DETERMINANTS OF DELAY IN PUBLIC SECTOR BUILDING CONSTRUCTION PROJECTS IN KISUMU CITY, KENYA

BY

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DECLARATION

This research project is my original work and has never been submitted for a degree or any award in any other University.

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DEDICATION

This research project is dedicated to my wife Margaret, my children Faith and Favour, and my late parents Mzee and Mrs John Okelo.

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ABBREVIATIONS AND ACRONYMS

AFD	Agence Francaise de Development
CECAFA	Confederation of East and Central Africa Football Association
KShs.	Kenya Shillings
KUP	Kisumu Urban Project
KPMG	Klynveld Peat Marwick Goerdeler
LAPSSET	Lamu Port Southern Sudan Ethiopia Transport
PAC	Programa de Aceleracao do Crescimento (Growth Acceleration Program)
PMI	Project Management Institute
SPSS	Statistic Packages for Social scientists
TOC	Theory of Constraints

ABSTRACT

Building construction projects, globally, are planned to be executed at a given cost, to a predetermined standard and within a specified time period. However it is not uncommon to see such projects take longer than was originally envisaged, and, the duration of building construction projects is increasingly becoming an issue of concern among the stakeholders in the construction industry. This is because of the increasing rates of interests, commercial pressure, inflation and the potential of a construction project to result in disputes and claims leading to litigation or arbitration. The purpose of this study was to assess the determinants of delays in public sector building construction projects in Kisumu City, within Kisumu County of the Republic of Kenya. The objective of the study was to assess the extent to which project management teams', contractors' capacities', client related and force majeure factors, influenced delays in public sector building construction projects in Kisumu City. Correlational research design was adopted for the study to enable answering the research questions. The target population for the study was 89 comprising of professional and technical staff of the directorate of Public Works, contractors and public sector clients with building construction projects in Kisumu City. Data was collected through census of the entire target population of 89 respondents and, the study adopted purposive sampling to target specific groups who could provide the desired information concerning delays in public sector building construction projects. The study used self-administered questionnaires as the research instrument for data collection as it was quick and could be easily e-mailed to respondents who were easily reachable. A pilot study was conducted at Kakamega County. Data collection instruments were subjected to peer review, scrutiny by research experts comprising of my supervisors and review of the pilot testing to ascertain its validity. Reliability was tested by split-half method using the r-function of Spearman brown prophecy. Quantitative approaches, using Microsoft Excel as well as Statistical Package for Social Scientists (SPSS) version 20 was used to process, analyze and interpret data. On the first objective the study established that the relationship between adequacy of project management team members and project delays was significant (rho = .135, p = .299) and that project teams had adequate number of members and therefore numbers could not have been the reason for delays. On the second objective the study established that the relationship between contractors who had clear organizational structures and delays was unrelated (rho = -.162, p = .209) and that contractors did not have clear organizational structures that could help minimize delays. On the third objective the study established that the relationship between regular payment by clients and project delays was significant (rho = 711**, p =.000) and that clients did not make payments on time, and this contributed to delays on building construction projects. The fourth objective found out that the relationship between occurrence of poor weather conditions affecting projects as a force majeure factor and project delays were un related (rho = -.102, p =.444) and that poor weather conditions affecting projects did not occur frequently, thus not delaying building construction projects. The studies major conclusion was that, there was need to regulate the public sector building projects by registering experienced professionals. The major recommendation was that effective ways must be designed to verify the list of staff produced by contractors in support of their application and to ensure also that these key staff positions are continually filled by technically competent individuals. These study findings may be useful to Contractors, Clients, Project Managers and other building construction industry players in public sector to achieve project objectives on time.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

The construction industry is one of the important sectors that contribute to economic growth globally. It follows therefore that any delays experienced in the projects within the sector will have high negative impacts. According to a study by Sambasivan and Soon (2007), delays in the construction industry is a global phenomenon, and, delays in execution of construction projects continue to be experienced throughout the world. Studies done on large projects in Great Britain indicate that a striking feature of many such projects has been the noticeable occurrence of cost and time over-runs, excessive in a number of cases. The studies attribute the over-runs to late receipt of information, variations, Mechanical and Electrical construction and procurement delays, site problems and bad weather. Similar reports are common in the United States of America as well where a recent press report alluded that construction of VA (Veterans Affairs) Medical Center in Florida is bogged in delays and will likely not see its first patients before 2015, though the construction was originally set to be completed in October, 2012. The contractor attributes delays to extensive design changes, whereas press reports allude that the project was bogged with construction delays caused by the contractor.

The situation is the same in South America where President Dilma Rousseff of Brazil has been quoted by Bland (2013) in Business News America as stating that delays in meeting deadlines for infrastructure projects under Brazil's growth acceleration plan, "is one of the federal government's largest concerns and headaches." According to Brazil's National Confederation of Industry, the delays were caused by recurring problems, such as the low quality of basic projects, the sluggish grant of environmental licenses and expropriations, and the poor

management of the projects over time, with the overrating of benefits and underrating of deadlines and costs (Franco and Queiroz, 2014).

The Asian countries are also reeling under the weight of delayed construction projects. In India, for example, 47.7 per cent of the projects being monitored by India's Ministry of State for Statistics and Programme Implementation in 2013 experienced delays. Other reports indicate that more than 25 per cent of the committed supply of residential projects across India had not been able to hit the market as per schedule. Such delays put a lot of pressure on the housing sector as projections set for delivery of housing units are not met. Reasons advanced by KPMG and PMI (2013) report as causes for delays in India include delay in regulatory approvals, unavailability of funds, delays in land acquisition and site handover, lack of skilled project managers together with weak/ineffective project planning and monitoring. Still in Asia, Saudi Arabia too, despite being touted as one of the richest states in the world, a wealth fuelled by petroleum reserves, has not been able to escape the problem of delays in construction. Only 30 per cent of construction projects in Saudi Arabia are completed within the scheduled completion dates, and the average time overrun was between 10 per cent and 30 per cent. Al-Kharashi and Skitmore (2009) found out that the most influencing cause of delay in Saudi Arabian public sector construction projects was the lack of qualified and experienced personnel, attributed to the considerable amount of large, innovative, construction projects and associated undersupply of manpower in the industry. Construction project delays are prevalent in Malaysia as well. According to Construction Industry Development Board of Malaysia (CIDB) report in 2009, this problem is manifested in the underachieving Malaysian construction industry, with recent public project delay rates being put at 80% (Joshi, 2009). Frequent design changes, change in scope of projects and late payments have been cited as the major causes of construction delays in Malaysia.

African continent is no exception to the problems of delays in construction projects either. In Nigeria, the performance of the construction industry in terms of time is generally rated as poor, with some studies showing that seven out of ten projects surveyed in Nigeria suffered delays in their execution. Mansfield, Ugwu and Doran (1994) identified important causes of construction delay in Nigeria as financing of and payment for completed works, poor contract management, changes in site condition and shortages in materials. Marzouk and El-Rasas (2014) contends that construction delays are common problems in civil engineering projects in Egypt.

On the regional front, Alinaitwe, Apolot and Tindiwensi (2013) in an investigation into the causes of delay and cost overrun in Uganda's Public Sector Construction Projects states that most of the construction projects in Uganda have had problems with delay in completion and cost overruns and this has caused a lot of concern. A local example given is the Northern by-pass in Kampala which was to take two and a half years but instead took more than 5 years.

In Kenya, the African Building (2014), reports that the construction of Thika Superhighway which was completed and commissioned in November, 2012 was initially scheduled for completion in 2011. The report indicates that the deadline had been moved twice resulting in both cost and time overruns. The construction of the Greenfield terminal at the Jomo Kenyatta International Airport has had its start date postponed several times and the project is far behind schedule. The Lamu Port South Sudan Ethiopia Transport (LAPSSET) construction project, even though said to be part of Vision 2030 initiative, is in similar state of being far behind schedule. According to the African Building (2014), it seems like the year 2030 will be here even before substantial steps have been made especially as far as the roads, railway, pipeline and construction of resort cities are concerned. According to an article appearing on Tatu City website, construction of Tatu City, a multi-million dollar satellite town planned on the

outskirts of Nairobi in Kiambu County, was in full gear and set to kick off in January, 2013 following the conclusion of a winding up petition that has held back the development for two years. The petition was filed by minority shareholders of the company in 2010. An article by Mwagesha (2014), appearing on *the Standard* of 23rd January, 2014, states that construction was yet to commence. The article lists other delayed projects as; Konza Techno City launched in January, 2013 and spreading over Machakos, Makueni and Kajiado Counties, but whose construction is now slated to start in December, 2014; Sergoit Golf and Wildlife Resort in Eldoret which was launched in June, 2011; Thika Greens and Migaa golf course in Kiambu County. Mwagesha (2014) article titled 'Buyers feel the pinch as Mega Estates delay' reports that English Point Marina in Mombasa has had its opening pushed forward several times, and adds that the opening, scheduled for late 2012 was pushed forward to October, 2013 and postponed again to April, 2014.

In Kisumu County, the former Nyanza Provincial Headquarters building remains incomplete despite construction having started in 1989. Renovations of Moi Stadium in Kisumu commenced in January, 2012. According to African Building the renovations works meant to facelift the stadium to international standards was to take six months with the works being due for completion in May, 2012. The Stadium was also slated to host some of the matches of the Confederation of East and Central Africa Football Association tournament in November and December, 2013. However, a report on Goal website posted on 6th December, 2013 alluded that Kisumu would not host Cecafa senior challenge cup matches. The report quotes Cecafa secretary general as stating that it would take a further two months for the stadium to be usable. On 17th December, 2013 the *Daily Nation* newspaper reported that the renovation works had stopped due to delay in releasing funds to the contractor.

