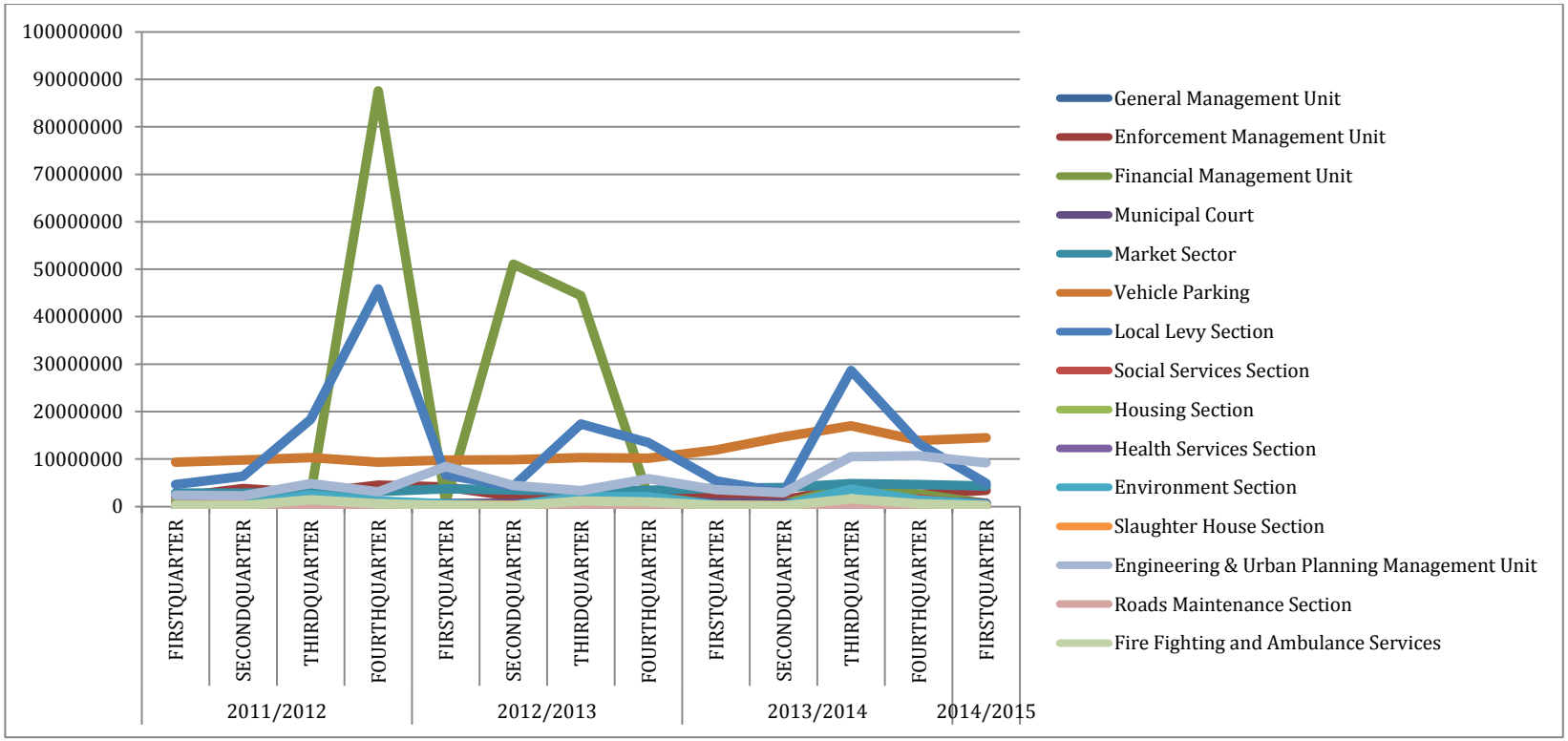


Figure 4.7: Combined data on Revenue collection for Machakos Sub-county

Data presented on Table 4.7 and Figure 4.7 indicates and increase in revenue collection after implementation of integrated revenue collection system in General Management Unit. The revenue increased from Ksh 107850 in 2nd quarter of FY 2013/2014 to Ksh 227500 in the 3rd quarter of FY 2013/2014. However, it dropped to Ksh 140650 in the 4th quarter of FY 2013/2014 and further to Ksh 118000 in the 1st quarter of FY 2014/2015. Enforcement Management Unit posted an increase in revenue collection after implementation of integrated revenue collection system. There was an increase in revenue from Ksh 1441680 2nd quarter of FY 2013/2014 to Ksh 3940200 in 3rd quarter of FY 2013/2014 and then dropped to 2582600 in the 4th quarter of FY 2013/2014 and then rose to 3410045 in the 1st quarter of FY 2014/2015. There was a steady increase in revenue collected through municipal courts, revenue grew from Ksh 745190 in the 2nd quarter of FY 2013/2014 to Ksh 567880 3rd quarter of FY 2013/2014 then to 1142560 in the 4th quarter of FY 2013/2014 and then dropped to Ksh 687800 in the 1st quarter of FY 2014/2015. The market sector also posted an increase in revenue collection after implementation of integrated revenue collection system. Market section saw an increase in revenue collection from Ksh 4030288 in 2nd quarter of FY 2013/2014 to 4823694 in the 3rd quarter of FY 2013/2014. However, there was a decline in revenue collected in subsequent quarters i.e. Khs 4643022 and 4324500 in that order.

Further, vehicle parking showed an increase in revenue collection from Kshs 14675680 in the 2nd quarter of FY 2013/2014 to Ksh 17008290 in the 3rd quarter of FY 2013/2014, the revenue however dropped to Ksh13924160 in the 4th quarter of FY 2013/2014 then rose to Ksh 14473265 in 1st quarter of FY 2014/2015. The data presented also shows a decline local levy collection after implementation of integrated

revenue collection system, levy revenue fell from Ksh 2977017 in the 2nd quarter of FY 2013/2014 to Ksh 28682281 in the 3rd quarter of FY 2013/2014. Levy revenue however rose to Ksh 13307311 in the 4th quarter of FY 2013/2014 and then to Ksh 4874307 in 1st quarter of FY 2014/2015. Further, slaughterhouses revenue, data presented above shows that revenue grew from Ksh 224905 in the 2nd quarter of FY 2013/2014 to Ksh 231230 in the 3rd quarter of FY 2013/2014 then to Ksh 234330 in the 4th quarter of FY 2013/2014 and then fell to Ksh 227460 in the 1st quarter of FY 2014/2015.

4.3 Challenges Faced By the county on implementation of automation

