

**FACTORS INFLUENCING IMPLEMENTATION OF PUBLIC -PRIVATE
PARTNERSHIPS IN WASTE MANAGEMENT: A CASE OF UASIN GISHU
COUNTY, KENYA**

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the Award of Master of Arts Degree in Project Planning and Management of
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DECLARATION

This research project report is my original work and has not been presented for an award in any other university

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DEDICATION

This research project report is dedicated to my beloved mother Beatrice for her prayers and for encouraging me. To my siblings for their moral support and prayers, I hope this study instills in them the desire to advance in their education.

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ABBREVIATIONS & ACRONYMS

ADB	Asia Development Bank
CBOs	Community Based Organization
CFS	Critical Success Factors
EIB	European Investment Bank
MDGs	Millennium Development Goals
MSW	Municipal Solid Waste
MSWM	Municipal Solid Waste Management
NGOs	Non-Governmental Organizations
PPPs	Public-Private Partnerships
SPSS	Statistical Package for the Social Sciences
SWM	Solid Waste Management
UG	Uasin Gishu
UNECE	United Nations Commission for Europe
WSSD	World Summit on Sustainable Development

ABSTRACT

Cities in Kenya are facing challenges in managing waste; this is due to rapid industrialization, population growth and rural-urban migration which has led to high volume of waste generation and as a result posing both environmental and health hazards. To manage solid waste in Kenya, various county governments in Kenya have engaged the private sector in collecting, transporting, disposing and recycling of waste; this kind of arrangement is referred to as Public Private Partnerships. Uasin Gishu County which at one point admitted that it cannot handle waste management has since adopted a PPP where they partner with private firms in managing waste from collection to disposal. The purpose of this study therefore was to establish factors influencing implementation of PPP in waste management in Uasin Gishu County. Public-Private Partnership is recommended to not only enhance efficiency and proper handling of waste by the private partner on behalf of the public partner but also to make this costly venture affordable and sustainable. The objectives of this study were to establish how factors such as cost, technology, personnel and time influences implementation of public-private partnerships in waste management, to investigate the combined influence of cost, technology, personnel and time on implementation of PPP in waste management and to examine how governance moderates the implementation of PPP in waste management. The study utilized cross sectional survey design. The target population for this study was 45; these being 36 directors of the private firms contracted by the County Uasin Gishu and 9 members of staff of Department of Environment at the County of Uasin Gishu. Data was collected using the questionnaire, interview schedule and by observation and inspection of official records and analyzed using Scientific Package for Social Sciences (SPSS). Descriptive analysis such as standard deviation, mean and percentages was used to show responses on tables. From the findings, the study concluded that cost, technology and time have a significant influence on the implementation of PPP in waste management. The respondents felt that personnel and governance has no influence on implementation of PPP in waste management. The study recommends that there should be pricing policy to ensure that the service is affordable to all households and businesses, that county governments need to have service charters to help in making the PPP process transparent as far as bidding and procurement is concerned and that the use of technology for quality and fast delivery of waste management service and environment sustainability. On personnel, Uasin Gishu has little application of technology and high dependency on manual labor in their waste management activities, it is recommended that the team are trained and equipped with skills that will help in efficient PPP implementation and waste management. Finally, time being a key influence on implementation of PPP in waste management, this study recommends that the County government needs to be involved in offering solutions to issues that cause delay in waste management like lengthy negotiation process and inflexible work schedules.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Most cities in developing countries are facing challenges in waste management; this is due to rapid industrialization, population growth and rural-urban migration which have led to high volume of waste which are environmental and health hazards. To manage solid waste, various county governments within Kenya have engaged the private sector in collecting, transporting, disposing and recycling of waste; this kind of arrangement referred to as Public Private Partnerships is recommended to not only enhance efficiency and proper handling of waste by the private sector on behalf of the public sector but also to make this costly venture affordable and sustainable.

A report by the Standard newspaper back in 2010 reported that Eldoret which is the economic and manufacturing nerve centre of Uasin Gishu and surrounding counties was experiencing tremendous growth at a very fast rate. The residents of the town accused the local municipal council of concentrating its waste management efforts in the central business district hence neglecting the zones surrounding the town. Eldoret has two landfills which are open and pose serious health and environmental threats even as they try to manage and clean the town of waste. The Eldoret municipal council is on record for admitting that they need partners to assist them with waste management as they have not been able to handle them on their own. They advertised on local newspapers inviting interested people to bid which unfortunately was not successful.

Uasin Gishu County with its headquarters in Eldoret has since adopted the PPP arrangement in their waste management. This model of partnership is also operational in Nairobi City County where the County Government is in a PPP contract with Creative Consolidated Limited for managing solid waste in Nairobi. (The National Treasury: PPP Unit, 2013).

Tamil Nadu one of the pioneering states in the India extended PPP into the Solid Waste Management Sector. The local municipal corporation faced challenges in handling the high quantities of waste being generate. It is then that the Tamil Nadu Urban Development Fund

(TNUDF) brought the idea of handling biodegradable waste on a PPP structure. In 1999, a local company won a tender to run a plant for twenty years V. Murugesan, (2015).

1.2 Statement of the problem

With rural-urban migrations and the ever increasing population in cities, most developing and third world countries are facing increasing generation of waste with poor waste management techniques. Begum et al. (2007). In Kenya, county governments are charged with the responsibility of waste management within their areas of jurisdiction. According to Rotich et al., (2006) rural-urban migration has led to a situation where a very small area of land in the cities are accommodating large number of people, this has led to unplanned settlements where the population have inhabited unsafe areas like river banks and waste disposal sites. The management of solid waste in towns and cities face many challenges such as poor governance, lack of structures and policies. Dumping of solid and liquid waste is being done in undefined areas leading to health and environmental risks due to pollution. Water bodies and rivers are heavily contaminated because there has been lack of environmental impact assessments done on the effects of disposal sites being near water bodies. The realization of effective solid waste management activities from collection, transportation and disposal is faced by many challenges from road unworthy vehicles being used for transport, landfills that do not meet the capacity, poor roads and lack of enough funding.

The only way to mitigate the rural– urban migration is through improving the economy of the rural areas, this will ease the pressure of high population in cities, also the government can involve the local NGOs and community based organizations or private players towards getting a remedy to the challenges faced in solid waste management Rotich et al., (2006). According to the PPP Handbook by the Asian Development Bank (2008), governments enter into PPPs for funding, technical expertise, responsibility and accountability and for optimum use of resources.

Eldoret which is the economic and manufacturing nerve centre of the Uasin Gishu and surrounding counties has been experiencing tremendous growth at a very fast rate. Back in the year 2010, the Standard Newspaper reported that the residents of the town accused the

local municipal council of concentrating its waste management efforts in the heart of the town hence neglecting the zones surrounding the town. Eldoret has two landfills which are open and pose serious health and environmental threats even as they try to manage and clean the town of waste. The Eldoret municipal council is on record for admitting that they need partners to assist them with waste management as they have not been able to handle them on their own. They advertised on local newspapers inviting interested people to bid which unfortunately was not successful. The county government of Uasin Gishu has since partnered with private firms under a PPP agreement in waste management. The MDGs and Kenya's Vision 2030 stipulates a need for ensuring environment sustainability, this in line with the fact that the World Bank has encouraged PPPs as a solution to management of waste. Ombaba et al., (2014). It is because of this together with the above stated problems that this study sought to find out the factors influencing implementation of PPPs in waste management in Uasin Gishu County which is one of the county that has embraced PPP in waste management.

1.3 Purpose of the study

The purpose of this study was to establish the factors that influence implementation of PPPs in waste management in Uasin Gishu County and to make recommendations.

1.4 Research objectives

The study was based on the following objectives:

- i. To assess the extent to which cost influences implementation of PPP in waste management.
- ii. To determine the extent to which technology influences implementation of PPP in waste management.
- iii. To examine the extent to which personnel in waste management influences implementation of PPP in waste management
- iv. To establish the extent to which time influences implementation of PPP in waste management.
- v. To investigate the combined influence of time, costs, technology and personnel on the implementation of PPP in waste management.

- vi. To examine how governance moderates the combined influence of costs, technology, personnel and time on the implementation of PPP in waste management.

1.5 Research questions

The study sought to answer the following research questions:

- i. To what extent does cost affect implementation of PPP in waste management?
- ii. How does technology influence PPP implementation in waste management?
- iii. How do personnel affect implementation of PPP in waste management?
- iv. How does time affect implementation of PPP in waste management?
- v. What is the combined influence of time, costs, technology and personnel on PPP implementation in waste management?
- vi. How does governance moderate the combined influence of costs, technology, personnel and time on the implementation of PPP in waste management?

1.6 Research hypothesis

The study tested the following null hypotheses:

- 1. **H₀** Cost does not have a significant influence on implementation of PPP in waste management.
- 2. **H₀** Technology does not have a significant influence on implementation of PPP in waste management.
- 3. **H₀** Personnel does not have a significant influence on implementation of PPP in waste management.
- 4. **H₀** Time does not have a significant influence on implementation of PPP in waste management.
- 5. **H₀** Cost, technology, personnel and time combined do not have a significant influence on implementation of PPP in waste management.
- 6. **H₀** Governance does not moderate the combined influence of costs, technology, personnel and time on implementation of PPP in waste management.

1.7 Significance of the study

The study will benefit county governments as it will enable them to explore the factors influencing implementation of PPPs and how they can enhance the success factors or close gaps on constraints identified.

The study will also be beneficial to other county governments within the country as they can use this study when implementing PPP initiatives in their county.

1.8 Delimitation of the study

On geographical boundaries, the study focused on the estates surrounding Eldoret town where PPP is operational, this study therefore did not cover the entire Uasin Gishu County. As there are many factors that influence implementation of PPP in general and in waste management, this study did not review all of them but focused on five factors that have been recognized as having key influence namely; costs, technology, personnel, time and governance. There being limited studies done on waste management in Uasin Gishu county, this study was important especially because it shade light on factors influencing implementation of PPP in waste management.

1.9 Limitation of the study

One of the challenges faced in this study was that some of the informants were not conversant with the questions asked, the researcher made herself available to guide the respondents who reported a challenge in answering the questionnaires.

Secondly the informants were afraid of divulging some critical information out of fear or lack of knowledge, the researcher alleviated these challenge by handing the respondents her introductory letter from the university with a surety that their personal information would be used in confidence and that the information would be used for academic purposes only.