1.2. Statement of the Problem

According to the Government of Kenya's financial statement for the year 2013/2014, some of the sectors where there have been increased confidence in the business outlook include construction, telecommunication, mining, renewable energy, and long-term infrastructure projects in rails and ports. In the year 2013/2014, the government's expenditure is projected at KShs. 1,640.9 billion out of which the gross development expenditure is estimated at KShs. 447.9 billion. This represents 27.3% of the total estimated expenditures as being for development expenditures, and is a notable increase from KShs. 291.9 billion in 2011/12, but however, slightly lower than KShs 451.7 billion estimated in 2012/2013 financial statement. There is hence need to ensure that the development projects earmarked for execution are successful, for the full benefits of such colossal amounts, to be realized. According to the economic survey 2013 by the Ministry of Devolution and Planning, the construction sector recorded positive growths of 4.3 per cent in 2011 and 4.8 per cent in 2012, depicting an upward trend in growth of the construction industry. Loans and advances to the building and construction sector increased by 36.2 per cent from KShs. 50.8 billion in 2011, to Kshs. 69.2 billion in 2012. Cement consumption rose by 1.7 per cent from 3,870.9 thousand tonnes in 2011 to 3,937.3 thousand tonnes in 2012. The total value of new private and public buildings completed went up by 9.6 per cent from KShs. 46.4 billion in 2011 to KShs. 50.8 billion in 2012. Despite cement consumption rising and the value of completed building going up, reports reviewed show that several projects do get delayed. It could thus be deduced that several projects are being completed, but beyond their scheduled period of completion, or projects being completed were large physically resulting in more consumption of cement and also large financially, resulting in high value of completed projects. The economic survey 2013 is depicting an upward growth in the construction sector,

however if projects delay, the investors could incur additional costs in terms of interests on borrowed financing.

Records held by the directorate of Public Works, Kisumu County, indicates that delays in building construction projects is a common occurrence. According to the records, the directorate of Public Works Kisumu had 86 projects in Kisumu County, out of which 37 projects were within Kisumu City boundaries. Out of the projects within the City, 9 projects were recorded as being on time, thereby implying that 28 projects resulting into 75% of the projects suffered delays. The City Engineering department, County Government of Kisumu, formally as City Council of Kisumu had 93 construction projects over financial years 2010/2011, 2011/2012 and 2012/2013. Their records indicate 16 projects were completed on time, implying that 77 projects or 82% of the projects, delayed. One year prior to devolution, the now defunct Ahero Town Council, according to records held by the County Government of Kisumu, budgeted for 24 projects, out of which 8 projects were completed on time, 6 delayed and 10 projects failed to start. The delayed projects together with the projects which failed to start, is equivalent to 66% of the budgeted projects. Extracts from the records of the County Government of Kisumu, on the now defunct Nyando County Council, Kisumu County, indicates that one year prior to devolution, the Council had 14 projects out of which 9 projects were completed on time and 5 delayed, resulting in 35% of the projects being delayed. Extracts from other records held by the County Government of Kisumu on the defunct Kisumu Rural county council indicate similar scenario of construction project delays. Out of 20 projects the Council had, 5 were recorded as completed on time, 11 projects completed after expiry of contract period, and 4 projects stalled, resulting into 75% being delayed. These records alludes to the fact that delays is a common phenomenon in public sector building construction industry in Kisumu County, whereas the ideal

situation would be to have the projects being completed on time, apart from within budget and to specifications.

Okeyo (2011) in a study on effects of contractual delay on completion of Sondu-Miriu Hydropower project sought to examine effects of various project components on contractual delay of Sondu-Miriu Hydropower project. This study centered on the effects of contractual delays. Akhwaba (2011) studied determinants of delay on completion of Constituency Development Fund (CDF) financed classrooms in public schools in Butere Constituency, Kenya. The study looked at determinants of delays on completion of CDF financed classrooms, the CDF being a special fund with management boards and structures different from other public sector financed projects. Kafuna (2011) reviewed factors influencing performance of Infrastructural projects in Kenya, a case of Ministry of Public Works, and dealt mainly with the management structure of the Directorate of Public Works and how the structure influences performance of infrastructure projects. Oraro (2012) studied determinants of delays in construction of community water projects in Rachuonyo district, a case of GOK UNICEF WASH Programme. This study looked specifically at community water projects and not building development projects, which this study seeks to look at. Whereas various studies exist on project delays, a number being on public financed projects, there exists a knowledge gap with regard to studies on determinants of delays in public sector building construction industry in Kenya. This study therefore focused on determinants of delays in public sector building construction projects in Kisumu City, within Kisumu County in Kenya.

1.3. Purpose of the Study

The purpose of this study was to examine determinants of delays in public sector building construction projects in Kisumu City, within Kisumu County in Kenya.

1.4. Research Objectives

This study sought to achieve the following objectives:

i. To assess the extent to which project management teams' capacities influence delays in public sector building construction projects in Kisumu City.

ii. To establish the extent to which capacities of contractors influence delays in public sector building construction projects in Kisumu City.

iii. To determine the extent to which client related factors influence delays in public sector building construction projects in Kisumu City.

iv. To examine the extent to which force majeure factors influence delays in public sector building construction projects in Kisumu City.

1.5. Research questions

The study sought to answer the following research questions:

i. To what extent does project management teams' capacities influence delays in public sector building construction projects in Kisumu City?

ii. To what extent does capacities of contractors influence delays in public sector building construction projects in Kisumu City?

iii. To what extent do client related factors influence delays in public sector building construction projects in Kisumu City?

iv. To what extent do force majeure factors influence delays in public sector building construction projects in Kisumu City?

1.6. Significance of the Study

Infrastructure developments contributes significantly to a country's growth domestic product. Building construction industry, being part of infrastructure developments, thus has a role to play in a country's wealth creation. The focus by the building construction players therefore would be to strive to complete projects on time, within budget and to the required specifications and standards. Project delays should be minimized if not done away with completely.

The study findings may be useful to Contractors, Clients, Project Managers and other building construction industry players in public sector to achieve project objectives on time. This, it is hoped, will minimize additional costs which arise out of contract prolongations like extended insurance costs and security, given the enormous resources employed in the industry. Delivery of projects within the contract provisions would also avert disputes between the respective parties involved in the works, enable the clients use facilities as programmed and save on costs which they would otherwise incur to hire other premises if their project was not completed on time.

According to the Kenya Economic Survey 2012, Kisumu is among urban areas that have created the highest number of jobs in construction, banking and insurance. Kisumu Integrated Strategic Urban Development Plan is currently being developed by a consultant, Nodalis, at the instigation of the Government of Kenya and the County Government of Kisumu, previously as Kisumu Municipal Council with the support of the Agence Francaise de Development (AFD). Its purpose is to guide strategic investments in Kisumu City for the next thirty years including AFD's 40 million Euro financing facility dubbed Kisumu Urban Project already underway. It is

hoped that the study findings would likely be useful to policy makers, for the full benefits of the investments planned to be realized.

1.7. Basic assumptions of the Study

The study was based on basic assumptions that the respondents provided true and accurate information for purposes of the study. The study assumed that the selected sample from the stakeholders in building construction projects, under the directorate of Public Works, were sufficient and representative of other public sector building development projects in Kisumu City. The study further assumed that delays in completion of public sector building development projects in Kisumu city are caused by the reasons enumerated in the objectives of the study.

1.8. Limitation of the Study

The study was conducted on public sector building construction projects which mostly have different stakeholders who may wish to defend their actions regarding any problems which may arise in a project. This was addressed by clearly indicating to the respondents that any information given was treated with utmost confidentiality and was used in this study only, purely for academic purposes. The study was limited to the responses received from the respondents, as there was no guarantee that the sampled population would return the questionnaires. This was addressed by making follow-ups with the respondents to ensure that the return rate is high.

1.9. Delimitation of the Study

The study was carried out in Kisumu City within Kisumu County in the Republic of Kenya. Kisumu County covers an area of 2,085.9km^2 of land and 567km^2 of water mass. There are 7No. sub-county administrative areas within Kisumu County, namely Seme, Kisumu West, Kisumu East, Kisumu Central, Nyando, Nyakach and Muhoroni. Kisumu City, is the area which was previously Kisumu Municipality and covers Kisumu Central, Kisumu East and parts of

Kisumu West sub-counties. The City has seen a number of infrastructure development projects in the recent past. The study was delimited to public sector building construction projects in Kisumu City, where a number of public sector projects had in the past experienced serious delays. To solicit responses from a varied team of players in the building construction industry, a large number of sample was required, and, questionnaires were the ideal data collection instrument. Thus the study was delimited further by the data collection instrument to be employed.

1.10. Definition of Significant terms used in the Study

Client related factors	Factors attributable to owners of a project including payments for work done, making of decisions about their requirements and the speed within which these actions are taken.
Contractor	A party who has entered into a contract with a client or owner of a project to carryout construction work for a building development project.
Contractor's capacities	Technical knowledge and experience of a contractor together with a contractor's ability to avail equipment, labour and materials for construction when required.
Consultants	Professional and Technical staff in the building industry in the fields of architecture, quantity surveying, electrical, mechanical, structural and civil engineering appointed by client or owner of project to oversee a building project.
Execution	Process of carrying out building construction work.
Force Majeure Factors	These are factors that occur naturally and are beyond the control of parties in a contract. In this study, these include acts of God like

	inclement weather, economic conditions, availability of equipment and materials in the markets.
Parties	Group of participants involved in building construction project and having distinct roles and responsibilities in the works.
Project delay	Building construction work remaining incomplete after lapse of planned period to carry out the works including late commencement of works or part of the works.
Project Management Teams	All professional and technical staff engaged in the design, specification, supervision and coordination of the works and all parties involved in a project.
Project Management Teams capacities	This relates to the qualifications, experience, adequacy and workload of the team managing construction contracts.
Timeliness of payments	Consultants approving payments to the Contractor and client honouring the payments within the periods stated in the contract agreement entered into between the client and the contractor.

1.11. Organization of the Study

This Research Report was organized into five chapters. Chapter one is the introduction and includes background of the study, statement of the problem, purpose of the study, research objectives, questions, significance of the study, basic assumptions, limitations and delimitations, and also provides definition of significant terms used in the study and organization of the study.

Chapter two is the literature review and examined the literature related to the study including past studies on determinants of delays, theoretical framework, conceptual framework, gap in literature reviewed and the summary of literature reviewed.

Chapter three detailed the research methodology comprising of introduction, research design, target population, sampling including sample size and selection. There is also a description of research instruments, piloting of study, validity and reliability of the study, data collection procedures, analysis techniques and ethical considerations. An elaboration of the operational definition of variables is also included. The research report has references and appendices at the end.

Chapter four deciphers and presents the analysis of the data collected from the respondents.