The respondents were asked to state how the county identified that there was need for automation. They all noted that the collection was erratic and no justification was identified. This was attributed to lack of real-time reporting and staff let to declare daily collection at will. Another interviewee stated “the central government requirement of automation was overdue and needed quick action to safely handle revenue collection and management. Claiming that the use of automation increased the revenue collected.

The study also wanted to establish the challenges faced by the county on implementation of the automated revenue collection and management. All interviewees noted that resources were a major challenge as the newly formed county government of Machakos was not in a good financial standing to finance the entire project cost. Utilizing the already existing infrastructure with minimal additions and spread payments to the vendor over a period mitigated this challenge notably. The bottom line being transactional cost as justification for the cost of the automated

system and its benefits. Further, the interviewees noted that implementation of the integrated revenue collection system was hindered by remoteness of some areas and therefore internet connectivity was a challenge.

One interviewee stated concerns over the qualifications of the staff members and especially, those who transitioned from former municipalities, it took a longer time to change their mentality and adoption to modern technologies. To address this challenge, less active revenue collector were moved to other less active departments while at the same time retraining the trainable revenue collector through workshops to prepare them for change. Change management was also incorporated as part of the solution, where the HR department conducted training need assessment for the revenue collectors.

The interviewees noted that the shift from paper to automated system introduced new challenges in terms of staff realignment, political pressure took a center stage and seemed that most of the revenue collectors where employed due to their political affiliation, hence making it difficult to lay off unskilled staff. The interviewees also attributed some of the challenges to cartels within the county staff. It was not clear on which area but protecting each other was rampant. This challenge was addressed by impromptu visits by cabinet secretary in all revenue collection points. The cabinet secretary of finance had to take it up and face the heat. Moving from one point of collection to the other and handling the staff personally over the implementation period. They call her the iron lady. All staff where newly vetted by the cabinet secretary and gave instruction on new reporting chain.