1.11 Definitions of significant terms used in the study

Implementation - This is the carrying out or bringing into completion a plan, an idea, a policy or a model.

Public-Private Partnership – This is a co-operation between public and private entity for the provision of service or asset. It involves allocation of risks in terms of responsibility and funding to the private entity. In Kenya, PPPs has been applied in infrastructure like transport where the government has involved private players in the design, construction and management.

Waste Management - This is all the activities involved in handling waste from its origin to the disposal. This involves the collection, transport, recycling and proper disposal. It also involves the governance and policies as far as waste management are concerned.

Project - A task or responsibility that has to be completed within a given set of time and involves costs.

Environment - The natural and artificial that is around us and has an impact on the survival of living things.

Sustainable Development - Developments that are in a position to be maintained for a period of time with its future potential considered.

1.12 Organization of the study

This study is organized into five chapters. The first chapter consists of background to the study, statement of the problem, purpose of the study, objectives of the study, significance of the study and definition of significant terms as used in the study. Chapter two consists of literature review related to the study topic, the chapter also entails theoretical framework, a conceptual framework and summary of knowledge gaps.

Chapter three constitutes of research paradigm, research design, target population, sample and sampling procedure, description of research instruments, validity and reliability of research instruments and methods of data analysis. Chapter four consists of data presentation, analysis, interpretation and discussion and finally chapter five consists of summary of findings, conclusions, recommendations and suggested areas for further studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

According to Arlene, F. (2011), the purpose of literature review is to among other reasons point out gaps that are in existing studies, acknowledge areas studied to avoid duplication and highlight ways of meeting the needs for further research. This will be the reasons for reviewing literature in this study.

This chapter presents literature reviewed from previous related studies. The chapter begins by discussing the concept of waste management and that of PPP. This is followed by factors influencing implementation of PPP in general and in waste management with factors such as time, cost, personnel and governance reviewed, this is based on prior studies done by Cheng (2007) that these factors have received recognition as far as PPP and projects are concerned. The theoretical and conceptual frameworks for the study are presented at the end.

2.2 Implementation of PPPs in general and in waste management

An Asian Development Bank Handbook on Public-Private Partnerships (2008) states that PPPs works in such a structure that—while involving the private sector—affirm and structure the government’s responsibility in making sure that the commitment to the stakeholders and value for the investment is achieved.

Furthermore, a solid PPP apportions not only risks but also work and responsibilities among the public and private players in an ideal way. The public partners in a PPP set-up are government entities like county governments, various ministries, businesses and agencies whereas the private partners could be local and international businesses, investors or companies that offer technical expertise, capital and management to the project. A notable trend currently is where also the NGOs and CBOs are getting into partnerships with the public players so as to meet the needs of their stakeholders.

They continue to state that efficient PPPs acknowledge that both public and the private parties their own responsibilities in carrying out the certain tasks. The government’s role in

a PPP may involve be through channeling capital, committing of assets to anchor the partnership. The government is also responsible for mobilizing public support; raising environmental awareness and being a key in ensuring policies are put in place that will safeguard its people. The private partner will in turn ensure that they provide solid expertise in areas such as finance, technology, management and other tasks stipulated by the contract towards ensuring a successful PPP.

They further hold that the PPP structure should be in such a way that the partners who bear the risk are well placed, experienced enough and capable of handling and managing the risk while at the same time managing the finance in an optimum way without compromising on the quality of performance, ADB Handbook, (2008).

The key features of a PPP as summarized by Deloitte (2006); Yescombe (2007) is where a public entity through the need for a particular asset or service will involve the private partner to design, build, invest capital and maintain or operate for a duration of time while the public partner will commit to offer land, share risks, receive the services at a fee (as payment to the private partner) and offer any other support as per the contract. The private player is therefore required to offer efficiency and quality as payment is tagged to performance.

ADB Handbook, (2008) states that in PPPs implementation, the success is tied to key areas one being the relationship with the stakeholders, the partner who wins the bid has a key role in ensuring that the project is accepted by the community it is supposed to benefit. The community should be involved from the day the day the project is conceived. Communication to the community and building a relationship with them is a key in achieving success. This can be done by employing the local youth and building or improving the social amenities.

It adds that another key consideration is making sure that the partners are well versed with the terms of the contract and that they have respect for each other. The key people in the project should have the appropriate skills and hierarchy for order.

Finally, in the event of inevitable or unanticipated changes in the environment, there could be a need for changes to be made in the contract, these calls for partners who are flexible and willing to manage these changes by re-drafting the contract in terms of scope or terms.

(Contracts should have room for this eventuality). This is solely depended on a very strong relationship between partners who are not only flexible but are also knowledgeable and have respect for each other. When it comes to contracts, a flexible contract that allows for changes is important; this flexibility should be adaptable by both parties because of unexpected changes that may affect the project.

A journal article by Chopra, A., and Kapoor, D.R (2016) states that 'it is also seen that public solid waste systems in most of the municipalities is burdened by excessive staff, obsolete equipment, inflexible work schedules, inadequate supervision and a strong worker union. These factors when combined make waste management in most cities to be below par. An ideal PPP in waste management would be to apply a level of mix where the private partners are contracted to handle zones around the city whereas the public would handle the remaining zones.

According to Cheung, (2009) factors that may influence implementation of PPPs can be both positive (success factors) and negative (constraints) across all stakeholders. On examining factors that influence implementation of PPPs, in general and in waste management; this study is going to center on the five research questions being investigated, namely: Governance, costs, technology, personnel and time.

Kenya, a developing country is experiencing an exponential economic growth, this accompanied by a population that is growing very fast has led to waste management challenges such as environmental and health threats. Begum et al. (2007). The MDGs and Kenya's Vision 2030 stipulates environment sustainability and this has put pressure on county governments to provide service delivery including clean environment and sanitation in line with their role of service delivery to the general citizenry.

A study by Athena Infonomics, (2014) on the strengths and techniques of PPPs states that all forms of waste pose a health threat to the quality of life of the people and the environment. This is because if they are not treated and disposed well, they end up spreading diseases like cholera and polluting the environment through the emission of methane gas which is a health risk. This will have a ripple effect to the point of the government not meeting its visions and goals like the millennium development goals. Properties and neighborhoods face health,

environmental and economic threats with illegal dumping on the roadsides, river banks and outside the buildings in undesignated sites.

In view of the above challenges on waste management, A study done in Uganda by Mugagga, (2006) states that privatization of some services in the cities is encouraged by considerations such as giving quality affordable services to the consumers, mitigate the finance and administration weight on the government, identifying gaps and bridging them, managing costs and warrant the condition of operating equipment.

2.3 Costs and implementation of PPP in waste management

This is in terms of project costs, participation costs and high charge to users (this refers mainly to the PPP projects that once completed charge for the use of facility or service. A good example would be the construction of infrastructures like highways where upon completion the private consortium charges a certain amount to the users so as to recover their cost of investment.

According to Beh, (2010), the bidding process and drawing of the contract needs proper legal and technical framework and guidelines because it will reduce friction and legal issues that may face the project. Lack of proper guidelines and adequate supervision may affect the quality of the project and end up increasing the costs.

The cost of a project is usually tied to risks, this is basically how PPP is modeled. This cost is usually negotiated between the players within the PPP set-up mainly the public and private partners. This room for negotiation makes this model ideal because the cost of finance is reduced. Eldrup and Schutzer, (2013); they argue that the overall cost of a project is tied to the risks. Although cost of capital is subjected to competition, it is not cheap especially where the private partner is the financier. This goes to show that the public partner should be keen to note that the risk carried by the private partner reflects the overall cost of finance and the overall contingency of the project.

This study is going to investigate how cost influences the implementation of PPP by finding out if there is a comprehensive, practical and realistic evaluation of cost and rewards, if the pricing policies reflect the needs of the poor in provision of waste management services, if

there are instances when maintenance cost is higher than expected, and if value for money is achieved PPP.

2.4 Technology and implementation of PPP in waste management

According to handshake, the International Finance Corporation (IFC's) quarterly journal on PPP, (2014), poor waste management is a threat to the environment, to the economy and to the general health of the people. The report says that it impacts the government in terms of high costs mitigating improper dumping, pollution due to the emission of hazardous gas in to the atmosphere and water bodies and the threat to the health of the population.

The report states that players in the PPP need to be accountable for all the activities in waste management; from collection, separation, transportation and disposal is concerned. The PPPs should be well structured such as to allow for these responsibilities to be formalized, this will enhance productiveness in handling of solid waste. To achieve this, it is important that they embrace the use of technology in all stages of solid waste management. PPP in waste management is set up in such a way that the private partner brings capital, manpower and technology whereas the public partner brings governance, facilitation and planning. Proper monitoring and management of PPP in waste management by use of technology especially should bring about innovation, efficiency and improved level of service.

Waste management in its entirety involves the collection, transport, separation, recycling and disposal of waste, regulating and maintaining the legal and technical aspects of waste management. According to Singh, G. et al. (2014) application of technology in waste collection and transportation includes use of specialized truck and crew which albeit faster than manual, it is costly and complex. Technology is also applied in separation of waste where conveyer moves solid waste pass by workers who pick designated components. On waste treatment and recycling, technology is used in composting, incineration, landfills and recycling.

Technology is used in waste management in various ways, this includes and not limited to; monitoring and evaluation of PPP, managing and handling of information, collection,

separation and disposal of waste, educating and creating awareness to the communities for best practice and finally processing of information and data. These are factors that the study is going to investigate.

2.5 Personnel and implementation of PPP in waste management

This includes experience and appropriate skills, employment positions of the project team. For successful implementation of PPPs, a project team should comprise of a dedicated and skilled team who understand the financial and legal aspects of the PPPs. Existing county government staff should be re-skilled in anticipation of the changes that are coming.

To achieve project goals, it is necessary to hire a skilled team. They must need to be equipped with the necessary support to help them achieve the project goals like safety wear, trainings and working instruments. It is important that the team understand their roles and what is expected of them for the project. This calls for proper coordination so that they cumulatively achieve the goals set. Esque, T. J. (1999)

He continues to add that communication needs to be constant and effective so as to keep the project on check. Communication will help the team to be informed of what is expected of them, how they are doing and what needs to be changed. He adds that geographical distance should not hinder communication as other modes of communication like e-mails and teleconferencing can be applied. In conclusion, Esque states project timelines and milestones needs to be put in place so that the team can be able to track the progress and it will instill in them a commitment to achieving goals and this will ensure that the overall project is a success.