Chapter five of this study presents the discussion of the results derived from the data presented in Chapter four, the discussion leads into varying conclusions and a number of recommendations are subsequently derived.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

According to the African Building (2014), the duration of construction projects is increasingly becoming an issue of concern among the stakeholders in the construction industry. Sambasivan and Soon (2007), in a study on causes and effects of delays in Malaysian construction industry opined that the problem of delays in the construction industry is a global phenomenon. The building construction industry involves many players namely the project management teams comprising of project managers and other consultants, building contractors including sub-contractors, clients, local authorities and public organs involved with issuing requisite approvals for construction, and regulation of the industry.

2.2. Capacity of project management teams and delays in building construction projects

Project management teams, in a building construction project, is multi-disciplinary and comprises of project manager, architects, quantity surveyors, structural engineers, electrical engineers, mechanical engineers and other disciplines depending on the size and complexity of the project. Each of the parties involved, have distinct role and responsibility to play. Architects and Quantity Surveyors Act CAP 525 of the laws of Kenya indicates normal service of an architect as including preparing proposals, designs, production drawings, periodic supervision and issuing certificates required by a building contract. Bramble and Callahan (1992) states that a project may be delayed as a result of the direct action of major parties or of their failure to act especially if they have a duty to act. Atout (2013) states that delays are the most common and costly problems encountered on construction projects and contends that even with today's

technology and understanding of project management, construction projects continue to suffer from delays; project completion dates frequently become extended. Atout (2013) states that during the construction period, many different opinions often occur between all the main parties. These may be of a technical nature during construction period or due to a series of factors during design, which combine in various ways to produce arguments, disagreements and ultimately delay. Technical issues, for building construction projects, is the responsibility of project management team to resolve, in order that works are executed to specifications and standards.

Chan and Kumaraswamy (1997) identified five principal factors causing delay in construction projects among them being that of poor supervision. It is to be remembered that in building construction projects, the role of supervision is assigned to the project management teams. Any delays arising as a result of poor supervision will therefore be attributable to the project management teams. According to Mansfield *et al.* (1994), in a study on the causes of delay and cost overrun in construction projects in Nigeria, the most important factors contributing to delays included poor contract management. In the traditional set up for building projects, contracts for construction works are signed between clients and contractors. However, the party with the responsibility to manage the contracts is the project management team. The project manager plays a leading role in management of the contract including chairing the site management meetings. Poor contract management would thus be attributed to the project management teams. Alaghbari (2005) contends that the most common form of compensable delay is inadequate drawings and specifications. Atout (2013) states, in relation to the traditional procurement method that, a contractor is employed to build what the designers or consultants have specified. Consultants, acting on behalf of the Client, produce the documents and Contractor produces the building. In theory, the Contractor should be invited to price a complete

set of documents that describe the proposed building fully. Such documentation demands that the architect (or lead designer) co-ordinates design details from a wide variety of specialists. The result is that the Contractor has no responsibility for design. This therefore implies that the role of preparation of project drawings and specifications rests with the consultants within the project management teams. Inadequacy in drawings and specifications, and which could lead to delay in construction works, is hence project management teams' responsibility. Oraro (2012) established that there existed significant positive relationships between delays in project construction and adequacy/inadequacy of design documents.

Ahmed, Azhar, Kappagantula and Gollapudi (2003) and Alaghbari (2005) states that possible factors causing delay in Malaysia construction projects, attributable to project management teams as being absence of consultant's site staff; lack of experience on the part of the consultant; lack of experience on the part of the consultant's site staff; (managerial and supervisory personnel); delayed and slow supervision in making decisions; incomplete documents; and slowness in giving instructions. Atout (2013) states that the execution of a contract is administrated by the Project Manager who should have qualified technical staff, enough resources, along with a group of experienced subcontractors. It is to be noted that project management teams' capacity in handling building construction projects is also influenced by the number of projects the team, or any member of the team is involved with. Elder (2006) lists one of the reasons why projects struggle as bad multi-tasking. This causes a party or parties to wait for a member/s of the team to finalize their parts, to enable other areas progress. West (2014) concurs, stating that in fast paced environments, project managers are asked to work on several projects at one time, and that many times, project managers are given so many projects that they cannot realistically achieve them on time and on budget. American Management Association

(2013), in an insight on project failure, holds the same view that project managers and teams are overloaded with too many projects with members getting pulled off the team frequently, and adds that, it is assumed, project managers know how to develop options and present them to management.

Calleam (2014) summarizes that if there is one ingredient that most effectively increases the chance of project success, it is expertise. Calleam (2014) further contends that, where a project lacks the knowledge and skills needed to do the work properly, quality levels and productivity are lower and the risk of serious errors or omissions rises fast. Carlos (2014) concludes that during the course of managing a project, the project manager must monitor activities (and distractions) from many sources and directions. Complacency can easily set in. When this happens, the process of "monitoring" breaks down. This is why the project manager must remain in control of a project and be aware of any activity which presents a risk of project failure.

2.3. Capacity of contractor and delays in building construction projects

The most common procurement method used for building construction projects in Kenya is the traditional procurement method. Atout (2013) states that this involves separation of construction from design and the main contractor is employed to build what the designers or consultants have specified. Ahmed *et al.* (2003), groups delays in to four broad categories according to how they operate contractually. These are, excusable non-compensable delays, excusable compensable delays, non-excusable delays and concurrent delays. According to Alaghbari (2005) excusable non-compensable delays, also referred to as “force majeure” delays, are commonly stated as originating from “acts of God.” Excusable compensable delays are those that are generally caused by the owner or its agents and concurrent delays result from a situation

in which more than one factor delays the project at the same time or in overlapping periods of time. Alaghbari (2005) observes that non-excusable delays are basically caused by contractors or subcontractors or materials suppliers, through no fault of the owner. This section reviews non-excusable delays by contractors.

According to Atout (2013), the blame for most project delays is frequently attributed to the contractor, and, one of the major common delays caused by the contractor is the miss-coordination with the domestic and nominated subcontractors. This view is shared by Assaf, Al-Khalil and Al-Hazmi (1995) through a recording that architects and engineers, in Saudi Arabia, felt that delays in large building projects were as a result of relationship between the contractors, among other factors. In the same study, owners of projects are recorded to have attributed delays to inadequate labour skills. It is the responsibility of contractors to coordinate construction work at sites, and also determine and employ persons to a construction site. Any miss-coordination of work on site and/or employment of persons with inadequate labour skills, is thus caused by contractors and any delays in construction as a result of this, is attributable to the contractor.

In investigating the causes of delays on 130 public projects in Jordan, Al-Moumani (2000) found out that the main causes of delay in construction of public projects related to late deliveries of materials among others. This assertion is reinforced by Naief (2002) in attributing other causes of delay to improper management of materials, attributed to contractors who are hampered by lack of explicit and detail model of project materials management process.

From the literature reviewed, delays attributable to contractors are varied. However, according to Ahmed *et al.* (2003) and Alaghbari (2005), possible factors causing delay in Malaysia, attributable to contractors are namely delay in delivery of materials to site; shortage of materials on site; construction mistakes and defective work; poor skills and experience of labour;

shortage of site labour; low productivity of labour; financial problems; coordination problems with others; lack of subcontractor's skills; lack of site contractor's staff; poor site management; and, equipments together with tool shortage on site. This is corroborated by Oraro (2012), who found out that there exists significant positive relationships between delays in project construction and availability of construction tools and equipment, lack of qualified manpower, and, inadequate planning, logistics and scheduling of construction activities, all under the control of the contractors. All these relate to contractor's capacity, or lack of it, to execute works.

2.4. Client related factors and delays in building construction projects

Public sector building construction projects in Kenya are implemented using the traditional procurement method where design and construction are separated. Under the construction part, a contractor enters into a contract agreement with the client to carry out the works. Ahmed *et al*. (2003), states that the construction industry is large, volatile, and requires tremendous capital outlays. With the demand for tremendous capital outlay, it becomes comparable that contractors receive payments from clients as construction work progresses. Provisions in contract agreements normally spell out how contractors are to be paid and periods within which such payments are to be made. For instance, Kenya's public procurement oversight authority (PPOA) procurement document provides for monthly payments to contractors, and which should be within fourteen days from the date of issue of the payment certificate by the Project Manager. This is to enable contractors meet their obligations of payment for materials, hiring labour together with required equipment they may not possess, in addition to other costs associated with constructions.

According to Atout (2013), the contractor's responsibility, in traditional contracts, is to build the project according to the contract documentations within the required cost, time budgets

and the specified standards. In theory, the contractor should be invited to price a complete set of documents that describe the proposed building fully. The contractor's offer of price is based on costs and rates entered in the bill of quantities, a document that itemizes and quantifies, as far as possible, every aspect of the work. The bill of quantities forms not only the pricing document but also, because of its comprehensiveness, an important mechanism for controlling the cost. As work progresses, the project manager values, at intervals stated in the contract, what the contractor has done based on the rates quoted in the bill of quantities. Payment certificates are prepared by the project manager and presented to the clients or owners of the project for payment purposes, and which should be honoured within the periods stated in the contract agreement. However, this is not always the case. Mansfield *et al.* (1994) studied the causes of delay and cost overrun in construction projects in Nigeria, and the results showed that the most important factors causing delays were late payment for completed works among others. This is corroborated by Assaf *et al.* (1995) in a study on the causes of delay in large building construction projects in Saudi Arabia, who found out that the most important causes of delay included delays in payments to contractors and the resulting cash-flow problems during construction. Bramble and Callahan (1992) stated that a project may be delayed as a result of the direct action of major parties or of their failure to act especially if they have a duty to act. With regard to making payments to contractors, clients have a duty to honour payment certificates for the project as stipulated in the contract agreements. In the case where payments are delayed, then it is as a result of failure by a major party, the client, to act. According to Mansfield *et al.* (1994), some of the most important factors contributing to delay and cost overrun in construction projects in Nigeria, were financing and payment for completed works. Assaf *et al.* (1995) records that according to contractors, payments by owners was a factor causing delays in building

projects in Saudi Arabia. Abd El-Razek, Bassioni, and Mobarak (2008) in a study on the causes of delays in building construction projects in Egypt found that among the most important causes of delay are delays in contractor's payment by owner and partial payments during construction.