Further, the interviewees indicated that some staffs were reluctant to embrace the integrated revenue collection system as they viewed it as a threat to their job security. The interviewees insisted that the staffs were not aware of the benefits that the system was to bring them, lacked knowledge on total cost of ownership and feared the consequences of implementation. Also, since ICT was a new area for most of the staff, there lacked local expertise in automation of the process without a hitch, this, according to the interviewees, greatly lowered take off of the project after implementation.

Further, from the top management, the interviewees noted that this decision making was not easy as it was challenged by lack of clear perception of how these ICT resources can be sustainably be managed, the operational risk and likely escalating cost of poor information resource management.

Another major challenge noted was the pricing of rates in the county. One respondent noted that the merger of services across sub-counties meant that pricing had to be harmonized. Since different municipalities had different rates for same services.

The interviewees where asked what motivated them, they clearly stated that strict targets for revenue collection set by the budgetary committee that had to be met. Strict target have a significant implication on the set budget for the county, translating to implementation or other wise of crucial projects that the county governor had promised the electorate.

On future strategies, some interviewees stated that the county is planning to install CCTV and provided state of the art infrastructure to enable rolling out of modern technologies enhancing services to citizens of the county.

4.4 Chi Square

Hypothesis 1: Automation and Revenue Collection

Null: Automation does not influences Revenue collection in Machakos County

Alternate: Automation influences Revenue collection in Machakos County

The null hypotheses imply that the variable- Automation (implementation of integrated revenue collection system) and revenue collection are independent of each other. The researcher wanted to find out whether there was any notable relationship between automation and revenue collection through various revenue streams.

Table 4.8: Chi-Square Tests for Mavoko Sub-County

	Revenue (Before)	Revenue (After)	Chi square	P-value
Financial Management Unit	19899995	20464535	4.1042	0.0243
Quarries	26697790	33311315	4.9796	0.0200
Markets	2413373	4716329	5.7994	0.0128
Vehicle parking	1443418	4597725	6.7125	0.0078
Local levies	51717302	59697715	4.6068	0.0217
Housing	516120	457700	3.5393	0.0582
Education	108870	105700	3.8748	0.0257
Engineering & Urban Planning Management Unit	16452187	31249262	4.5805	0.0132

The calculated Pearson Chi-Square value for Financial Management Unit, Quarries, Markets, Vehicle parking, Education and Engineering & Urban Planning Management

Unit was above the critical chi square value of 3.841 (value on the Chi square distribution table). The associated P-Value (Asymptotic significance) for the above revenue streams are less than 0.05 (5% level of significance) indicating that there is evidence against the null hypotheses and therefore we reject it. A conclusion can be drawn from the study that 'Automation influences Revenue collection in Mavoko sub-County in Financial Management Unit, Quarries, Markets, Vehicle parking, Education and Engineering & Urban Planning Management Unit revenue streams'

However, the calculated Pearson Chi-Square value for housing was 3.5393 below the critical chi square value of 3.841 (value on the Chi square distribution table). The associated P-Value (Asymptotic significance) is 0.0582 greater than 0.05 (5% level of significance) we therefore fail to reject the null hypothesis it. Therefore, the conclusion is that automation does not influence housing Revenue collection in Mavoko County.