For a PPP to be successful in waste management, its administration and management counts to a large extent. Transparency and accountability at all levels i.e. technical and management needs to be adhered to. Coordination between both the private and public entities is necessary.

2.6 Time and implementation of PPP in waste management

This refers to issues of delays either in negotiation, contract transaction and commitment to timelines. According to Singaravelloo, (2010), costs become higher and even the chances of breach of contracts increases if a longer time is spent in negotiating the procurement of PPP. Lengthy delays in procurement of PPP are mostly because of the never ending political debates, lack of clear government objectives and properly prescribed evaluation criteria. This study is going to look at these factors under time in Uasin Gishu County.

There are many things that can affect the schedule of the project and the project team is one of them; an experienced team means a faster and efficient implementation of the project schedules. The reverse is true because an inexperienced team will mean that the project does not operate as per schedule as the team is incompetent and are eating into the project timelines. It is important to note also that time will be used in training an inexperienced team.

According to Divya, and Ramya, (2015) delays in PPP leads to more costs, prolonged project time, legal disputes and possible termination of the contract. They however give the following ways in which delays can be minimized, some of them being; hiring of competent team, frequent communication meetings where progress are reported, application of technology, use of proper equipment, clear segregation of duties, clear planning and budgeting.

The issue of delay and inflexible work schedules are issues seen in waste management. Delay is experienced in different levels but this study is going to look at the negotiation process, work schedule and the quality of personnel and how they influence time as far as implementation of PPP in waste management is concerned.

2.7 Governance and implementation of PPP in waste management

Governance is important in implementation of PPP as claimed by the UNECE, (2007). Poor governance has compromised implementation of PPP in many countries. They point out guidelines and principles that are key in promoting good governance in PPPs namely; clear legal guidelines, mutual support and respect, risk apportioning agreement, clear PPP policy,

and strong guideline from supporting organizations, transparency and stakeholder involvement.

The public entity is being held accountable because PPP has provided a platform where the private partners are involved in decision making. The private players are also scrutinized by the public officials because the stakeholders will hold the government accountable on how they spend the money Posner, (2002). It is important to understand that whereas the governments represent the public through these PPPs, the private partners are in business to make profits Buxbaum and Ortiz, (2007, 8). Responsibility in PPPs calls for proper guidelines to ensure that the public is safeguarded from exploitation or that the quality of the service or asset is not compromised.

A journal by Chopra, and Kapoor, (2016, Pg. 37), points out that waste management has implications on revenue stream and employment but political parties give it less concern as they do not see a relationship between a clean environment and public welfare and therefore they see waste management as an issue that will not yield returns. In governance, factors such as regulators demonstrating competence, independence and efficiency, government guidelines and procedures on PPP policy for example, does it have clearly allocated authority and responsibility within the parts of government, political support, economic policy and legal framework are going to be investigated.

2.8 Theoretical framework

A theoretical framework is a guide because at the beginning of a research study, the suitable theory forms the foundation of the knowledge base for the aspect or phenomenon to be researched, Sinclair, (2007).

2.8.1 Agency theory

This is an association existing between principals and agents, Jensen, (2003). The principal in this case delegates to the agent to take control or act on his behalf to the point of decision making. In this theory a principal enters into a contract with an agent for reasons such as expertise that include financial and technical. This may be out of necessity or gaps faced by his (principal) organization that is affecting the operations which cannot be met

by building the expertise within the organization because it is costly. The principal and the agent come to agreement on the contract terms which include quality, timelines, costs, processes, evaluation and performance.

According to the HM Treasury Publication on 'Public services: meeting the productivity challenge', (2003) Agency theory was used in a context of a relationship between a manager and an employee for economic benefits. This has however been applied in the private and public sector where the agent is employed to deliver some service or task to the public. In this particular study, Agency Theory will be used to explore factors that influence implementation of PPPs between the two main stakeholders in the PPP arrangement; the county government (principal) and the private sector (agent).

2.9 Conceptual framework

This gives an outline on how the research will be done. It describes connections or relationship between the variables objectives, independent and dependent variables under study.

The conceptual framework in Figure 1 shows the relationships between the independent, dependent, moderating and extraneous variables. The extraneous variables include factors such social i.e. attitudes, political factors i.e. county government by-laws and economic factors. The moderating variables are the policies, procedures and guidelines set by the county government.

Time as an independent variable refers to issues such as length of negotiations, work schedule of the personnel and the kind of employees involved in waste management. If the quality of personnel is poor in any team then it means a risk in experiencing issues of delays. Length of negotiations as far as time is concerned refers to issues such as the procurement process, political debate and confusion over political debates.

Cost as an independent variable looks at how it influences implementation of PPP through evaluation of the expenditure and rewards. This study looked at how maintenance costs, value for money and pricing policies influences implementation of PPP in waste management.

Proper use of technology has been used to increase efficiency in solid waste management. As an independent variable, this study looks at how technology influences collection, transportation, disposal, monitoring of PPP and managing information in waste management.

Personnel refer to the quality of personnel in the PPP. Experience, skills and training are the key issue determined under this independent variable. To accomplish a project goal, team members need to have necessary skills and refresher training to keep them abreast with the dynamics.

The final independent variable is governance and this looked at whether the county government offers political support, favorable policies and some levels of independence in implementation of PPP. Accountability is important in any PPP set-up and particularly in waste management so as to make sure that public assets and the quality of public services are not compromised at the expense of profits made by the private partners and corrupt public officials. Governance is a moderating variable.

The dependent variable in this study is the implementation of PPP and its success rate is going to be determined in the light of the independent variables highlighted. The moderating variables are factors like policies, procedures and guidelines under the variable governance whereas the extraneous variables are the social, political and economic factors.

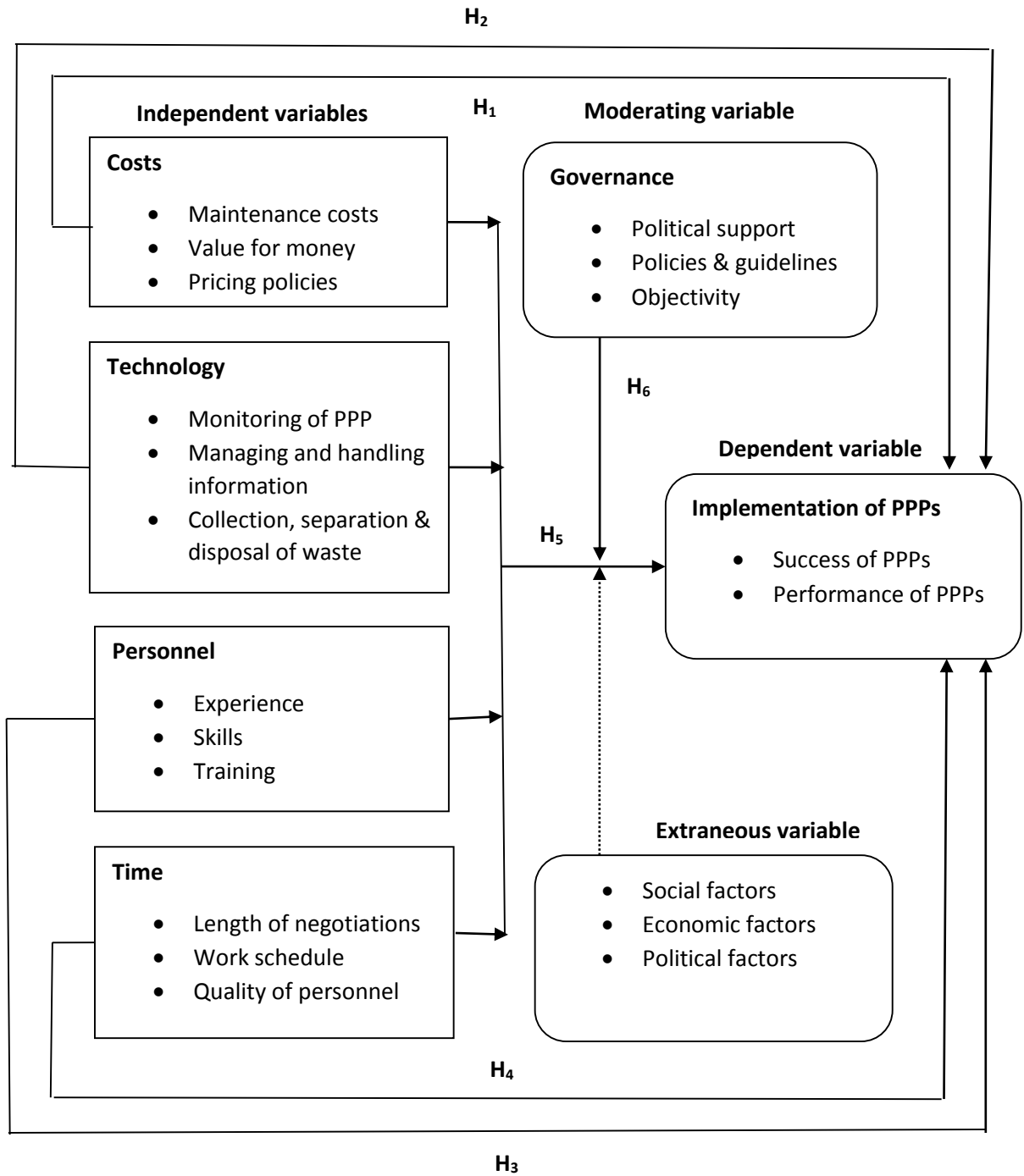


Figure 1: Conceptual framework

2.10 Knowledge gaps

According to Divya, R. and Ramya, S (2015), the main cause for delay are poor planning, inconsistency in costs of materials and delay in approving paperwork. They recommended that causes, effects and means of reducing project delays are studied in other sectors.

A study by Waichanguru, (2010) found that opportunities for collaboration between the council and private sector in Nyeri municipal council and private entities will continue to grow in the future and the council needs to prepare itself. He noted that there is need to undertake a comparison study to find out whether PPPs in various local governments across the country is influenced by the same factors. In addition, a cost-benefit analysis on PPPs to be carried out in order to establish whether PPPs give value for money to the local governments. This knowledge gap forms the basis of this study focus being on Uasin Gishu County.