Every building construction project involves various stakeholders comprising of clients, project management teams including consultants, and, contractors, each with their specific roles and responsibilities. Clients give their requirements to consultants who prepare designs and specifications for the project. Decision making by clients, more so on their requirements, is thus key to consultants, who would then be in a position to proceed on with their duties once the clients requirements are known. Assaf *et al.* (1995) studied the causes of delays in large building projects and their relative importance for Saudi Arabia construction projects, and outlined the causes of delays according to respective stakeholders. According to the study, architects and engineers attributes slow decision making process by owners of building projects, as one of the major causes of delays in projects. Odeyinka and Yusif (1997) concurs with this, in their study on client-, contractor-, and consultant-caused delays in housing projects in Nigeria, by identifying slow decision-making as a client-related delay. Chan and Kumaraswamy (1997) conducted a survey to determine and evaluate the relative importance of the significant factors causing delays in Hong Kong construction projects, and recorded that slow speed of decision making involving all project teams was a major factor causing delays in Hong Kong construction projects. Odeh and Battaineh (2002) also conducted a survey aimed at identifying the most important causes of delays in construction projects with traditional type of contracts, which indicated slow decision making as an important causes of delays. Motaleb and Kishk (2010), in an investigation into causes and effects of construction delays in United Arab Emirates found, with regard to clients, that lack of capability of client representative, slow decision making by

client, and lack of experience of client in construction are the most important causes of delay as ranked by the respondents. According to the Press Information Bureau, Government of India report of 22nd February, 2013, the Ministry of Statistics & Programme Implementation had given technical support to a study on 'Project Schedule and Cost Overruns' conducted by Project Management Institute (PMI) - India and KPMG in 2011-12, which revealed that progress of projects were affected by delay in decision-making, among other factors. The New York Times of 14th January, 2014 reported that as government officials in India increasingly find themselves embroiled in allegations of corruption, they have become wary of making swift decisions.

Manzoor and Pheng (2006), in a working paper on effective management of contract variations using a knowledge based decision support system states that construction projects are complex because they involve many human and non-human factors and variables. They usually have a long duration, various uncertainties and complex relationships among the participants. The need to make changes in a construction project is a matter of practical reality. Even the most thoughtfully planned project may necessitate changes due to various factors. Any of the variations or other factors may lead to delays in construction projects, and which are experienced the world over thus being of international concern. Ambituuni (2011), states that a project needs its goals and scope to be defined, based on the client requirements. It is not uncommon to have clients change their requirements after construction works begin. Ambituuni (2011), contends that delay and cost overrun in project could be as a result of scope change and proceeds to define scope as the term for the entire deliverables that is expected at the end of a project. Therefore, logically, it can be said that all project plans, estimation, schedule, quality and base lines are usually design base, in the initial project scope. Thus, any change in the project scope during execution will mean that the entire initial project plan will have to be reviewed such that a

reviewed budget, schedule and quality will have to be developed. This means more time and resources will be needed as against the initial baseline. Ambituuni (2011), identifies project scope change to be as a result of wrong initial scope definition, inherent risk and uncertainties, sudden change of interest, project funding change, etc. This could lead to change request which in turn could lead to change in project deliverables, budget and/or even the entire project team. Poor scope change management could lead to dispute that may require spending time and money on arbitration and litigation for what the contractor or the client believes they are entitled to. This will no doubt lead to delay and cost overrun of the project. Bramble and Callahan (2011) studied owner-, designer-, contractor-, and others-related delays in U.S.A. Change orders and interference were found to be owner-caused delays. Amer (1994) identifies design modifications during construction as one of the major causes of project delays in Egypt. Sweis and Sweis, Hammad and Shboul (2008) states that too many change orders from owners were among the major sources of project delays in Jordan. Assaf *et al.* (1995) lists change orders by owners during construction, as being of major concern in the building construction industry in Saudi Arabia. This is corroborated by Assaf and Al-Hejji (2006) who conducted a survey on time performance of large construction projects in Saudi Arabia. The study focused on the importance of various causes from the viewpoint of contractors, consultants, and owners, and the results show the most common cause of delay identified by all the parties was ‘‘change order.’’ Chan and Kumaraswamy (1997) studied delays in Hong Kong construction industry. They emphasized that timely delivery of projects within budget and to the level of quality standard specified by the client is an index of successful project delivery. It follows therefore, that clients’ requirements are accommodated for a project to be successful. Chan and Kumaraswamy (1997) identified client initiated variations and necessary variation works as a principle delay factor in Hong

Kong. Odeyinka and Yusif (1997), with regard to building projects in Nigeria, identified Client-related delays, as including variation in orders. Al-Momani (2000) identified user changes as a main causes of delay in construction of public projects in Jordan. In a study by Motaleb and Kishk (2010), change orders was ranked first among the client-related factors causing delays to construction projects in UAE. The study observed that excessive change orders can cause significant disruption in projects and, consequently, cause change in the schedules, increase costs through rework and decrease labour efficiency.

2.5. Force majeure factors and delays in building construction projects

Building construction projects are generally executed within an environment, whether in an enclosed surrounding or open area. The environment within which the project is being executed would thus influence the activities taking place. Ahmed *et al.* (2003) classifies causes of delays into two, namely external causes and internal causes. Internal causes are stated as those arising from parties involved in the project, namely the owner, designers, contractors and consultants, whereas other delays which do not emanate from internal causes for example from government, materials suppliers or the weather, are classified as external. Ahmed *et al.* (2003) and Alaghbari (2005), attributes other sources of delays as being a result of external factors. These external factors comprises of lack of materials in the market; lack of equipment and tools in the market; poor weather conditions; poor site conditions (location, ground, etc.); poor economic conditions (currency, inflation rate, etc.); changes in laws and regulations; transportation delays; and external work due to public agencies (roads, utilities and public services).

Bordoli and Baldwin (1998) examined the causes of delays in building projects in the United States of America and found weather and labour supply to be among the major causes of

delays, whereas Chan and Kumaraswamy (1997), cites unforeseen site conditions as a principle delay factor in Hong Kong. Al-Khalil and Al-Ghafly (1999), found out that government regulation, site and environment conditions, were important causes of delay in Saudi Arabia. Motaleb and Kishk (2010) identified financial factors including inflation, prices fluctuation and high interest rate as external factors contributing to delays in UAE. Al-Momani (2000) investigated causes of delay in 130 public projects in Jordan and found that main causes of delay were related to weather, site conditions, late deliveries and economic conditions among other causes attributable to parties in the projects. Sambasivan and Soon (2007) identified the most important causes of delay in Malaysian construction industry as, among others, shortage in material, labor supply, equipment availability and failure.

Mansfield *et al.* (1994) indicates change in site conditions and shortages of materials as the most important items of delay causes in Nigeria. According to Odeyinka and Yusif (1997), inclement weather, act of God, labor dispute, and strikes were found to be extraneous factors responsible for delays, in their study on the causes and effects of construction delays on completion cost of housing projects in Nigeria, similar to findings of a study by Bramble and Callahan (2011), on construction delays in USA. In Egypt, Amer (1994) lists shortages in materials such as cement and steel, to be a major cause of delay for construction projects. In Uganda, Alinaitwe *et al*. (2013), found out that high cost of capital and political insecurity and instability, were among the five most important causes of delays in construction projects. External factors therefore do influence building construction activities.

2.6. Theoretical Framework

The theoretical framework to be adopted in this study is that on Theory of Constraints. According to Wikipedia.org. the theory of constraints (TOC) is an overall management

philosophy introduced by Eliyahu M. Goldratt in his 1984 book titled “The Goal”, that is geared to help organizations continually achieve their goals. The TOC is a methodology for identifying the most important limiting factor (i.e. constraint) that stands in the way of achieving a goal and then systematically improving that constraint until it is no longer the limiting factor. Dettmer (1997) alludes to the fact that W. Edwards Deming maintained that real quality improvement is not possible without profound knowledge, and which comes from an understanding of the theory of knowledge, knowledge of variation, an understanding of psychology, and appreciation for systems. According to Dettmer (1997), a system might be generally defined as a collection of interrelated, interdependent components or processes that act in concert to turn inputs into some kind of outputs in pursuit of some goal. Neef, Siesfeld and Cefola (1998) defines a system as a network of interdependent components that work together to try to accomplish the aim of the system. Construction projects involves various parties including, contractors, subcontractors, consultants and the project owner. The consultants depend on the project owner to give their requirements for a project, the contractor and the owner depend on the consultants for technical details for the work, the contractor depends on the owner to make payments for work done, the owner depends on the financiers to avail funding etc. In that respect, construction projects are like systems since the parties interdepend on each other to deliver and achieve the final objective, the project. Dettmer (1997), states that Eliyahu M. Goldratt’s Theory of Constraints, is a system improvement philosophy and that Goldratt maintained that organizations live or die as systems, not as processes. He contends that systems are analogue to chains, or network of chains. Like a chain a system’s performance is limited by the performance of its weakest link. TOC adopts the common idiom "a chain is no stronger than its weakest link." Dettmer (1997), concludes that this means, by extension, that no matter how much effort you put into improving the processes of a

system, only improvement of the weakest link will produce any detectable system improvement. The weakest link is the systems constraint. For construction projects, the causes of delays as outlined in the literature review would be the project's constraints.

According to Goldratt (1990), TOC provides a powerful set of tools for helping to achieve the goals. These include: The Five Focusing Steps (a methodology for identifying and eliminating constraints); The Thinking Processes (tools for analyzing and resolving problems) and Throughput Accounting (a method for measuring performance and guiding management decisions). Goldratt (1990), Dettmer (1997) and wikipedia.org identify the five focusing steps as follows: Identify the system's constraint/s (that which prevents the organization from obtaining more of the goal in a unit of time; Decide how to exploit the system's constraint/s (how to get the most out of the constraint); Subordinate everything else to the above decision (align the whole system or organization to support the decision made above); elevate the system's constraint/s (make other major changes needed to increase the constraint's capacity) and, if in the previous steps a constraint has been broken, go back to the first step. The steps essentially expounds on how to think about streamlining and refine systems for maximum efficiency, and continually improve. By espousing these in construction industry, it would thus be possible to identify and address causes of delays in the industry, (the constraint/s) in order that delays are minimized if not eliminated altogether.

2.7. Conceptual framework

The study was guided by the following conceptual framework in figure 2.1.