Table 4.9: Chi-Square Tests for Machakos Sub-County

Revenue Stream	Revenue (Before)	Revenue (After)	Chi square	P-value
General Management Unit	100350	162050	4.4150	0.0178
Enforcement Management Unit	2732686	3310948	3.9125	0.0133
Municipal Court	584046	799413	3.9422	0.0151
Market Sector	3376070	4597072	3.9228	0.0150
Vehicle Parking	10562362	15135238	4.6177	0.0158
Local Levy Section	12527254	15621300	4.4093	0.0137
Social Services Section	309150	773690	4.8422	0.0275
Housing Section	39509	48271	3.3404	0.0534
Health Services Section	25479	69737	4.4832	0.0301
Environment Section	1004615	1845740	4.0231	0.0302

Slaughter House Section	257035	231007	2.4571	0.0509
Engineering & Urban Planning Management Unit	4110067	10116153	4.7292	0.0271
Roads Maintenance Section	70806	30850	1.1912	0.0518
Fire Fighting and Ambulance Services	533220	803678	4.1207	0.0166

The calculated Pearson Chi-Square value for General Management Unit, Enforcement Management Unit, Municipal Court, Market Sector, Vehicle Parking, Local Levy Section, Social Services Section, Health Services Section, Environment Section, Engineering & Urban, Planning Management Unit and Fire Fighting and Ambulance Services was above the critical chi square value of 3.841 (value on the Chi square distribution table). The associated P-Value (Asymptotic significance) for the above revenue streams are less than 0.05 (5% level of significance) indicating that there is evidence against the null hypotheses and therefore we reject it. A conclusion can be drawn from the study that 'Automation influences Revenue collection in Machakos sub-County in General Management Unit, Enforcement Management Unit, Municipal Court, Market Sector, Vehicle Parking, Local Levy Section, Social Services Section, Health Services Section, Environment Section, Engineering & Urban, Planning Management Unit and Fire Fighting and Ambulance Services revenue streams'

However, the calculated Pearson Chi-Square value for Roads Maintenance Section, Slaughter House Section and Housing Section was below the critical chi square value of 3.841 (value on the Chi square distribution table). The associated P-Value (Asymptotic significance) for the above revenue streams is greater than 0.05 (5% level of significance) we therefore fail to reject the null hypothesis it. We therefore

conclude that automation does not influence roads maintenance, slaughterhouse and housing revenue collection in Machakos Sub-County.

4.5 Discussion of Findings

According to the results, implementation of integrated revenue collection system showed mixed results. In some revenue stream, revenue collection dropped after implementation. However, majorly, revenue collection increased in majority of revenue streams. Since the objective of the integrated revenue collection system was to enhance revenue collection, expectation was that revenue collection would significantly increase after the implementation. However, this was not the case in some revenue streams. The drop in revenue collection in some streams can therefore be attributed to challenges of new system implementation, initial familiarization issues with the staffs and clients, resistance from some employees among others.

The study established that implementation of integrated revenue collection system was motivated by the erratic revenue collection which has no justification. As a result, there lacked real-time reporting of collection information and staff let to declare daily collection at will. In support of this justification, Bannister and Remenyi (2005) noted that with the emergence of information and communication technologies (ICTs), and e- Government, it is possible to improve efficiency and effectiveness of internal administration within governments. Therefore implementation of ICT system is founded on the need to enhance efficiency.

The study established that resources was a major challenge as the newly formed county government of Machakos was not in a good financial standing to finance the

entire project costs. This challenge was mitigated through use of already existing infrastructure and resources with minimal additions and spreading payments to the vendor over a period of time. This is in line with Westrup (2002) who identified that with adequate resources and advanced technology, organizations have an easier way of implementing ICT projects. Further, implementation of the integrated revenue collection system was hindered by remoteness of some area making it hard for Internet connectivity. This finding echoes another by Ndlovu (2009) who noted that the unavailability of telecommunication infrastructure for remote areas to access e-services like the Internet as well as a pursuance of unrealistic targets hampers ICT access in Africa.

Another challenge raised by the study was staff capacity to handle the new integrated revenue collection system. It was established that majority of the staffs transitioned from the old municipalities and therefore adoption of new technology was a challenge. However, the study established that they were trained. This finding is in line with another one by Nzepa (2011) who identified that lack of adequate capacity to implement ICT related system is a major challenge to their success.

Another challenge that was witnessed was political influence. Most revenue collectors where employed based on their political affiliations, greatly influenced the capacity of the employees in terms of skills and other qualification. This finding is in line with another by Huang and Palvia (2001) who found that developing countries face additional challenges related to economical, political, cultural, and infrastructural issues in implementation of ICT systems. Further, protective cartels among employees were identified to challenge implementation of integrated revenue collection system.