On the influence of personnel on implementation of PPP in waste management, in the same study, Waichanguru, (2010) notes that the council should opt to work with partner partners manage PPP projects well. He goes on to recommend that the council needs to undertake staff training and awareness creation within its staff.

On the influence of technology on the implementation of PPP in waste management, King'oo, C.K (2015) noted that lack of technical know-how among employees in Mombasa municipality and private companies, deficient infrastructure, bad roads, faulty vehicles and insufficient technologies were the major technical factors influencing SWM. She noted that technology needs to be at the center stage of all solid waste management programs of Mombasa County government as well as other counties in Kenya.

Chopra, A., & Kapoor, D.R (2016) solid waste management is much more than a technical problem; because it has implications on revenue streams, accountability of public assets and employment and therefore for any changes to be sustainable then political support is crucial. Their recommendation that all barriers to a sustainable public private partnership which include issues of finance, structures and legalities should be addressed by the public entity being a facilitating agency forms a basis for this study.

Table 2.1: Summary of knowledge gaps

Variable	Author, (Date)	Purpose	Methodology	Findings	Knowledge Gaps
Influence of time on implementation of PPP in waste management	Divya, R. and Ramya, S (2015)	To investigate causes and effects of delay and how to mitigate those delays in construction projects	Literature reviews and questionnaire survey	Delays are caused by poor planning, increasing costs of materials and late approvals of designs by owners	Research on how to mitigate delays, causes of these delays and their effects on projects
Influence of cost on implementation of PPP in waste management	Waichanguru, (2010)	To identify the factors influencing administration of PPP in Nyeri county council	Descriptive research design	A need to come up with a structure on the use of Public Private Partnerships to ensure that they are initiated from a point of facts.	A cost- benefit analysis study on PPPs needs to be carried out so as to establish whether PPPs give value for money to the local governments
Influence of technology on implementation of PPP in waste management	King'oo,C.K (2015)	Factors influencing public private partnership in solid waste management in Mombasa County.	Descriptive survey research design	The team (both private and public) lack proper skill, there is poor infrastructure and appropriate technology.	Technology needs to be at the center stage of all solid waste management programs of Mombasa County Government as well as other counties in Kenya.

Influence of personnel on implementation of PPP in waste management	Waichanguru, (2010)	To identify the factors influencing administration of PPP in Nyeri county council	Descriptive research design	The Municipal council needs to outsource expertise that will help them in all the cycle of a PPP process from planning, negotiation to implementation.	The council needs to undertake staff training and awareness creation within its staff.
Influence of governance on implementation of PPP in waste management	Chopra, A., and Kapoor, D.R (2016)	Study of PPP in Urban solid waste management	Literature reviews and questionnaire survey	Waste management is also a political issue as it effects are tied to taxation, political support, regulations and community welfare.	Any meaningful PPP should have strong political, technical and financial framework to succeed. The government being the one steering it should facilitate this platform with transparency.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section is about the methodology that was applied in the study. It describes the research design, target population, data collection methods, validity and reliability of the research instruments and data analysis.

3.2 Research paradigm

According to Bogdan and Biklin (1998) a research paradigm affects the way a phenomenon is studied and translated. This study used pragmatic paradigm which included positivism and constructivism. In positivism phenomena under study was assumed to have occurred and the purpose of the study was to investigate trends and patterns of those occurrences. In constructivism, it was assumed that opinions would also be important in shaping trends and patterns to be observed.

3.3 Research design

This study employed cross-sectional survey design. Cross-sectional survey has been described as descriptive research and it is aimed at shading light on current issues or problems through a process of data collection so that the situation can be described more completely than is possible without employing this method Fox and Bayat (2007). Cross-sectional study is a research tool used to capture information based on data gathered for a specific point in time. According to Kothari (2004) with descriptive study, the first step is to state the objectives with enough accuracy so as to ensure relevance of data that are collected. This will ensure that the study brings out the information wished for.

The research findings from this study helped remove suppositions and have them restored with data obtained on the variables studied during the duration stipulated for the research study. This design allowed the study to be completed with little constraints imposed by time and finances.

3.4 Target population

For this study, the target population comprised of 37 units; these being, 36 units representing the directors of the private firms contracted with waste management in the county and one unit comprising of nine members of management staff of the Department of Environment in the County of Uasin Gishu. The target population will therefore be 45 individuals.

Table 3.1: Target population

Category	Target Population
Director environment	1
Cleansing and conservancy officer	1
Zonal cleansing officers	5
Compliance	1
Environmental impact assessment	1
Private firms	36
Total	45

3.5 Sample and sampling procedure

The target population for this study was 45 respondents. The target population being small, the study covered the entire target population without sampling. Due to the kind of questions and feedback expected, the study targeted the management staff of the two units under study, mainly the Uasin Gishu County and the private firms contracted, a list of all the 36 private firms is attached in the appendix. The study utilized non-probability sampling to get the sample. The items for sample in this sampling procedure are deliberately selected by the researcher, and the choice of items being selected remains paramount, Kothari (2004).

3.6 Research instruments

The research instruments that were applied for this study, since it is primary data are questionnaires and interview schedule. A questionnaire is a set of questions printed or written down with a choice of answers in a definite order on a form. The researcher sends the questionnaires to the respondents who it is anticipated that upon reading and

understanding the questions will answer in the spaces provided on their own, Kothari, (2004). An interview schedule will be used to gather information from the top management and the technical staff so as to get more information and deeper understanding.

3.6.1 Pilot testing

For this study, five questionnaires were pre-tested to gauge whether the question will be understood and to remove any inconsistency or redundancy. This ensured that the information to be generated could be measured by the instrument. The five questionnaires were not included in the final study.

3.6.2 Validity of the research instruments

Validity of the research instruments was keen at establishing whether the research instruments were able to measure what it was intended to measure. Reliability is the ability of the instrument to give consistent and stable results.

3.7 Data collection procedure

The questionnaire used closed ended questions which were self- administered. This type of questions allows the respondents to answer questions promptly hence save time and facilitate easier analysis whereas interview schedule enabled for a more detailed and an in depth understanding of issues. Official records were not able to be observed and inspected to be able to collect more information.

3.9 Data analysis techniques

Data was analyzed through descriptive statistics; this is through measure of the central tendency i.e. mean. The questionnaires were checked for completeness and accuracy to ensure there were no discrepancies before they were analyzed using SPSS. Mean and Percentages were used to show responses which will be presented in tables.

Regression analysis was used to test the relationship between the independent variables which are 'factors influencing' and dependent variable which is 'implementation of PPP'. Multiple regression analysis will be used to determine the importance of combined

independent variables in relation to the dependent variable. The independent variables in this case are; cost, technology, personnel and time whereas dependent variable is implementation of PPP by the various actors in Uasin Gishu County.

The model that will be used is:

$$\text{Model: } Y = \alpha_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \varepsilon$$

Where Y is the dependent variable representing implementation of PPP,

X_2 represents cost,

X_3 represents technology,

X_4 represents personnel,

X_5 represents time,

X_2 , X_3 , X_4 and X_5 are the independent variables

α_1 is the constant (y intercept)

α_2 , α_3 , α_4 and α_5 are the regression coefficient for the variables X_2 , X_3 , X_4 and X_5

ε is the error term

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents data analysis results, presentation, interpretation and discussion. The chapter begins with the response rate and demographic results. The results based on each objective are also presented in this chapter.

4.2 Questionnaire and interview response rate

The sample size was 45 respondents, 36 for questionnaires and 9 for interviews. Out of the 36 questionnaires issued to the directors of the private firms, 29 were returned, this presented a response rate of 81%. 7 out 9 interviews were conducted on the management staff of the department of environment in the County Government of Uasin Gishu, this presented a response rate of 78%.

4.3 Demographic profile

This section presents results on the gender of the respondents, gender, level of the job and their experience working in waste management in a PPP set up.

4.3.1 Gender of the respondents

The genders of the respondents from both the questionnaires and interview are presented in Table 4.1

Table 4.1 Gender of the respondents

Gender	Frequency	Percent
Male	21	58.3
Female	15	41.7
Total	36	100

The results revealed that 58.3% of respondents are male while 41.7% are female. The County Government of Uasin Gishu through its PPP has encouraged women and women groups to form business partnerships with them.

4.3.2 Age of the respondents

The respondents were requested to indicate the age brackets to which they fall in. The results are presented in the Table 4.2

Table 4.2 Age of the respondents

Gender	Frequency	Percent
25-30 Years	11	30.6
31-35 Years	14	38.9
36-40 Years	4	11.1
41-45 Years	6	16.7
46-50 Years	1	2.7
Total	36	100

The results showed that 30.6% of respondents were aged between 25-30 years, 38.9% were aged between 31-35 years, 11.1% were aged between 36-40%, 16.7% were aged between 41-45 years and 2.7% were aged between 46-50 years. This study revealed that majority of the respondents were between 25-35 years making 69.5%, this is because the County Government encourages youth and youth groups to go into business partnerships with them.

4.3.3 Job level

The respondents were asked to indicate level of their jobs in the private firms that they run. The results are presented in the Table 4.3

Table 4.3 Job level

Level	Frequency	Percent
Management	16	55.2
Support	10	34.5
Other	3	10.3
Total	29	100

The results revealed that 55.2% of the respondents were in the management level, 34.5% were in support whereas 10.3% were other (administration). More than 50% of the respondents were in the management level because they are the owners of the business.

4.3.4 Level of education

The management staff; department of Environment of Uasin Gishu County Government were asked to indicate their level of education. The results are presented in Table 4.4

Table 4.4 Level of education

Level	Frequency	Percent
Degree	5	71.4
Diploma	2	28.6
Total	7	100

The results revealed that 71.4% of the staff has degrees while 28.6% have diplomas. This level of education indicates that the staff is able to not only comprehend waste management but also is key in management and administration of the PPP.