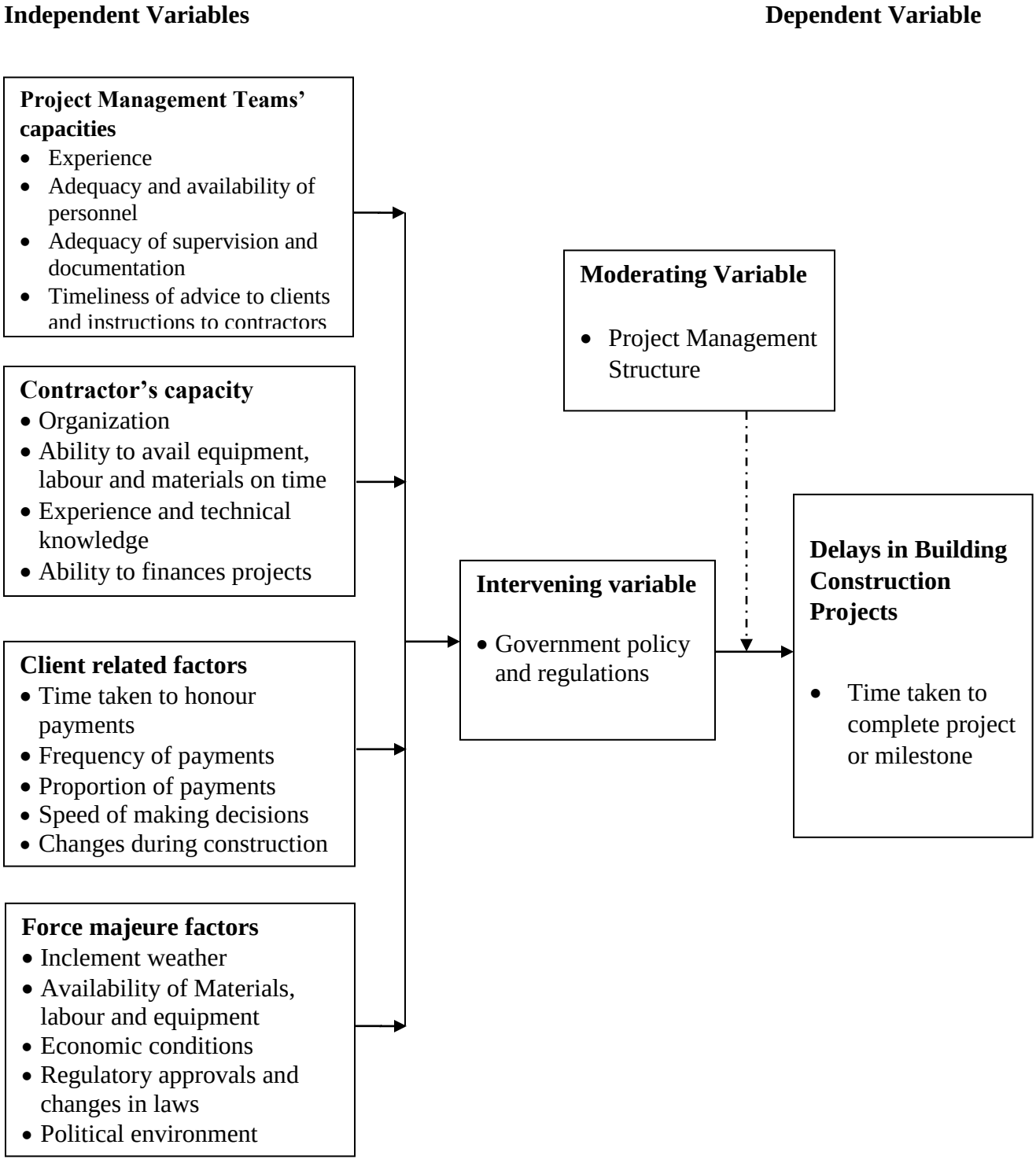

Figure 2.1 Conceptual framework

The independent variables in this study included project management teams' capacities including their experience, adequacy and competence of personnel together with their workload; contractor's capacity comprising of their organization to execute works, ability to avail required equipment, labour and materials as and when required, together with their experience and technical knowledge to do the works. Other independent variables were clients related factors comprising of time taken to honour payments, frequency of making payments, proportions of payments being made, speed of making decisions, and introduction of changes during construction; and, force majeure factors like availability of materials in the market and acts of God like inclement weather conditions could also influence delays in building construction projects. The dependent variable for the study was delays in building construction projects. The study aimed at determining the extent to which the independent variables influence delay in public sector building construction projects in Kisumu City. Another variable which could influence delays in building construction projects was corruption among the parties involved with the works. This could result in to project resources being diverted for other uses other than for the works, causing disruptions in the construction activities and eventually delays in completion of the works. Project management structure, including the form of agreement entered into between the parties, is a moderating variable in this instance. The form of agreement specified the roles of the parties involved and times within which they are to act on their respective roles. The agreement also specified the period within which to complete a project, and consequences to the respective parties if they fail to meet their obligations under the contract. Intervening variables comprised of government policies and regulations, including national environmental management authority of Kenya (NEMA) approvals and any changes in taxes like value added tax (VAT).

2.8. Gap in Literature Reviewed

Several studies on delays in construction projects have been carried out around the world. Sambasivan and Soon (2007) conducted a study on causes and effects of delay in Malaysian construction industry. Marzouk and El-Rasas (2014), analyzed delay causes in Egyptian construction industry. Kikwasi (2012), looked at causes and effects of delays and disruptions in construction projects in Tanzania. In Kenya, Okeyo (2011) did a study on effects of contractual delay on completion of Sondu-Miriu Hydropower project in Kisumu County, and Akhwaba (2011) studied determinants of delay on completion of Constituency Development Fund financed classrooms in public schools in Butere constituency, Kenya. Oraro (2012) studied determinants of delays in construction of community water projects in Rachuonyo district, a case of GOK UNICEF WASH Programme. Whereas these studies involve projects financed through public funds, none of them dealt with public sector building construction projects, a gap which this study sought to fill.

2.9. Summary of Literature Reviewed

From the literature reviewed, delays in construction projects is a global problem and a reality in the construction industry. Construction projects are complex since they usually have a long duration, get faced with various uncertainties and complex relationships among the participants. Even the most thoughtfully planned project may be faced with necessity to change due to these reasons. There are many causes of delays in building construction projects, attributable to the various parties involved with the works, whereas other causes stem from outside the project. Delays attributable to Project Management teams include absence of consultant's site staff, delayed and slow supervision, incomplete documentation and slowness in

giving instructions. According to Ahmed *et al*. (2003), delays attributable to contractors include delay in delivery of materials to site, poor skills and experience of labour, financial problems and poor site management. Delays cited most by researchers as attributed to clients include slowness in making decisions, delays in making payments to contractors, replacements and addition of new work to the project and change in specifications. Delays attributable to external sources include adverse weather conditions, lack of materials and/or equipment in the market, changes in laws and regulations, and, poor economic conditions. Ahmed *et al.* (2003) contends that it is essential to define the actual causes of delay in order to minimize and avoid delays in any construction project.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter presented the methods adopted in conducting the study. It details the research design, target population, sample size and sample selection, research instruments, data collection procedure and analysis techniques together with ethical issues adopted for the study.

3.2. Research Design

According to Kerlinger (1973), research design is the plan, structure of investigation conceived so as to obtain answers to research questions and to control variance, and, they are invented to enable answering the research questions as validly, objectively, accurately and as economically as possible. The study adopted correlational research design, which was ideal for this study and sought to examine and describe the relationships between the independent variables and the dependent variable. Correlational research design allowed the study to establish whether relationships exists between two variables and described the nature of the relationship for an existing condition, and the independent variables were also not be manipulated.

3.3. Target Population

Neelankavil (2007) defines target population as the total number of elements of a specific population relevant to the research project. In this respect, the target population for the study comprised of parties involved in public sector building construction projects in Kisumu City. The parties included professional and technical personnel in the field of architecture, engineering and quantity surveying, contractors and clients engaged in public sector building construction projects within Kisumu City.

According to the Republic of Kenya, Government financial regulations and procedures (1985), the Ministry responsible for development of building development projects for the government is that of Public Works. Records at Directorate of Public Works Kisumu indicated that the County Works Office, Kisumu was handling 37 government building construction projects within Kisumu City comprising of Kisumu East and Kisumu Central sub-counties. The projects, each being unique, have their own contractor and user department. This results in a total of 37 contractors handling the works and 37 representatives of the user departments/clients. These projects are being supervised by the County Works Office, Kisumu which has a total of 15 professional and technical staff to oversee their implementation. Therefore, the target population for the study totals to 89.

3.4. Sample size and sample selection

According to Mugenda and Mugenda (2003) sampling is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the large group from which they were selected. This section described the sample size and the sample procedure adopted by the study.

3.4.1. Sample size

The study adopted census, the whole target population of 89, drawn from contractors, clients and consultants.

3.4.2. Sample Selection

The study adopted purposive sampling to obtain data. According to Kothari (2004), purposive sampling is a non-probability sampling where the items of the sample are selected deliberately by the researcher. That is, the organizers of the inquiry purposively choose the particular units for constituting a sample. Sekaran (2006), concurs that sampling here is confined

to specific types of people who can provide the desired information, either because they are the only ones who have it, or conform to some criteria set by the researcher. Sekaran (2006), continues that instead of obtaining information from those who are most readily or conveniently available, it might sometimes become necessary to obtain information from specific target groups, a process referred to as purposive sampling. The study purposively targeted the management of the respective contracting parties since delay in building construction projects arise from contracts, which are management issues. The frame consisted of 89 individuals, as presented in table 3.1. and, was considered to be small with high variability of obligations given the different roles of the respective parties comprising of contractors, clients and consultants. Census of the whole target population was hence adopted to collect data, and, this also eliminated sampling errors. This argument was supported by Cooper and Schindler (2008) in asserting that census achieves higher accuracy when the population is small (< 100 respondents), accessible and highly variable.