This challenge was addressed by impromptu visits by cabinet secretary in all revenue collection points. Further, newly vetted staffs were given reporting structure to ensure non-performing ones are identified and dismissed.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The following discussions, conclusions and recommendations were made from the analysis and data collected. The responses were based on the objectives of the study, where the researcher sought to determine the effect of an integrated revenue collection system in Machakos County, and how Machakos County addressed the challenges faced during the implementation of the system.

5.2 Summary of Findings

The main objectives of the study was to find out the effect of an integrated revenue collection system and how Machakos County managed the challenges faced during implementation of the system. From the responses it is evident that the implementation was not a smooth ride and faced a number of challenges. The initial challenge being financial requirement to set up a sound infrastructure around the county to manage effectively the flow of data from all points to a centralized location. The idea being an integrated system that is real time in terms of reporting. The study also established that the integrated revenue collection system doesn't guarantee 100% collection and management of revenue. The study specifically established that while some revenue streams showed an increase in revenue collection after implementation of integrated revenue collection system, others registered a drop. For example, in Mavoko sub County, revenue collection from Sand, Gravel, and Ballast Extraction, Quarry Extraction and Mineral Extraction Royalties (Cement, Silica, etc.) showed an

increase after the integrated revenue collection system was implemented. Similarly, revenue collection from Ruai-Koma-Lukenya quarry also increased after the implementation. However, the study indicated that revenue collection in Lukenya quarry, Mlolongo quarry, Pozzollana Quarry and Kinane – Sand initially dropped after the implementation and increased later. Similarly, revenue collection in Athi - River Old Town market, Makadara Market, Mlolongo Market, Kyumbi Market and Kinanaie Market increased after implementation of integrated revenue collection system. Further, revenue from local levies in Mavoko Sub County also increased after implementation of integrated revenue collection system.

Similar trends were also observed in Machakos Sub County. The study established that revenue collection for the Main Market, Kimutwa Market, Mutituni Market, Kaseve Market, Kola Market, Muumandu Market, Kalama Market and Kyangala market increased after implementation of integrated revenue collection system. Similarly, revenue collection from produce inspection, enclosed bus park, vehicle registration, parking, motorcycle parking, off street parking and motorcycle registration increased after implementation of integrated revenue collection system. However, revenue from vehicle clamping and Bus Park stalls rent dropped after implementation of integrated revenue collection system. Also, local levies revenue collection in Machakos Sub County also dropped after implementation of integrated revenue collection system.

Also, the study established that resources was a major challenge as the newly formed county government of Machakos was not in a good financial standing to finance the entire project costs. This challenge was mitigated through use of already existing infrastructure and resources with minimal additions and spreading payments to the

vendor over a period of time. Another challenge to implementation of the integrated revenue collection system was remoteness of some area making it hard for Internet connectivity. Further, the study identifies that the staff lacked the adequate capacity to handle the new integrated revenue collection system. However, this challenge could be corrected through training and hiring of right caliber employees. The study also established political interference as a challenge to the system implementation. This interference eroded the staff capacity, as recruitment was not objectively done, rather it was done based of political affiliation.

From the Chi square test, in Mavoko Sub-County, it was established that automation influenced revenue collection in the financial management unit, quarries, markets, vehicle parking, education and engineering & urban planning management unit. However, automation does not influence housing revenue collection in Mavoko County. Further, in Machakos Sub-County, it was found out that automation enhanced revenue collection in General Management Unit, Enforcement Management Unit, Municipal Court, Market Sector, Vehicle Parking, Local Levy Section, Social Services Section, Health Services Section, Environment Section, Engineering & Urban, Planning Management Unit and Fire Fighting and Ambulance Services. However, automation does not influences roads maintenance, slaughterhouse and housing revenue collection in Machakos Sub-County.

5.3 Conclusions

The study concludes that implementation of integrated revenue collection system in Machakos County, has led to enhanced revenue collection. Evidently, revenue collection improved in the first quarter of integrated revenue collection system

implementation. Although, revenue collection dropped in some revenue streams in both sub counties, the drop is attributable to implementation challenges of resources availability (financial, ICT resources and human resources) as well as resistance to change during transition.