4.3.5 Experience of respondents

The respondents were asked to indicate the number of years of experience they have working in waste management in a PPP set up. The results are presented in Table 4.5

Table 4.5 Experience of respondents

Level	Frequency	Percent
Less than 2 years	3	10.3
2-5 years	16	55.2
6-10 years	7	24.1
11-15 years	3	10.3
Total	29	100

The results indicate that 10.3% have less than 2 years' experience, 55.2% have between 2-5 years' experience, 24.1% have between 6-10 years' experience and 10.3% have between 11-15 years' experience. 55.2% of the respondents have 2-5 years of experience working with the in waste management in a PPP set up because County Government has been operational for close to six years now; this is also attributed to the County Government scaling up the PPP with youth and women for effective solid waste management. All the seven management staff at the department of environment interviewed have worked for the county government of Uasin Gishu for between four to seven years and they are well conversant with the operations of PPP in waste management.

4.4 Factors influencing the implementation of PPP in waste management

This section presents results from all the objectives under study. The results will be based on research questions namely; influence of governance on implementation of PPP, influence of cost on implementation of PPP, influence of technology on implementation PPP, influence of personnel on implementation of PPP and influence of time on implementation of PPP. This section will also present results on performance and success of PPP in implementation of waste management.

4.4.1 Influence of governance on implementation of PPP in waste management

The study sought to find out the influence of governance on implementation of PPP. The responses were on a five point likert scale where: 1-strongly agree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree. The results are presented in Table 4.6

Table 4.6 Influence of governance on implementation of PPP

Governance	Mean	Std. Deviation
There is trustworthiness and transparency working with the county government	2.97	0.87
My firm has a clear legal framework to deal with legal issues that come up	3.72	1.03
There is integrity in the procurement process	2.76	0.99
My firm is well guided by the county government in the execution of the PPP	3.72	0.75
Composite mean and SD	3.29	0.91

From the results above majority of the respondents disagree that there is trustworthiness and transparency working with the county government (Mean=2.97), my firm has a clear legal framework to deal with legal issues that come up (Mean=3.72), there is integrity in the procurement process (Mean=2.76) and my firm is well guided by the county government in the execution of PPP (Mean=3.72). The overall mean was 3.29 indicating that majority of the respondents were neutral on issues of governance as far PPP implementation is concerned.

4.4.2 Regression results for influence of governance on Implementation of PPP in waste management

The respondents were asked to indicate on a scale of 0-10 the extent to which governance support operations of their firm and to rate on a scale of 0-10 the success of implementation of PPP in Uasin Gishu County. The results were then coded and entered in SPSS to compute the measurements of linear regression to test the null hypothesis that governance does not have a significant influence on implementation of PPP in waste management. The findings are presented in the Tables 4.7 and 4.8.

Table 4.7 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.129a	.017	-.020	1.369

a. Predictors: (Constant), Governance

b. Dependent Variable: Implementation of PPP in waste management

Table 4.8 ANOVA (Analysis of Variance)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.859	1	.859	.458	.504b
Residual	50.589	27	1.874		
Total	51.448	28			

a. Predictors: (Constant), Governance

b. Dependent Variable: Implementation of PPP in waste management

The study shows that 1.7% of the variance in implementation of PPP in waste management is explained by governance as represented by the R^2 . This means that other factors not studied contribute 98.3% of variance in the dependent variable.

Analysis of the variance (ANOVA) shows $F(1,27) = .458$, $P = .504$ the significance level being greater than alpha .05, it shows governance has no significant influence on implementation of PPP in waste management and therefore we accept the null hypothesis that governance does not have a significant influence on implementation of PPP in waste management.

4.4.3 Influence of cost on implementation of PPP in waste management

The study sought to find out the influence of cost on implementation of PPP. The responses were on a five point likert scale where: 1-strongly agree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree. The results are presented in Table 4.9

Table 4.9 Influence of cost on implementation of PPP

Cost	Mean	Std. Deviation
Pricing policies reflect the needs of the poor in provision of waste management services	3.59	1.12
There are instances when maintenance cost is higher than expected	4.24	0.69
My firm achieves value for money in the PPP	3.83	0.76
Composite mean and SD	3.89	0.86

On pricing policies reflect the needs of the poor in provision of waste management services; majority of the respondents were neutral with a mean score of 3.59, majority of the respondents agree that there are instances when maintenance cost is higher than expected with a mean of 4.24 whereas majority of the respondents are neutral on whether their firms achieve value for money in the PPP with a score of 3.83.

4.4.4 Regression results for influence of cost on Implementation of PPP in waste management

The respondents were asked to indicate on a scale of 0-10 the importance they attach to cost and to rate on a scale of 0-10 the success of implementation of PPP in Uasin Gishu County. The results were then coded and entered in SPSS to compute the measurements of linear regression to test the null hypothesis that cost does not have a significant influence on implementation of PPP in waste management. The findings are presented in the Tables 4.10 and 4.11

Table 4.10 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.536a	.287	.261	1.369

a. Predictors: (Constant), Cost

b. Dependent Variable: Implementation of PPP in waste management

Table 4.11 ANOVA (Analysis of Variance)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	14.774	1	14.774	10.877	.003b
Residual	36.674	27	1.358		
Total	51.448	28			

a. Predictors: (Constant), Cost

b. Dependent Variable: Implementation of PPP in waste management

The results show that 28.7% of the variance in implementation of PPP in waste management is explained by cost as represented by the R^2 . This means that other factors not studied contribute 71.3% of variance in the dependent variable; this score indicates that cost plays a major role independently towards implementation of PPP in waste management. On analysis of the variance (ANOVA) shows $F(1,27) = 10.877$, $P = .003$ the significance value 0.003 is less than 0.05, this shows that the model is statistically significant in showing that cost influences implementation of PPP in waste management and therefore we reject the null hypothesis that cost does not have a significant influence on implementation of PPP in waste management.

4.4.5 Influence of technology on implementation of PPP in waste management

The study sought to find out the influence of technology on implementation of PPP. The responses were on a five point likert scale where: 1-strongly agree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree. The results are presented in Table 4.12

Table 4.12 Influence of technology on implementation of PPP

Technology	Mean	Std. Deviation
There is technology involved in monitoring and evaluation of PPP in my firm	3.59	0.98
My firm uses technology in managing and handling information	3.72	0.84
The firm uses technology in collection, separation and disposal of waste	2.97	0.87
Composite mean and SD	3.43	0.89

From the results above, majority of the respondents were neutral on whether there is technology involved in monitoring and evaluation of PPP in their firms (Mean=3.59) and on whether there is use of technology in managing and handling information (Mean=3.72). Majority of respondents disagreed on their firm's use of technology in collection, separation and disposal of waste (Mean=2.97).

4.4.6 Regression results for influence of technology on Implementation of PPP in waste management

The respondents were asked to indicate on a scale of 0-10 the importance they attach to the use of technology and to rate on a scale of 0-10 the success of implementation of PPP in Uasin Gishu County. The results were coded and entered in SPSS to compute the measurements of linear regression to test the null hypothesis that technology does not have a significant influence on implementation of PPP in waste management. The findings are presented in the Tables 4.13 and 4.14

Table 4.13 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.444a	.197	.168	1.237

a. Predictors: (Constant), Technology

b. Dependent Variable: Implementation of PPP in waste management

Table 4.14 ANOVA (Analysis of Variance)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	10.149	1	10.149	6.635	.016b
Residual	41.299	27	1.530		
Total	51.448	28			

a. Predictors: (Constant), Technology

b. Dependent Variable: Implementation of PPP in waste management

The results in Table 4.13 & 4.14 show that 19.7% of the variance in implementation of PPP in waste management is explained by cost as represented by the R^2 . This means that other factors not studied contribute 80.3% of variance in the dependent variable. On analysis of the variance (ANOVA) shows $F(1,27) = 6.635$, $P = .016$ the significance value 0.016 is less than 0.05, this shows that the model is statistically significant in showing that technology influences implementation of PPP in waste management and therefore we reject the null hypothesis that technology does not have a significant influence on implementation of PPP in waste management.

4.4.7 Influence of personnel on implementation of PPP in waste management

The study sought to find out the influence of personnel on implementation of PPP. The responses were on a five point likert scale where: 1-strongly agree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree. The results are presented in Table 4.15.

Table 4.15 Influence of personnel on implementation of PPP

Personnel	Mean	Std. Deviation
The staff are experienced and have appropriate skills that are key in the operations of the firm	3.97	0.50
The staff are aware of legal, financial and basic technical issues in waste management	3.72	0.84
The staff are continually trained and re-skilled on waste management	4.03	0.68
Composite mean and SD	3.91	0.67

From the results above, majority of the respondents are neutral on whether the staff are experienced and have appropriate skills that are key in the operations of the firm (Mean=3.97) and whether the staff are aware of legal, financial and basic technical issues in waste management (Mean=3.72). Majority of the respondents agree though that the staff are continually trained and re-skilled on waste management (Mean=4.03).

4.4.8 Regression results for influence of personnel on Implementation of PPP in waste management

The respondents were asked to indicate on a scale of 0-10 the importance they attach to personnel and to rate on a scale of 0-10 the success of implementation of PPP in Uasin Gishu County. The results were coded and entered in SPSS to compute the measurements of linear regression to test the null hypothesis that personnel does not have a significant influence on implementation of PPP in waste management. The findings are presented in the Tables 4.16 and 4.17

Table 4.16 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.276 ^a	.076	.042	1.327

a. Predictors: (Constant), Personnel

b. Dependent Variable: Implementation of PPP in waste management

Table 4.17 ANOVA (Analysis of Variance)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	3.919	1	3.919	2.226	.147 ^b
Residual	47.530	27	1.760		
Total	51.448	28			

a. Predictors: (Constant), Personnel

b. Dependent Variable: Implementation of PPP in waste management

The results in Table 4.16 and 4.17 show that; 7.6% of the variance in implementation of PPP in waste management is explained by personnel as represented by the R^2 . This means that other factors not studied contribute 92.4% of variance in the dependent variable. On analysis of the variance (ANOVA) shows $F(1,27) = 2.226$, $P = .147$ the significance value 0.147 is greater than 0.05, this shows that the model is not statistically significant in showing that personnel influences implementation of PPP in waste management and therefore we accept the null hypothesis that personnel does not have a significant influence on implementation of PPP in waste management.

4.4.9 Influence of time on implementation of PPP in waste management

The study sought to find out the influence time has on implementation of PPP. The responses were on a five point likert scale where: 1-strongly agree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree. The results are presented in Table 4.18

Table 4.18 Influence of time on implementation of PPP

Personnel	Mean	Std. Deviation
Lengthy delays in negotiation affect operations of the firm negatively	4.52	0.57
Inflexible work schedules leads to time wastage	4.34	0.67
Inexperienced staff eat into operation schedules	4.03	0.78
Composite mean and SD	4.30	0.67

From the results in Table 4.18, majority of the respondents agree that lengthy delays in negotiation affect operations of the firm negatively (Mean=4.34), inflexible work schedules leads to time wastage (Mean=4.34) and that inexperienced staff eat into operation schedules (Mean=4.03).