Table 3.1 Sampling Frame

Stakeholder	Total number	Percentage of the frame
Contractors	37	41.5%
Clients	37	41.5%
Consultants	15	17%
Total	**89**	**100%**

Ministry of Public Works (2015)

3.5. Research Instruments

This study used self-administered questionnaires as the research instrument for data collection. The use of questionnaires was preferred as it is quick and could be easily distributed

to respondents personally or through research assistants, or emailed to respondents who could not be reached easily, and thus convenient for gathering data over a large sample. The first part of the questionnaire sought to obtain background information of the respondents including part played in building construction project that is whether consultant, contractor or client, experience in the industry, qualifications and so on. The second part of the questionnaire was concerned mainly with the respondents' view on determinants of delays in building construction projects, grouped into four as provided in the objectives i.e. project management teams capacities, contractors' capacities, client related factors and external factors. The last part sought the respondents views on what could be done about the delays. The instrument had both open and closed ended questions in order to capture as much data as possible including the respondents' views, opinions, feelings, perceptions and attitudes. One set of questionnaire was used for all the groups in order to subject the respondents to the same conditions so as to allow credible correlational analysis of data so collected.

3.5.1. Pilot Testing of the Instrument

A pilot study of the instrument was conducted at the nearby Kakamega County. Kakamega County was chosen for the study as the town is only 48km from Kisumu City and was the provincial headquarters for the former western province, similar to Kisumu, which was the provincial headquarters for the former Nyanza province. It is thus believed that the situation facing the building industry in the two areas could be similar. Mugenda and Mugenda (2003) states that procedures used in pretesting the questionnaire should be identical to those used during the actual data collection. Hence, piloting involved professional and technical staff of the Directorate of Public Works, Clients and Contractors executing public sector building construction projects in Kakamega. Piloting was done on 4 projects which is 10% of 37, the total

number of projects under consideration in Kisumu. This is in accordance with Mugenda and Mugenda (2003), who states that the pretest sample is normally between 1% and 10%, depending on the sample size, where the bigger the sample, the smaller the percentage. This resulted in 4 contractors, 4 clients and 7 consultants at Directorate of Public Works Office in Kakamega, who are overseeing the projects. The total numbers of questionnaires used for the pilot study were 15. The 4 projects were selected through purposive sampling from the records of Directorate of Public Works, Kakamega. Follow-ups were made with the groups to ensure that the questionnaires were filled and returned within one week. The subjects were encouraged to make comments and suggestions concerning the instructions, clarity of questions and their relevance (Mugenda and Mugenda, 2003). Any deficiency in the questionnaire, revealed by the pilot study, was corrected prior to conducting the actual study.

3.5.2. Validity of the instrument

Kothari (2004) defines validity as the degree to which an instrument measures what it is supposed to measure. Content validity of the instrument was ascertained through peer review and scrutiny by research experts, comprising of my supervisors, to ensure that the content in the questionnaire were appropriate and relevant to the study. Expert opinion was sought to check the content and format of the research instrument. According to Sekaran (2006), a panel of judges can attest to the content validity of the instrument.

3.5.3. Reliability of the instrument

According to Kothari (2004), a measuring instrument is reliable if it provides consistent results. This means that the instrument should give the same results if administered repeatedly. This study used internal consistency technique to ensure reliability. Mugenda and Mugenda (2003) states that in this approach, a score obtained in one item is correlated with scores obtained

from other items in the instrument. Cronbach's coefficient alpha (KR20) is then computed to determine how items correlate among themselves. The formula is as follows:-

$$KR20 = \frac{k\,(S^2 - \Sigma s^2)}{S^2\,(k-1)}$$

Where k = Number of items used to measure the concept

S^2 = Variance of all scores

s^2 = Variance of individual items

Sekaran (2006) observes that the closer the reliability coefficient gets to 1.0, the better, and further that in general, reliabilities less than 0.60 are considered to be poor, those in the range of 0.70 acceptable, and those over 0.80 good.

3.6. Data collection procedures

The research report was submitted to the University of Nairobi for review prior to commencement of data collection. A letter of introduction was sought from the University of Nairobi, upon acceptance of the proposal, and thereafter authorization sought from the National Commission for Science, Technology and Innovation (NACOSTI) for issuance of a research permit. Questionnaires were delivered to the respondents, or emailed to those who cannot be reached easily, and follow-ups made through visits, emails and phone calls so as to improve on the return rate. The process of data collection was conducted within a period of one month.

3.7. Data analysis techniques

Preliminary data analysis was conducted and included checking the filled questionnaires for completeness, inconsistencies, cleansing, sorting and coding data. Data was entered into computer programme, Statistical Package for Social Scientists (SPSS) and cross checked to ensure accuracy. Data was summarized using descriptive statistics and presented in means,

standard deviations and frequency distributions tables across a number of variables. Inferential statistics analysis was done using Spearman's Rho correlations. Microsoft Excel as well as Statistical Package for Social Scientists version 20 (SPSS) were used as tools in data analysis, and presented in tables. Spearman (rho) correlations coefficient was used to determine the relationships between independent and dependent variables.

3.8. Ethical considerations

In this study, permission was sought from all the relevant authorities as described under data collection procedures section prior to conducting the study. The purpose of the study was explained to the respondents and they were accorded clarification they so wish to request. The respondents consent was sought and they were expected to participate in the study voluntarily based on their knowledge of the study area and/or involvement in public sector building construction projects within the study area. All responses received were treated with a high level of confidentially and applied for purposes of this study only. Every effort was made towards ensuring that ethical considerations are taken into account, as far as possible, in conducting the study.

3.9. Operational definition of Variables

Operational definition of variables is as presented in table 3.2.

Table 3.2 Operational definition of Variables

Objectives	Variables	Indicators	Measurements	Data Collection Method	Measurement scale	Analysis
Assess extent to which project management teams' capacities influence delays in public sector building construction projects	(Independent) Project management team capacities	Experience Adequacy Competence Workload	Years in the field. Training level attained. Number of projects	Questionnaire	Ordinal	Correlation
	(Dependent) Project delays	Completion status	Time project takes			
Establish extent to which capacities of contractors influence delays in public sector building construction projects	(Independent) Contractors capacities	Presence of equipment, labour and materials on site. Experience Qualification	Number of equipment, labour and materials on site Years in the industry. Training level attained.	Questionnaire	Ordinal	Correlation
	(Dependent) Project delays	Completion status	Time project takes			
Evaluate extent to which client related factors influence delays in public sector building construction projects	(Independent) Client related factors	Payments made. Changes introduced.	Time taken to make payments. Frequency of payments. % of payments. Time taken to make decisions. Number of changes made. Magnitude of changes made.	Questionnaire	Ordinal	Correlation
	(Dependent) Project delays	Completion status	Time project takes			
Examine extent to which force majeure factors influence delays in public sector building construction projects	(Independent) Force majeure factors	Weather conditions. Interest rates. Material, labour available.	Stoppage times Repeat jobs	Questionnaire	Ordinal	Correlation
	(Dependent) Project delays	Completion status	Time project takes.			

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the results obtained from the study that was conducted, and which is preceded with a response return rate and demographic attributes of the census population studied. The results of the study, both quantitative as well as qualitative are presented in four main subsections, in line with the objectives of the study. These subsections include; Project Management Teams capacities and delays in public sector building construction projects; Contractors capacities and delays in public sector building construction projects; Client related factors and delays in public sector building construction projects; Force majeure factors and delays in public sector building construction projects. The analysis and interpretation follows tabular presentations, and the respondents' descriptive results are also presented to supplement the quantitative presentation derived from the questionnaires returned.

4.2 Response Return Rate

The study set out to undertake a census on 89 respondents to whom the questionnaires were sent. During the study, 62 questionnaires were returned representing a response return rate of 70%. However 27 of the questionnaires, representing 30% were not returned. Table 4.1 gives a summary of the response return rate.

Table 4. 1: Response Rate Analysis

Stratum of Respondents	No. of Questionnaires Distributed	No. of Questionnaires returned	Return Rate
Consultants	15	14	93%
Contractors	37	22	60%
Clients	37	26	70%
Total	**89**	**62**	**70%**

Return rates of 14 out of 15 (93%) was achieved from the Consultants, 22 out of 37(60%) from Contractors and 26 out of 37(70%) from Clients, representing questionnaire return rate of 70%. According to Nachmias and Nachmias (1996), many mail surveys achieve a response rate no more than 50%, whereas Mugenda and Mugenda (2003) states that a response rate of 50% is adequate for analysis and reporting, 60% is good while 70% and over is very good. The high return rate of 70% was achieved by making systematic follow-ups and allowing the respondents considerable time to complete the questionnaires

4.3 Demographic characteristics of the respondents.

This section presents the bio data of the respondents which are considered important as the respondents, age, level of education, and experience are important factors in building construction projects and determines the respondents' ability to possess the required information.

4.3.1 Distribution of respondents by gender.

On the respondents, gender distributions the researcher established the situation as presented in Table 4.2.

Table 4.2: Distribution of Respondents by Gender Distribution

Gender	Frequency	Percentage
Male	53	85
Female	9	15
Total	**62**	**100**

The gender distribution of the respondents were 53(85%) male and the other 9(15%) female. The results indicate that during the survey both sexes were accessible. It is hence deduced that both sexes were engaged in public sector building construction projects, however the study established that male dominate public sector building construction field.

4.3.2 Distribution of respondents by level of education

The study sought to establish the level of education for all the respondents. This variable was deemed worth establishing since the respondents level of education determined their ability to possess requisite and adequate information and also interaction with the data collecting tools. The findings on the level of education of the respondents are presented in Table. 4.3.

Table 4.3: Distribution of Respondents by Level of Education in the Construction field

Level of Education	Frequency	Percentage
Degree	11	17.8
Diploma	17	27.4
Certificate	7	11.3
Others	10	16.1
No response	17	27.4
Total	**62**	**100**

The findings on table 4.3 shows that out of 62 respondents, 11 (17.8%) had degrees, 17 (27.4%) attained diplomas, 7 (11.3%) had certificates, 10 (16.1%) had other qualifications whereas 17 (27.4%) did not respond. The results indicated that there were more respondents with diploma, than there were with degrees and certificates. Overall, the results indicated that 72.6% of the respondents had some form of training. These findings indicated that the study was informed by respondents fairly knowledgeable through training.

4.3.3 Distribution of the respondents with training in the field of construction.

The study endeavored to establish the distribution of the respondents who had undergone training in the field of building and construction industry. The results are presented in Table. 4.4.

Table 4.4: Distribution of Respondents with Training in the Construction Industry

	Respondents	**Frequency of respondents with training in the industry**	**Percentage**
Consultants	14	14	100
Contractors	22	14	64
Clients	26	5	19
Totals	**62**	**33**	**53**

The findings on table 4.4 shows that all the consultants who responded 14 (100%) had training in the industry as compared to 14 (64%) of the contractors who responded and had undergone training in the industry. Only 5 (19%) of the clients who responded had training in the building and construction industry. The results indicated that out of the 62 respondents, majority 33 (53%) had undergone training in the field of building and construction industry.