Following the study findings, the study concludes that county government of Machakos used various strategies to deploy and implement successfully an integrated revenue collection and management system, in order to increase collection and management of revenue. The strategies include using existing infrastructure, spread project cost, re-deployment of staff, innovative ways of handling the general challenges and good political goodwill from the governor of Machakos (Dr. Alfred Mutua). Further, the study concludes that change management and strategies to deal with implementation challenges are inevitable for a successful rollout of an integrated revenue collection and management system.

5.4 Limitations of the Study

The study findings accuracy was limited to the extent of honesty by respondents in responding to the questions. Sensitivity nature of the data collected, there was a high possibility that the respondents did not reveal detailed information regarding the county, despite the fact that the researcher assured the respondents that the information would be used for academic purposes only. Also, the accuracy of data presented in this study is subject to accuracy of data collected by the integrated revenue collection system in Machakos County.

Another limitation was, since the respondents were all heads of departments, getting time for an interview off their busy schedule was a challenge. Further, other factor that may have contributed to an increase in revenue collection in the County were not put into consideration.

5.5 Recommendations and Suggestions

5.5.1 Policy Recommendations

There is a knowledge and skill deficiency across County governments in Kenya that makes it difficult for employees in these counties to fully exploit new approaches and technologies presented by ICT. This is reflected in the over reliance on expensive consultants, contractors and external recruitment at middle and senior levels. To increase the capability of ICT professionals at all levels in Machakos County and reduce expenditure on external expertise, Machakos County should create an ICT professional curriculum to train its IT employee on expected standards to ensure that most of their information security as most of the ICT jobs will be done internally. This way the county will establish a strong talent pipeline of successors for senior posts; increase lateral development moves for staff with high potential; and ensure continued recruitment and retention of graduates through the Technology in Business (TIB) fast stream.

Although there is an increase in revenue collection, revenue collection is yet to achieve perfection. To ensure that data collected is appropriate data, transparent and shared rather than duplicated, the County should implement engagement processes for open data standards activity and “crowd source” priority areas for data standards.

Benefits to be delivered from this work include: consistent, tight and specific data standards enabling comparative benchmarking, thus supporting greater accountability, transparency of revenue collection activities.

Further, the study recommends the ICT department should ensure that there is effective project coordination and change management for success of this integrated system. Further, the department should ensure that there is a good data system and that is compatible with the project needs. Also, skilled personnel is key to success of this project and therefore, the department should ensure that candidates are adequately vetted to ensure that only highly skilled personnel are employed.

For success implementation of the integrated revenue collection system in Machakos the study recommends that the County government need to have a clear Vision and strategy to guide the implementation and smooth running. Further, county government support is vital to ensure adequate resource allocation and operational environment.

5.5.2 Suggestions for Further Research

To augment the study findings, the study suggests that another study should be conducted to establish other contributors of revenue change in Machakos County. Further, the study recommends that another in depth study should be conducted to establish the influence on revenue collection of implementation of integrated revenue collection system on various revenue streams in other counties to benchmark and to check whether the results can be replicated.

RFERENCES

Agbeyegbe, Terence, Stotsky J. G., & WoldeMariam A. (2004). Trade liberalization, exchange rate changes, and tax revenue in sub-Saharan Africa. *IMF Working Paper*, WP/04/178 Washington D.C: International Monetary Fund.

Amin, M. A. (2013). Is There an African Resource Curse. *Paper presented to the House Sub-Committee on Africa*, *3*: New York.

Australian Aid & World Bank (2012). Devolution without disruption: Pathways to a successful new Kenya

Bahwan CyberTek (BCT) (2012). *Cuecent Integrated Revenue Collection System*, MA: 209, West Central Street, Natick, Massachusetts 01760, USA

Bannister, F. & Remenyi, D., (2005). The Societal Value of ICT: First Steps Towards an Evaluation Framework. *Information Knowledge Systems Management*, 2(2), 105-115.