4.4.10 Regression results for influence of time on Implementation of PPP in waste management

The respondents were asked to indicate on a scale of 0-10 the importance they attach to time in the operations of their firm and to rate on a scale of 0-10 the success of implementation of PPP in Uasin Gishu County. The results were coded and entered in SPSS to compute the measurements of linear regression to test the null hypothesis that time does not have a significant influence on implementation of PPP in waste management. The findings are presented in the Tables 4.19 and 4.20

Table 4.19 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.444 ^a	.197	.168	1.237

a. Predictors: (Constant), Time

b. Dependent Variable: Implementation of PPP in waste management

Table 4.20 ANOVA (Analysis of Variance)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	10.149	1	10.149	6.635	.016 ^b
Residual	41.299	27	1.530		
Total	51.448	28			

a. Predictors: (Constant), Time

b. Dependent Variable: Implementation of PPP in waste management

The results above show that 38.9% of the variance in implementation of PPP in waste management is explained by time as represented by the R^2 . This means that other factors not studied contribute 61.1% of variance in the dependent variable. On analysis of the variance (ANOVA) shows $F(1,27) = 6.635$, $P = .016$ the significance value 0.016 is greater than 0.05, this shows that the model is statistically significant in showing that time influences implementation of PPP in waste management and therefore we reject the null hypothesis that time does not have a significant influence on implementation of PPP in waste management.

4.4.11 Performance and success of PPP in implementation in waste management

The study sought to find out the performance and success of PPP in implementation of waste management. The responses were on a five point likert scale where: 1-strongly agree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree. The results are presented in Table 4.21

Table 4.21 Performance and success of PPP in implementation of waste management

Performance and success	Mean	Std. Deviation
My firm has recorded an increase in waste collection through improved services	4.07	0.70
My firm's management cost has increased	3.41	0.83
Decision making is faster due to clear communication	3.90	0.77
My firm has increased capacity and flexibility due to application of technology	3.76	0.83
Composite mean and SD	3.79	0.78

From the above results, majority of the respondents agree that the firm has recorded an increase in waste collection through improved services. Majority of respondents were neutral on whether the firm's management cost has increased (Mean=3.41), decision making is faster due to clear communication (Mean=3.90) and the firm has increased capacity and flexibility due to application of technology (Mean=3.76).

4.4.12 Regression results for combined influence of governance, cost, personnel and time on Implementation of PPP in waste management

The respondents were asked to indicate on a scale of 0-10 the importance they attach to cost, technology, time and personnel in the operation of their firm and to rate on a scale of 0-10 the success of implementation of PPP in Uasin Gishu County. The results were coded and entered in SPSS to compute measurements of linear regression on whether there is a significant influence of all combined independent variables of cost, technology, time and personnel and time on the dependent variable implementation of PPP in waste management. SPSS was used to code and compute the data the study and the results are presented in below model summary and ANOVA Tables 4.22 and 4.23.

Table 4.22 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.698 ^a	.487	.401	1.049

a. Predictors: (Constant), Cost, Technology, Personnel, Time

b. Dependent Variable: Implementation of PPP in waste management

Table 4.23 ANOVA (Analysis of Variance)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.052	4	6.263	5.694	.002 ^b
Residual	26.396	24	1.100		
Total	51.448	28			

a. Predictors: (Constant), Cost, Technology, Personnel, Time

b. Dependent Variable: Implementation of PPP in waste management

The results above show that 48.7% of the variance in implementation of PPP in waste management is explained by the four independent variables (cost, technology, personnel and time) as represented by the R^2 . This means that other factors not studied contribute 51.3% of variance in the dependent variable. 51.3% being a significant figure, further research should be conducted to investigate these other factors that influence the implementation of PPP in waste management. On analysis of the variance (ANOVA) the results shows $F(4,24) = 3.037$, $P=.002$ the significance value 0.002 is less than 0.05, this shows that the model is statistically significant in showing that cost, technology, personnel and time have a combined influence on implementation of PPP in waste management and therefore we reject the null hypothesis that costs, technology, personnel and time do not have a combined significant influence on implementation of PPP in waste management.

Table 4.24 Multiple Regression analysis

Model	Un-standardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
Constant	.775	1.667		4.65	.646
Cost	.466	.241	.401	1.931	.065
Technology	-.032	.155	-.041	-.207	.838
Personnel	-.326	.200	-.336	-1.627	.117
Time	.679	.256	.613	2.657	.014

The substitution of the equation based on the model

($Y = \alpha_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5$) becomes:

$$Y = 0.775 + 0.466X_1 - 0.032X_2 - 0.326X_3 + 0.679X_4$$

Where Y is the dependent variable (implementation of PPP in waste management, X₁ is the cost variable, X₂ is the technology variable, X₃ is the personnel variable and X₄ is the time variable. The data from the above computation shows that a unit increase in cost will lead to a 0.466 increase in implementation of PPP in waste management, a unit increase in technology will lead to a -0.032 increase in implementation of PPP in waste management, a unit increase in personnel will lead to a -0.326 increase in implementation of PPP in waste management and a unit increase in time will lead to a 0.679 increase in implementation of PPP in waste management. It is also noted from the results above that the most significant factor is time followed by cost. On the level of significance, cost had a 0.065 level of significance, technology had 0.838, personnel had 0.117 and time had 0.014; this show that time is the only variable that is statistically significant at a 95% confidence level.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, discussions, conclusions and recommendations for further research based on the objectives investigated.

5.2 Summary of findings

The study sought to find out how cost influences implementation of PPP in waste management in Uasin Gishu County. Both descriptive and regression analysis were utilized. The study revealed that majority of the respondents were neutral on whether pricing policies reflect the needs of the poor in provision of waste management services (M=3.59), and that their firm achieves value for money in the PPP (M=3.83) but agree that there are instances when maintenance cost is higher than expected (M=4.24). The study used regression analysis to find out whether cost influences implementation of PPP in waste management, the results (P=.003) showed that the model is statistically significant in showing that cost influences implementation of PPP in waste management and therefore the null hypothesis that cost does not have a significant influence on implementation of PPP in waste management was rejected. The management at the county government have a pricing structure that ensures all stakeholders in the PPP are taken into consideration, the management feel that PPP has solved problems of not only budget restraints in the county government because of shred costs and risks with the private players but has also led to quality services delivery.

The findings resonates well with the findings of Eldrup and Schutzer, (2013) where they found out that the overall cost of capital is reflected upon by the risk factors of the project. While private financing is usually higher than public finance; the risks that private partners bear and the overall feasibility of the project is a direct reflection of the cost of finance.

On the extent to which technology influences implementation of PPP in waste management, the study revealed that majority of the respondents do not use technology in collection, separation and disposal of waste (M=2.97) this is because they are small scale business

enterprises that rely on manual labor. Majority of the respondents were neutral on whether there is technology involved in monitoring and evaluation of PPP in their firm (M=3.59) and on whether their firm use technology in managing and handling information (M=3.72) these is because some of them use computers while others utilize books and pens for record keeping. The study used regression analysis to find out whether technology has an influence on implementation of PPP in waste management. The results (P=.016) showed that the model is statistically significant in showing that technology influences implementation of PPP in waste management and therefore we reject the null hypothesis that technology does not have a significant influence on implementation of PPP in waste management.

The above results resonates well with a report by *handshake*, the International Finance Corporation (IFC's) quarterly journal on PPP which states that public and private sector have a joined responsibility for waste generation and disposal and they need to work together specifically in product design and waste separation. The report says that solid waste management can be greatly improved if well-structured PPPs has a formalized and agreed upon responsibilities is put in place. Oliveira and Buckholtz, (2014, Pg. 7). This calls for proper use of technology in waste management. The respondents as per the results above agree that technology will increase their efficiency but are also limited by capital to implement the same like on the use of technology in the collection, separation and disposal of waste, this resonates well with the one from the management in the department of environment where they confirm that technology is limited to the private players because of the capital investment, they utilize the garbage trucks where necessary, although this does not fill all the gaps, they work towards introducing technology in separation and recycling of waste by working with private players.

The study sought to examine the extent to which personnel influences implementation of PPP in waste management. The results showed that the staff are experienced and have appropriate skills that are key in the operations of the firm (M=3.97), the staff are aware of legal, financial and basic technical issues in waste management (M=3.72) and the staff are continually trained and re-skilled on waste management (M=4.03). The study used regression analysis to find out whether personnel have an influence on implementation of PPP in waste management. The results (P=.147) showed that the model is statistically

significant in showing that personnel does not influences implementation of PPP in waste management and therefore the null hypothesis that personnel does not have a significant influence on implementation of PPP in waste management was accepted. This is explained by the fact that waste management is manual and does not require any special skills; on the other hand the study also reveals that the respondents are not keen on the legal, financial and technical knowledge of their project team. This results in more supervision from the management to ensure that the private contractors do their work well. The county ensures that the team is conversant with the PPP and what is expected of them by conducting continual trainings.

The above results resonates well with the one done by Esque (1999) which states that in order to accomplish project goals, the personnel must have the necessary skills. The personnel should have the necessary resources such as time, materials and support within their reach. It is also expected that the project team are aware of what is expected of them and their input in the project. For the project to achieve its goals, each team member must have a shared goal have proper co-ordination towards achieving them.

On the influence of time in implementation of PPP in waste management, the study showed that lengthy delays in negotiation affect operations of the firm negatively ($M=4.52$), Inflexible work schedules leads to time wastage ($M=4.34$) and inexperienced staff eat into operation schedules ($M=4.03$). Time is a key factor because the county government stipulates the timings of collection and disposal of waste because of their commitment to deliver on quality service to the residents and business within the county. The study used regression analysis to find out whether time has an influence on implementation of PPP in waste management. The results ($P=.002$) showed that the model is statistically significant in showing that time influences implementation of PPP in waste management and therefore the null hypothesis that time does not have a significant influence on implementation of PPP in waste management was rejected. The management at the county offices handle issues of time serious because a clean county is a commitment and working with in a PPP has helped them deliver, although they depend on the private players as far as timely delivery of service is concerned, the time aspect is tied in the contract and the private players risk losing their contracts if they do not deliver on their part.