4.3.4 Distribution of the respondents by level of experience in project implementation.

The researcher endeavored to explore the distribution of all the respondents by the number of years engaged in project implementation. This was worth establishing since the respondents experience determined his or her ability to possess adequate information concerning the determinants of delay in public sector building construction projects. The results on the distribution of the respondent's experience are presented in Table. 4.5.

Table 4.5: Level of Experience in Project Implementation

Response	Frequency	Percent
21 years and above	11	17.7
16-20 years	6	9.7
11-15 years	15	24.2
5-10 years	14	22.6
less than 5 years	14	22.6
Total	60	96.8
Missing System	2	3.2
Total	**62**	**100.0**

The findings on Table 4.5 shows that 17.7% of the respondents had implemented projects for 21 years and above, 9.7% of the respondents had between 16 and 20 years' experience in project implementation, 24.2% had between 11 and 15 years' experience and 22.6% had between 5 and 10 years' experience, with only 22.6% having experience of up to 5 years. The study findings indicated that majority of the respondents, 76.7% had implemented projects for more than 5 years, hence had enough experience on project implementation.

4.3.5 Distribution of respondents by exposure to delays.

The study sought to establish number of respondents with an ongoing delayed building construction project. This was important in order to reveal the extent of the problems of delays in Kisumu City, and the respondents' engagement in a delayed project determined their ability to possess requisite and adequate information for the study. The frequency table for this distribution is captured in Table 4.6.

Table 4.6: Distribution of Respondents by Exposure to Delays

Response	Frequency	Percent
Yes	44	71
No	18	29
Total	**62**	**100.0**

The findings on Table 4.6 shows that majority of respondents, 44(71%) had at least an ongoing delayed building construction project. Only 18(29%) of the respondents had no ongoing delayed building construction project. The results indicated that delays with regards to building construction projects were prevalent amongst the respondents. This agrees with the study by Sambasivan and Soon (2007), who stated that delays in the construction industry is a global phenomenon, and, delays in execution of construction projects continue to be experienced throughout the world. A similar situation is found in South America where President Dilma Rousseff of Brazil has been quoted by Bland (2013) in Business News America as stating that delays in meeting deadlines for infrastructure projects under Brazil's growth acceleration plan, "is one of the federal government's largest concerns and headaches."

4.4 Project management teams capacities and project delays

The first research question of this study was derived from the first research objective. The question sought to establish the extent project management teams' capacities influenced delays in public sector building construction projects in Kisumu City. In order to get answers to ascertain this research question, the researcher inquired from the respondent their perceptions on a number of issues. These issues included establishing whether project management teams capacities influenced delays in building construction projects, whether the project management team had adequate experience, project management team had adequate members, projects were supervised adequately, project documentations mostly completed when work starts, project team members were always available when required, project team members gave timely instructions to contractors, and whether project team members gave timely advice to clients.

Table 4.7 presents a cross tabulation between respondents with ongoing delayed projects and responses obtained from the question as to whether project management teams' capacities influenced delays in building construction projects.

Table 4.7: Project Management Teams Capacities and Delayed Projects

Project management team capacities influence delays	**Has ongoing delayed project**				**Total**	
	Yes		**No**			
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Yes	31	51.7	11	18.3	42	70.0
No	7	11.7	7	11.7	14	23.3
No response	4	0.0	0	0.0	4	6.6
Total	**42**	**70**	**18**	**30.0**	**60**	**100**

The findings in Table 4.7 depicted that 31(51.7%) respondents with ongoing delayed project were of the view that project management teams capacities influenced delays in building construction projects whereas only 7(11.7%) of the respondents with ongoing delayed projects were of a contrary opinion, and which was shared by a similar number 7(11.7%) of the respondents' but who had no ongoing delayed project yet another 11(18.3%) respondents without any ongoing delayed project agreed that project management team capacities influenced delays. Majority of the respondents with ongoing delayed projects were thus of the opinion that project management teams capacities influenced delays in building construction project.

The findings are in agreement with Bramble and Callahan (1992) who found out that a project may be delayed as a result of the direct action of major parties or of their failure to act especially if they have a duty to act. Project management teams are major parties in a project and who have duty to act. The finding is also in concurrence with Ahmed et al (2003) and Alaghbari (2005) who contends that possible factors causing delay in Malaysia construction projects, were attributable to project management teams. Atout (2013) states that delays are the most common and costly problems encountered on construction projects and contends that even with today's technology and understanding of project management, construction projects continue to suffer from delays; project completion dates frequently become extended.

4.4.1 Project management teams' adequacy and project delays

The study sought to establish whether project management teams had adequate members, and influence on project delays. The results of a cross tabulation between adequacy of project management teams and delayed projects are presented on Table 4.8.

Table 4.8: Project Management Teams' Adequacy and Project Delays

Project management team members are adequate	Has ongoing delayed project: Yes		No		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Strongly disagree	3	4.9	1	1.6	4	6.6
Disagree	14	23.0	6	9.8	20	32.8
Undecided	2	3.3	0	0.0	2	3.3
Agree	14	23.0	10	16.4	24	39.3
Strongly agree	10	16.4	1	1.6	11	18.0
Total	**43**	**70.5**	**18**	**30.0**	**61**	**100**

The findings shows that out of the respondents who participated in the study, 10(16.4%) respondents' with ongoing delayed projects strongly agreed that project management teams had adequate members, whereas only 3(4.9%) with ongoing delayed projects strongly disagreed. 14(23.0%) respondents with ongoing delayed projects agreed with a similar number disagreeing leaving 2(3.3%) respondents with ongoing delayed projects undecided. 1(1.6%) respondent without an ongoing delayed project strongly agreed that project management teams had adequate members with a similar number strongly disagreeing, while 10(16.4%) of the respondents' without an ongoing delayed project agreed whereas 6(9.8%) with no ongoing delayed projects disagreed and no respondent without an ongoing delayed project were undecided. Majority of the respondents 24(39.3%) agreed that project management teams had adequate members and another 11(18.0%) strongly agreeing, thus representing a total of 35(57.3%) respondents' agreeing that project management teams had adequate members. The results of the study suggest

that the relationship between adequacy of project management team members, as a component of Project Management Team Capacity, and influence on delays in building construction projects (rho = .135, p = .299) is statistically significant although weak.

This finding is in line with Atout (2013) who states that the execution of a contract is administrated by the Project Manager who should have qualified technical staff, enough resources, along with a group of experienced subcontractors.

4.4.2 Project supervision and project delays

The study further sought to establish whether projects were supervised adequately, and, the results of a cross tabulation between adequacy of project supervision and delayed projects are presented on Table 4.9.

Table 4.9: Adequacy of Project Supervision and Project Delays

Projects supervised adequately	**Has ongoing delayed project**				**Total**	
	Yes		**No**			
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Strongly disagree	6	10.2	2	3.4	8	13.6
Disagree	16	27.1	7	11.9	23	39.0
Undecided	5	8.5	1	1.7	6	10.2
Agree	11	18.6	5	8.5	16	27.1
Strongly agree	4	6.8	2	3.4	6	10.2
Total	**42**	**71.2**	**17**	**28.8**	**59**	**100**

The findings in Table 4.9 shows that from the respondents with ongoing delayed projects, 16(27.1%) of the respondents felt that projects were not adequately supervised while 11(18.6%)

of the respondents agreed that they were adequately supervised, 6(10.2%) of the respondents strongly disagreed, whereas 4(9.7%) of the respondents strongly agreed and 5(8.5%) were undecided on the adequacy of the supervision. On the respondents without an ongoing delayed project, 7(11.9%) of the respondents felt that projects were not adequately supervised while 5(8.5%) of the respondents agreed that they were adequately supervised, an equal distribution of 2(3.4%) of the respondents either strongly disagreed or strongly agreed that projects were adequately supervised whereas 1(1.7%) of the respondents was undecided on the adequacy of the supervision. Majority of the respondents, 42(71%) had ongoing delayed projects while only 17(28.8%) were without an ongoing delayed project. The study results suggest that the relationship between adequate supervision of projects as a component of Project Management Team Capacities, and influence on delays in building construction projects (rho = .247, p = .059) is statistically significant, but is a weak positive relationship. The findings indicated that supervision influenced delays in public sector building construction projects in Kisumu city.

The findings were in tandem with Chan and Kumaraswamy (1997) who identified five principal factors causing delay in construction projects among them being that of poor supervision. It is to be remembered that in building construction projects, the role of supervision is assigned to the project management teams. Any delays arising as a result of poor supervision will therefore be attributable to the project management teams. According to Mansfield et al. (1994), in a study on the causes of delay and cost overrun in construction projects in Nigeria, the most important factors contributing to delays included poor contract management. In India, reasons advanced by KPMG and PMI (2013) report as causes for delays in India include lack of skilled project managers together with weak/ineffective project planning and monitoring.

4.4.3 Project documentations and project delays

The study sought to establish whether project documentations was mostly completed when work starts. The results of a cross tabulation between completeness of project documentations at start of works and ongoing delayed projects are presented in Table 4.10.