Blind, R. L. (2005). *A Revenue Guide for Local Government*. Publication of ICMA

Budget Report (2013). *Machakos County Government Implementation Report Fourth Quarter*, Retieved from: www.cob.go.ke/index.php/virtual.../5-countiesreport...machakos.

CRA (2014). *Commission on Revenue Allocation*, Retrieved from: http://www.cickenya.org/cicoldsite/bills/*commission-revenue-allocation*-act-2011.

Eden, H. (2009). Local Government Cash Management. International Experience and Options. *International Seminar on Local Government Treasury Cash Management*. China, 10-11.

Fjeldstad, O. H., & Heggstad, E. R. (2012). *New Challenges for Local Government Revenue Enhancement*. Michelsen Institute.

Ghura, H. (1998). Tax revenue in sub-Saharan Africa: Effects of economic policies and Corruption. *WP/98/135 Washington D.C.*: International Monetary Fund

Gidisu, T. E. (2012). Automation System Procedure of the Ghana Revenue Authority onthe Effectiveness of Revenue Collection: A Case Study of Customs Division, *Unpublished MBA Thesis*, Kwame Nkrumah University of Science and Technology

Gober J. R., & Burns J. O., (1997). The Relationship between Tax Structures and Economic Indicators. *Journal of International Accounting, Auditing & Taxation*, 6, l-24

Government of Kenya, (GoK, 2004). E-Government Strategy: *The Strategic Framework, Administrative Structure,* Training Requirements and Standardization Framework, Cabinet Office, Office of the President, Nairobi: Government Printer

Guldentops, E. (2001). Harnessing IT for secure, profitable use, *Information Systems Control Journal, 5*(7), 45-47.

Hinrisch H. H., (1966). A general theory of tax structure change during economic development. *Harvard Law School International Tax Program Development.*

Holger, V. E. (2009). Local Government Cash Management International Experience and Options. *International Seminar on Local Government Treasury Cash Management. China*, 10-11 http://www.standardmedia.co.ke/thecounties/article/2000130392.

Huang, Z. & Palvia, P. (2001). ERP implementation issues in advanced and developing countries. *Business Process Management Journal, 7*(3), 276-284.

Kahneman, D. & Amos, T. (1979). Prospect Theory: An analysis of Decision Under Risk. *Econometrica*, *47*, 263-292

Kamolo, J. (2014), *Machakos Automates Tax Collection*, Retrieved from, http://kenyanewsagency.go.ke/?p=3178

Khan, A., & Hildreth, W. B. (2004). *Financial management theory in the public sector*. Westport, Conn: Praeger

Kibe, E. M. (2011). Use of geographical information systems to enhance revenue authority. *Unpublished MBA Project*, University of Nairobi

Kirira, N. (2012). Public finance under Kenya's new constitution, *SID Constitution Working*, Paper No. 5

Lymer, A. & Oats, L. (2010). *Taxation Policy and Practice*, (16th ed.). Birmingham: Fiscal Publication.

Maina, W. (2013). Factors Affecting Revenue Collection in Local Authorities in Kenya: A Case of Municipal Council of Nyeri. *Unpublished MBA Projects*, Kenyatta University.

Marsden, K., (1983). Links between taxes and economic growth. *World Bank Staff Working Paper*, 6:05, The World Bank, Washington, D.C.

Mitullah, W. V, et al. (2005). Management of resources by local authorities: *The case of Local Authority Transfer Fund.* Nairobi: CLARIPRESS

Muriithi, K. M & Moyi, D. E. (2003). Tax Reforms and Revenue Mobilization in Kenya, *AERC Research Paper*, 131.

Musgrave, R. A., (1969). *Fiscal systems.* Nairobi. Kenya: Yale University Press.

Ndlovu, R. (2009). *ICT Guide-Zimbabwe*. Jose: USA.

Nzepa, O.N. (2011). *Challenges for Africa's Learning and Knowledge Institutions in a Global Market*. A Paper Presented at GKP Africa Regional Meeting 5-6 June 2007.

Odoyo, O., Oginda, M. Obura, M. Aila, F. Ojera, O., & Siring, M. (2013). Effect of Information Systems on Revenue Collection by Local Authorities in Homa Bay County, Kenya, *Universal Journal of Accounting and Finance,* 1(1), 29-33.