This agrees with Divya and Ramya (2015) where they reported that delays in PPP has the following effects; cost and time overruns due to delays, various disputes on technical and legal issues, abandonment of the project and arbitration; on how these delays can be minimized, their report found out that frequent communication meeting to update on progress, use of technology, effective procurement processes, planning, acquisition of proper materials, proper budgeting, efficient coordination between the involved parties and firm emphasis on skilled personnel will help mitigate time wastage and delays.

On governance, the study revealed that the respondents feel there is lack trustworthiness and transparency working with the county government ($M=2.97$) and that there is no integrity in the procurement process ($M=2.76$). The respondents were neutral on whether their firms has clear legal framework to deal with legal issues that come up ($M=3.72$) and on whether they are well guided by the county government in the execution of the PPP ($M=3.72$).

These findings agree with a study published in a journal by Chopra and Kapoor (2016, Pg. 37) pointed out that waste management has implications on local taxation, regulation of public and employment and sadly political parties (in this case will be the county government) give it less concern as they see as an issue that will not yield returns.

The study sought to investigate the combined influence of cost, technology, personnel and time on the implementation of PPP in waste management. The study used regression analysis to find out and the results ($P=.002$) showed that the model is statistically significant in showing that cost, technology, personnel and time have a combined influence on implementation of PPP in waste management and therefore we reject the null hypothesis that costs, technology, personnel and time do not have a combined significant influence on implementation of PPP in waste management. The results also showed that a unit increase in cost will lead to a 0.466 increase in implementation of PPP in waste management, a unit increase in technology will lead to a -0.032 increase in implementation of PPP in waste management, a unit increase in personnel will lead to a -0.326 increase in implementation of PPP in waste management and a unit increase in time will lead to a 0.679 increase in implementation of PPP in waste management. It is also noted from the results above that the

most significant factor is time followed by cost. On the level of significance, cost had a 0.065 level of significance, technology had 0.838, personnel had 0.117 and time had 0.014.

5.3 Conclusions

The study concluded that cost influences the implementation of PPP in waste management in Uasin Gishu County especially where maintenance costs are concerned and that they should not be too high as this will affect the profitability and turnover of the private players.

On technology, the study concluded that technology influences implementation of PPP in waste management in Uasin Gishu County, there is limited use of technology by the firms in not only monitoring and evaluation but also in managing and handling information and in collection, separation and disposal of waste as they have use an alternative cheap manual labor.

The study concluded personnel does not have a significant influence on the implementation of PPP in waste management in Uasin Gishu County. The study however found out that the firms believe in continually training their staff on waste management. The skills needed being non-skilled, the firms were neutral on whether the staff need to be aware of legal, financial or technical issues or whether appropriate skills are key in operations of the firm.

The study concluded that time influences implementation of PPP in waste management in Uasin Gishu. The firms agree that lengthy delays in the negotiation process affect the operations of the firm and that inflexible work schedules and inexperienced staff lead to wastage of time. As much as waste management is almost manual, the firms depend on swift personnel who deliver quality work on timely basis.

On governance, the study concluded that firms feel there is lack of transparency working with the county government and that there lacks of integrity in the procurement process. The county government needs to guide the firms on proper execution of PPP and give a clear legal framework in case of legal issues. The firms feel that their input as far as governance is concerned has no influence on the implementation of PPP in waste management in Uasin Gishu County. The low scores is explained on the respondents' choice to be neutral on the questions touching on governance and also the experience from the ground while collecting

the data was mostly negative, unlike the management staff at the department of environment who all agreed that the county government has made PPP attractive giving priority to community based and women groups.

The study also concluded that cost, technology, personnel and time have a combined influence on implementation of PPP in waste management in Uasin Gishu County. The firms agree that improved services, clear communication and application of technology is key in performance and success of PPP in implementation of PPP.

5.4 Recommendations

The study recommends that parties in the PPP should ensure that the pricing policies reflect the needs of the poor in the provision of waste management so that all residential and businesses can access the service. The pricing should also accommodate maintenance costs so that it cushions both the county and the private players against losses and will help them achieve value for money.

The study also recommends the use of technology in the collection, separation and disposal of waste. This will not only improve on quality of service but will also save time. It is important also for the county to adopt technology in separation and disposal of waste because of environmental sustainability, recycling should be encouraged so as to minimize pollution and exhaustion of landfills. The use of technology will also ensure that the county increases efficiency and saves times as far as waste management is concerned.

On governance, the county government needs to have a service charter and guidelines on implementation of PPP, this will help in ensuring that the process is transparent and increase the confidence of individuals who are interested in entering into a PPP with the county governments. A system that allows for feedback from the public should be put in place to allow for complains and comments that will help improve the services.

The private players should be encouraged to hire skilled supervisors in as much as waste management in Uasin Gishu County is manual. This will help in proper implementation of PPP and in streaming in of ideas that will help improve and enhance waste management

under PPP. Trained personnel will be key even in environment sustainability as they will be key in appropriate sorting and disposal of waste.

Time being a key influence in implementation of PPP in waste management; the county government should check into the issues of governance as political factors tend to lengthen the negotiation time of contracts. The County government should also step in helping and supervising the private players in preparing and implementing a schedule for collection and disposal of waste to minimize time wastage.

5.5 Suggested areas for further research

The study recommends for further research to be done on other factors influencing implementation of PPP in waste management since this study indicated that costs, technology, personnel and time contribute to 48.7% of variance in implementation of PPP in waste management.

A comparative research to be done on factors influencing waste management in other counties in Kenya under the PPP set up, this will enable county governments and private players in the operation and facilitation of PPP.

REFERENCES

- Ali, M., Cotton, A., Westlake, K., (2005), Well Factsheet: *Waste Disposal in Developing countries* <http://www.lboro.ac.uk/well/resources/fact-sheets/fact-sheets-htm/waste.htm>
- Asian Development Bank Publication. (2008). Public-Private Partnerships Handbook <https://www.adb.org/documents/public-private-partnership-ppphandbook>
- Ball, R., Heafey, M., & King, D., (2000). Managing and concluding the PFI process for a new high school: Room for improvement? *Public Management Review*, 2(2), 159-179
- Begum, R.A., Siwar, C., Pereira, J.J., and Jaafar, A.H. (2007). Factors and values of willingness to pay for improved construction waste management – A perspective of Malaysian contractors. *Waste Management* 27, 1902-190.
- Beh, L. (2010). Development and distortion of Malaysian Public-Private Partnerships Patronage, Privatized Profits and pitfalls. *The Australian Journal of Public Administration*, 69 (S1), S74–S84.
- Bogdan, R.C., & Biklin S.K. (1998). *Qualitative Research for Education: An Introduction to Theory and Methods*. (3rd Ed.) Boston: Allyn and Bacon.
- Chatri, A.K & Aziz, A., (2012), *Public Private Partnerships in Solid Waste Management; Potential and Strategies* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/186990/ReportPPPMunicipalSolidWasteManagement270812.pdf
- Canadian Council for Public-Private Partnership, (2007). “About PPP Definitions.” http://www.pppcouncil.ca/aboutPPP_definition.asp (2007)
- Cheung, E., (2009). Developing a best practice framework for implementing public private partnerships (PPP) in Hong Kong. Unpublished doctoral dissertation, Queensland University of Technology, Queensland. Retrieved From: http://irep.iium.edu.my/14605/1/Critical_success_factors.pdf & <http://www.sciencedirect.com/science/article/pii/S1877042814058649>
- Cheung, E., Chan, A. P. C., & Kajewski, S. (2010). Suitability of procuring large public works by PPP in Hong Kong. *Engineering, Construction and Architectural Management*, 17(3), 292-308.
- Chopra, A., and Kapoor. D.R. "Study of Public Private Partnership in Urban Solid Waste Management". *International Journal of Engineering Trends and Technology (IJETT)*, Volume 40, Issue 1, October 2016, Pg 37
- Divya, R. and Ramya, S. (2015) Causes, Effects and Minimization of Delays in Construction Projects. *National Conference on Research Advances in Communication, Computation, Electrical Science and Structures journal ISSN: 2348 – 8352*

- Donald R. Cooper and Pamela S. Schindler (2003). *Business Research Methods* (7th Ed.) McGraw Hill International Edition, Statistics and Probability series ISBN 0071181091, pp 798
- Eldrup, A. and Schutze, P. (2013) Organization and financing of public infrastructure projects. A path to economic growth and development of the Danish welfare mode
- Esque, T. J. *No Surprises Project Management: A Proven Early Warning System for Staying on Track*; Act Publications: Nottingham, U.K., (1999).
- Arlene, F. (2005) *Conducting Research Literature Reviews: From the internet to Paper*. 2nd ed. CA: Sage
- Fox, W. & Bayat, M.S. (2007) *A Guide to Managing Research*” Juta Publications, p.45
- Glossary of Environment Statistics : Series F, No. 67 / Department for Economic and Social Information and Policy Analysis, United Nations. New York: UN, (1997).
- Hardcastle, C., Edwards, P.J., Akintoye, A., & Li, B., (2005). Critical success factors for PPP/PFI projects in the UK construction industry: A Factor Analysis. Retrieved June 14, 2011, http://www0.hku.hk/cicid/3_events/32/papers/13.pdf
- HM Treasury (2003) *Public services: meeting the productivity challenge*. HM Treasury Publication. London
- Hovey, P (August, 2015) *Risk Allocation: Maximizing Value for Money*<https://www.iisd.org/sites/default/files/publications/risk-allocation-ppp-maximizing-value-for-money-discussion-paper.pdf>
- Jensen Michael C. (2003) *A theory of the firm. Governance, Residual Claims, and Organizational Forms*. ISBN 0-674-01229-1. pp137-138. Harvard University Press Publication. US
- Kothari, C.R. (2004). *Research methodology: methods and techniques*, (2nded.). New Delhi. New Age International (P) Limited
- Li, B., Akintoye A., Edwards P. J., and Hardcastle, C. (2005). Perceptions of positive and negative factors influencing the attractiveness of PPP/PFI procurement for construction projects in the UK: findings from a questionnaire survey. *Engineering, Architecture and Construction Management*, 12(2), 125-148
- Loosemore, M., Raftery, J., Reilly, C. and Higgon, D. (2006). *Risk Management in Projects*. London, Taylor & Francis.
- Milosevic, D., Patanakul, P., (2005). Standardized project management may increase development projects success. *International Journal of Project Management* 23, 181–192.
- Mugagga. F. (May, 2006). *Masters Thesis on the Public –Private Sector Approach to Municipal Solid Waste Management. How does it Work in Makindye Division, Kampala District, Uganda.*