Prichard, W. (2010). Taxation and State Building: Towards Governance Focused Tax Reform Agenda. *IDS Working Paper* 341 (May). Brighton: Institute for Development Studies.

Rabin, M., & Mathew, T. (1998). Psychology and Economics, *Journal of Economics Literature, 36*, 11-46.

Reiss, S., Albert J., Roth, K. & Jeffrey A., (1993). *Understanding and Preventing Violence,* Washington, D.C: National Academy Press.

Schweiger, D. M. & DeNisi, A. S. (1991). Communication with Employees Following a Merger: A Longitudinal Field Experiment. *Academy of Management Journal*, 34(1), 110-135.

Shaver, K. (2006). *Conference Addresses School Shootings*. Washington Post.

Shields, J. (1999). Transforming Organizations, Methods for Accelerating Culture Change Processes. *Information Knowledge Systems Management*,.1(2), 105-115.

Simon, M. K. (2002). *Probability Distributions Involving Gaussian Random Variables*, New York: Springereq.

Simonson, M. (2005). Distance Education: Eight Steps for Transforming an Organization. *The Quarterly Review of Distance Education*, 6(2), 7-8.

Sohne, G. (2003). Community Revenue Collection System, *A proposal to implement a proposed community based revenue collection system that is suited for operation,*

Spencer, J. & Casey, N. (2007). Toy Recall Shows Challenge China Poses to Partners., *The Wall Street Journal Online,* Mar. 8, 2007, Retrieved Sept. 11, 2014, from: http://online.wsj.com/public/article_print/SB118607762324386327.html

UNCTAD, (2008). Use of Customs Automation Systems, *Trust Fund for Trade in environments with little or no infrastructure. International Organizations* on 18th July 2013.

Victor, N. (2014). Machakos Governor Performance.

Visser, C, B. & Erasmus, P, W. (2005). *The Management of Public Finance: A Practical Guide* Oxford: Oxford University Press.

Wasilewski, F. L. (2000). The economic development and taxation system by comparing the case of Brazil and Japan. *Unpublished master of Economics in Public Policy and Taxation*, Yokohama National University World Bank.

Westrup, C. (2002). What's in information technology? Issues in deploying IS in organisations and developing countries. In: C. Avgerou & Walsham, G., eds, *Information technology in context: Studies from the perspective of developing countries*. (1st edn). Burlington, USA: Ashgate publishing company.

APPENDICES

Appendix I: Cover Letter

Department of Management science

University of Nairobi

P.O Box 30197

Nairobi.

Dear respondent,

I am a post graduate student at the University of Nairobi pursuing a course in Master's of Business Administration (MBA), specializing in Management Information Science. In partial fulfillment of the course requirements I am doing a research project on the **"Effect of an integrated revenue collection system and challenges faced by machakos county on implementation.**

I am conducting an interview based on my topic in Machakos County. The interview is purely for academic research purposes and will be treated with utmost confidentiality. A copy of the research project will be availed to you upon request on completion.

Your cooperation is highly valued and appreciated.

Thank you,

Yours faithfully,

Justus M. Mathew

Appendix II: Interview guide

1. Name

……

2. Department

……

3. Designation

……

4. How long have you worked for the county/local authority?

……

5. What decisions are you involved in?

    i. Strategic

    ii. Middle

    iii. Operational

6. In your own opinion, to what extent automating influences revenue collection in Machakos County?

    Very great extent

    Great extent

    Moderate extent

    Little extent

7. How did the county identify the loopholes in the non-automated system?

    ……

……

……

8. What are the major challenges faced by county government of Machakos in regards to automation of revenue collection?

……

……

……

9. What strategies did the county government deploy to reduce or eliminate the loss during revenue collection?

……

……

    i. Why did the county management use the strategies named above?

……

……

10. Are there challenges that emerged due to the changes in strategy?

……
……
……

11. What factors motivated the county government management to use the strategies mentioned above?

……
……

……

12. What are the future strategies set by Machakos County Government to help in revenue collection?

……

……

……

……