- Muguresan, V. (2015) Public Private Partnership in Municipal Solid Waste Management in Tamilnadu: An Assessment. *Indian Journal of Research ISSN – 2250 – 1991*
- Oliveira, T., Buckholtz, A (2014). WastePPPs. *Handshake, IFC's Quarterly Journal on Public-Private partnerships*. Issue. 12. Pg 7
- Posner, Paul L. (2002). Accountability Challenges of Third-Party Government. In *The Tools of Government: A Guide to the New Governance*, edited by Lester M. Salamon, 523–51. New York: Oxford University Press.
- Public Private Partnerships in Municipal Solid Waste Management, Potential and Strategies Sustainable Urban Solid Waste Management- a case study of Pune, Vaishali Anagal, (2014).
- Rockart, J.F., (1982). The changing role of the information systems executive: A critical success factors perspective. *Sloan Management Review*, 24(1), 3-13.
- Singh, G. K., Gupta, K., & Chaudhary, S., (2014). Solid Waste Management: Its Sources, Collection, Transportation and Recycling. *International Journal of Environmental Science and development*, 5(4), 347-351.
- Sinclair M. (2007) Editorial: A guide to understanding theoretical and conceptual frameworks. *Evidence Based Midwifery* 5(2): pp 39
- Too, T (Saturday, October 30th 2010) Standard Newspaper: *Eldoret quickly losing solid waste collection and management battle* <http://www.standardmedia.co.ke/article/2000021286/eldoret-quickly-losing-solid-waste-collection-and-management-battle>
- The epec PPP guide (2015) How to prepare, procure & deliver PPP projects <http://www.eib.org/epec/g2g/i-project-identification/12/122/index.htm>
- United Nations Economic Commission for Europe (UNECE), (2007). A guide to promoting good governance in PPPs Retrieved September, 14, 2016, http://www.unescap.org/ttdw/common/TPT/PPP/text/guide_good_governance.pdf
- Yescombe, E.R. (2007) *Public-Private Partnerships: Principles of Policy and Finance*. London, United Kingdom. Butterworth-Heinemann

APPENDIX I: QUESTIONNAIRE

To the management: Private firms contracted by the County Government of Uasin Gishu.
Kindly answer the following questions by ticking in the appropriate box or filling the spaces provided.

PART A: GENERAL INFORMATION

1. Gender

Male []

Female []

2. What is your age bracket?

25 – 30 Years []

41 – 45 Years []

31 – 35 Years []

46 – 50 Years []

36 – 40 Years []

Over 50 Years []

3. What is the level of your job?

Management []

Support []

Technician []

Other (Specify).....

4. How many years of experience do you have working in waste management in a PPP set-up?

Less than 2 years []

2 – 5 years []

6 – 10 years []

11 – 15 years []

15 years and above []

Part B: Influence of governance on implementation of PPP

5. To what extent do you agree with the following statements that relate to the influence of governance on PPP implementation? 1 –Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree

Influence of governance on successful Implementation of PPP	1	2	3	4	5
i] There is trustworthiness and transparency working with the county government					
ii] My firm has a clear legal framework to deal with legal issues that come up					
iii] There is integrity in the procurement process					
iv] My firm is well guided by the county government in the execution of the PPP					

6. On a scale of 0-10 indicate the extent to which government policies on waste management support the operations of your company. (Where 0 = least supportive and 10 = most supportive.)Tick where appropriate.

0	1	2	3	4	5	6	7	8	9	10
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Part C: Influence of cost on implementation of PPP

7. To what extent do you agree with the following statements? 1 –Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree

Influence of cost on successful implementation of PPP	1	2	3	4	5
i] Pricing policies reflect the needs of the poor in provision of waste management services					
ii] There are instances when maintenance cost is higher than expected					
iii] My firm achieves value for money in the PPP					

8. On a scale of 0-10 indicate the importance you attach to cost issues in regard to the operations of your firm. (Where 0 = least important and 10 = most important.) Tick where appropriate.

0	1	2	3	4	5	6	7	8	9	10
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Part D: Influence of technology on PPP implementation

9. To what extent do you agree with the following statements? 1 –Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree

Influence of technology on implementation of PPP	1	2	3	4	5
i] There is technology involved in monitoring and evaluation of PPP in my firm					
ii] My firm uses technology in managing and handling information					
iii] The firm uses technology in collection, separation and disposal of waste					

10. On a scale of 0-10 indicate the importance you attach to the use of technology in regard to the operations of your firm. (Where 0 = least important and 10 = most important.)Tick where appropriate.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

Part E: Influence of personnel on implementation of PPP

11. To what extent do you agree with the following statements? 1 –Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree

Influence of personnel on implementation of PPP	1	2	3	4	5
i] The staff are experienced and have appropriate skills that are key in the operations of the firm					

ii] The staff are aware of legal, financial and basic technical issues in waste management					
iii] The staff are continually trained and re-skilled on waste management					

12. On a scale of 0-10 indicate the importance you attach to personnel skills development in regard to the operations of the firm. (Where 0 = least important and 10 = most important.)Tick where appropriate.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

Part F: Influence of time on implementation of PPP

13. To what extent do you rate the following statements? 1 –Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree

Influence of time on implementation of PPP	1	2	3	4	5
i] Lengthy delays in negotiation affect operations of the firm negatively					
ii] Inflexible work schedules leads to time wastage					
iii] Inexperienced staff eat into operation schedules					

14. On a scale of 0-10 indicate the importance you attach to time management in regard to the operation of the firm. (Where 0 = least important and 10 = most important.)Tick where appropriate.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

Part G: Performance and Success of PPP in implementation of waste management

15. To what extent do you agree with the following statements with regard to the success and performance of the operations of your firm?

Performance of PPP	1	2	3	4	5
i] My firm has recorded an increase in waste collection through improved services					
ii] My firm's management cost has increased					
iii] Decision making is faster due to clear communication					
iv] My firm has increased capacity and flexibility due to application of technology					

16. On a scale of 0-10 rate the success of your firm in implementation of PPP in waste management in UG County (Where 0 = least successful and 10 = most successful.) Tick where appropriate.

0	1	2	3	4	5	6	7	8	9	10
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17. What is the annual gross income, gross operation cost and gross surplus income for your firm?

Gross Income (Ksh.) _____

Gross Expenditure (Ksh.) _____

Gross Surplus Income (Ksh.) _____

Thank you for your participation.

APPENDI II: INTERVIEW SCHEDULE

To the Management: Department of Environment - County Government of Uasin Gishu.

Thank you for agreeing to be interviewed for my research on factors influencing the implementation of PPPs in waste management -the case of Uasin Gishu County. This interview is undertaken in part fulfillment of the requirements of Master of Arts by Jeptoo Cherogony.

It is my expectation that this interview will be helpful to the private and public sectors who use PPP in waste management. Kindly note that your name will not be quoted anywhere in this study and that you will be provided with an opportunity to edit your answers before the study is published.

The interview should take about 20 minutes.

1. How old are you? ___ Years

Note gender of the respondent. M F

What is your level of education? _____

How long have you worked for the Uasin Gishu county? _____

How can you describe your knowledge of PPP as far as waste management is concerned?

2, a) How effective and/or successful do you think is the decision for adoption of PPP by the county government of Uasin Gishu in waste management? _____

b) Has the county government made it attractive for the private sector to be involved in the PPP?

3, a) Has the PPP brought about value for money to all the stakeholders in the PPP as far as pricing policy and costing is concerned? _____

b) Do you think the PPP arrangement has solved the problem of budget restraint in the county government?

4, a) How successful is the application of technology in the implementation of PPP in waste management?

b) Are there gaps in application of technology that you feel can be filled to enhance efficiency and effectiveness of waste management? _____

5, a) How effective is the team involved in waste management when it comes to delivering a successful PPP arrangement?

b) Do you conduct trainings and re-trainings to enhance the skills of the waste management team?

6, a) To what extent does time impact on the delivery of PPP? _____

b) How do you mitigate the negative effect of time on the implementation of PPP?

Thank you for your participation.

APPENDIX III: LIST OF PRIVATE FIRMS

NAME OF SUB-ZONES & FIRMS COVERING
A. KIMUMU 1. Berur Star Investment 2. Barkites Self-Help Group 3. Ronta Enterprises
B. KAPSOYA - UPPER 4. Grister Line Investment 5. Jaitom Enterprises
C. KAPSOYA - LOWER 6. Berur Star Investment 7. No Fear Women Self-Help Group 8. Alexis and Associates
D. ELGON VIEW 9. Yegut Enterprises 10. Langas Matatu Operators 11. Uasin Gishu Empowerment
E. ANNEX 12. Elview Excellent 13. Rontee General Supply 14. Orbital Africans Limited Company
F. PIONEER 15. Patonga 16. Kimpri Agencies 17. Lavender Cleaners
G. RACECOURSE 18. Neranick Enterprises 19. Boblach Enterprises

<p>H. WEST INDIES</p> <p>20. Inuka Self-Help Group</p> <p>21. Pamoja Youth Group</p> <p>22. Old Uganda Road Youth Group</p>
<p>I. KAHOYA</p> <p>23. MbinguIpo</p> <p>24. Tairok Holdings</p>
<p>J. KIPKORGOT</p> <p>25. Yegut Enterprises</p> <p>26. Kamukunji Village Youth Group</p> <p>27. Kamukunji Women Group</p> <p>28. Jiendeleze Women Group</p>
<p>K. HURUMA</p> <p>29. Ramkel Enterprises</p>
<p>L. MAILI NNE</p> <p>30. CheptekChepkinoiyo</p> <p>31. Chadrute</p>
<p>M. KAMPI THOMAS</p> <p>32. Sitem Enterprises</p> <p>33. Jumuia Women Group</p> <p>34. KalyetGaa Women Group</p>
<p>N. LANGAS</p> <p>35. Wopede Women Group</p> <p>36. Good Neighborhood Women Group</p>