Table 4.10: Completeness of Project Documentations and Project Delays

Documentations complete when work starts	**Has ongoing delayed project**				**Total**	
	Yes		**No**			
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Strongly disagree	6	9.8	2	3.3	8	13.1
Disagree	9	14.8	7	11.5	16	26.2
Undecided	5	8.2	0	0.0	5	8.2
Agree	18	29.5	2	3.3	20	32.8
Strongly agree	5	8.2	7	11.5	12	19.7
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

The findings in Table 4.10 shows that from the respondents with ongoing delayed projects, 18(29.5%) of the respondents agreed that project documentations were mostly complete when work commenced while 9(14.8%) disagreed, 6(9.8%) of the respondents strongly disagreed, leaving an equal distribution of 5(8.2%) of the respondents either strongly agreeing or undecided. Most of the respondents, 43(70.5%) had at least an ongoing delayed project, out of which the majority of the respondents, 23(37.7%) either agreed or strongly agreed that documentations were mostly complete when work started and only 15(24.6%) felt to the contrary. On the respondents without an ongoing delayed project, 7(11.5%) of the respondents

felt that documentations were mostly incomplete when work started while only 2(3.3%) of the respondents agreed that documentations were mostly complete, whereas 7(11.5%) strongly agreed they were mostly complete and 2(3.3%) felt that they were mostly incomplete and none were undecided. The respondents without an ongoing delayed project totaled to 18(29.5%), and were equally divided, 9(14.8%), on whether documentations were mostly complete or mostly incomplete. The results suggest that the relationship between completion of project documentations when work starts as component of Project Management Team Capacities and influence in delays in building construction projects (rho = .023, p =.858) is statistically significant. Whereas the results indicate a weak positive relationship between completion of the drawings at the start of the project and project delays, most respondents were of the opinion that project documentations were mostly completed before the work starts, and therefore implying that this could not be a cause of public sector building construction project delays in Kisumu city. This is contrary to Alaghbari (2005), who found out, in a study on factors affecting construction speed of industrialized building systems in Malaysia that, the most common form of compensable delay is inadequate drawings and specifications. However, the study is nonetheless in agreement with Alaghbari (2005) to the extent that inadequacy of documentations does influence project delays, similar to Oraro (2012) who established that there existed significant positive relationships between delays in project construction and adequacy/inadequacy of design documents.

4.4.4 Project management teams' availability and project delays

The study sought to establish whether project team members were always available when required. The cross tabulation results of project management teams' availability and ongoing delayed projects are presented in Table 4.11.

Table 4.11: Project Management Teams' Availability and Project Delays

Project management team members always available	Has ongoing delayed project				Total	
	Yes		No			
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Strongly disagree	4	6.6	3	3.4	7	11.5
Disagree	16	26.2	9	14.8	25	41.0
Undecided	5	8.2	1	1.6	6	9.8
Agree	12	19.7	3	4.9	15	24.6
Strongly agree	6	9.8	2	3.3	8	13.1
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

Table 4.11 shows that, among respondents with ongoing delayed projects, 16(26.2%) were of the view that project management team members were not always available while 12(19.7%) of the respondents felt that the project management team members were always available, 4(6.6%) strongly disagreed whereas 6(9.8%) strongly agreed, and, 5(8.2%) of the respondents were undecided. Out of the 43(70.5%) respondents with at least an ongoing delayed project, 20(32.8%) of the respondents felt project team members were not always available, whereas 18(29.5%) were of the view that the project team members were always available.

On the respondents without an ongoing delayed project, 9(14.8%) disagreed with the statement that project management team members were always available, while 3(4.9%) agreed, a similar number 3(4.9%) of the respondents strongly disagreed, 2(3.3%) of the respondents strongly agreed and 1(1.6%) of the respondents, was undecided. Out of the 18(29.5%) of the respondents without an ongoing delayed project, 12(15.7%) felt project management team

members were not always available and only 5(8.2%) were of a contrary view. Thus, majority of the respondents, both with and without an ongoing delayed project, felt project management team members were not always available.

The study results also suggest that the relationship between project team members always being available when required as a component of Project Management Team Capacities, and influence in delays in building construction projects (rho = .219, p = .090) is statistically significant, but is a weak positive relationship. The findings indicated that most of the respondents disagreed that project management team members were always available whenever required, thus suggesting that this was a cause of public sector building construction project delay in Kisumu City.

The findings is supported by Ahmed *et al.* (2003) and Alaghbari (2005) who states that possible factors causing delay in Malaysia construction projects, attributable to project management teams as being absence of consultant's site staff among others, suggesting that project management team members are not always available when required. Elder (2006) lists one of the reasons why projects struggle as bad multi-tasking on the part of project management team members. This causes a party or parties to wait for a member/s of the team to finalize their parts, to enable other areas progress, suggesting that project team members do not always play their roles as and when required.

4.4.3 Timely instructions to contractors and project delays

Building construction works are executed by contractors under the direction of the project management teams who issue instructions to the contractors on how to proceed including but not limited to approvals at various stages. The study sought to find out whether project management team members gave timely instructions to contractors, and, the study findings, cross tabulated

between timely issuance of instructions to contractors and ongoing delayed projects are as illustrated in Table 4.12.

Table 4.12: Issuance of Timely Instructions to Contractors

Project management teams give timely instructions	**Has ongoing delayed project**				**Total**	
	Yes		**No**			
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Strongly disagree	7	11.5	1	1.6	8	13.1
Disagree	14	23.0	9	14.8	23	37.7
Undecided	4	6.6	0	0.0	4	6.6
Agree	12	19.7	6	9.8	18	29.5
Strongly agree	6	9.8	2	3.3	8	13.1
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

The findings in Table 4.12 shows that out of the 43(70.5%) of the respondents with ongoing delayed projects, 14(23.0%) of the respondents felt that project management teams do not give timely instructions to contractors, while 12(19.7%) of the respondents agreed that instructions to contractors were timely, 7(11.5%) of the respondents strongly disagreed, whereas 6(9.8%) of the respondents strongly agreed and 4(6.6%) were undecided on the timeliness of instructions to contractors. Out of the 43(70.5%) respondents with at least an ongoing delayed project, 21(34.5%) of the respondents felt project management teams gave timely instructions to contractors, whereas 18(29.5%) were of a contrary view.

On the respondents without an ongoing delayed project, 9(14.8%) of the respondents felt that project management teams did not give timely instructions to contractors, while 6(9.8%) of

the respondents agreed that the teams issued timely instructions to contractors, 2(3.3%) of the respondents strongly agreed, and, 1(1.6%) respondent strongly disagreeing, with none undecided. A total of 10(16.4%) concurred that instructions were not timely and 8(13.1%) responded that instructions to contractors were timely. Majority of the respondents, both with and without ongoing delayed projects, felt that project management teams did not give timely advice to contractors.

The study found that the relationship between project team members issuance of timely instructions to contractors as a component of Project Management Team Capacity and delays in building construction projects (rho = .096, p = .460) is statistically significant, but is a weak positive relationship. The findings indicated that the project management team do not issue timely instructions to contractors resulting in delays experienced in building construction projects. This finding is in concurrence with Ahmed *et al.* (2003) and Alaghbari (2005) who found out that possible factors causing delay in Malaysia construction projects, attributable to project management teams includes consultants' slowness in giving instructions.

4.4.3 Timely advice to clients and project delays

Building construction industry in a multi sectorial multi-disciplinary field in which only a few clients possess technical knowledge, as even found out in this study and illustrated in table 4.4 regarding respondents with training in the construction field. In such a scenario, clients rely on the project management teams for advice to enable them make decisions regarding the projects. The study was interested in finding out whether project management teams gave timely advice to clients. The study findings of a cross tabulation between timely issuance of advice to clients and ongoing delayed projects are presented in Table 4.13

Table 4.13: Issuance of Timely Advice to Clients

Project management teams issue timely advice to clients	Has ongoing delayed project				Total	
	Yes		No			
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Strongly disagree	5	8.2	2	3.3	7	11.5
Disagree	17	27.9	8	13.1	25	41.0
Undecided	5	8.2	0	0.0	5	8.2
Agree	11	18.0	7	11.5	18	29.5
Strongly agree	5	8.2	1	1.6	6	9.8
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

Table 4.13 shows that, among respondents with ongoing delayed projects, 17(27.9%) were of the view that project management teams did not give timely advice to clients, while 11(18.0%) of the respondents felt that the project management teams gave timely advice to clients, an equal distribution of 5(8.2%) of the respondents either strongly agreed, strongly disagreed or were undecided. Out of the 43(70.5%) respondents with at least an ongoing delayed project, 22(36.1%) of the respondents felt project management teams do not give clients timely advice, whereas 16(26.2%) were of the view that the teams do give timely advice to clients.

On the respondents without an ongoing delayed project, 8(13.1%) disagreed with the statement that project management teams gave timely advice to clients, while 7(11.5%) agreed, 2(3.3%) of the respondents strongly disagreed, 1(1.6%) respondent strongly agreed and none were undecided. Out of the 18(29.5%) of the respondents without an ongoing delayed project, 10(16.4%) felt project management teams do not give timely advice to clients whereas only

8(13.1%) were of a contrary view. Thus, majority of the respondents, both with and without an ongoing delayed project, felt project management teams do not give timely advice to clients.

The study established that the relationship between project management team members giving timely advice to clients and delays in building construction projects (rho = .103, p = .428) is statistically significant, but is a weak positive relationship. The findings indicated that project management teams do not issue timely advice to clients leading to delays experienced in public sector building construction projects in Kisumu City.

4.5 Contractors' capacities and project delays

The second theme, derived from the second objective of the study, sought to explore the extent to which capacities of contractors influence delays in public sector building construction projects in Kisumu City. In order to get answers to ascertain this, the study inquired from the respondents their perceptions on a number of issues relating to capacities of the contractors. These issues included establishing whether contractors have clear organizational structures to minimize delays, whether contractors had adequate personnel, contractors employed qualified personnel at site, supplied equipment and tools to sites on time, had sufficient materials delivered to sites on time, contractors were able to avail required financial resources for project. The study findings in this subsection are discussed under the listed areas, but first the respondents were asked to state their views whether capacities of contractors influence delays in public sector building construction projects in Kisumu City. The findings, cross tabulated with responses regarding ongoing delayed projects are illustrated in Table 4.14.

Table 4.14: Contractors Capacities and Project Delays

Contractors capacities influence delays	Has ongoing delayed project				Total	
	Yes		No			
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	33	54.1	12	19.7	45	73.8
No	6	9.8	4	6.6	10	16.4
No response	4	6.6	2	3.2	6	9.8
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

The findings in Table 4.14 shows that out of the 43(70.5%) of the respondents with ongoing delayed projects, 33(54.1%) felt that contractors capacities influenced project delays, whereas 6(9.8%) of the respondents were of a contrary view while 4(6.6%) were non-responsive. Out of the remaining 18(29.5%) respondents with no ongoing delayed project, 12(19.7%) of the respondents felt that contractors capacities influence delays, whereas 4(6.6%) were of a contrary view and 2(3.2%) were non-responsive. A total of 45(73.8%) respondents felt that contractors capacities influenced delays, whereas only 10(16.4%) felt otherwise while 6(9.8%) were non-responsive. The study findings are consistent with Atout (2013) who found out that most project delays are frequently attributed to the contractor.

4.5.1 Contractors' organization structures and project delays

Building construction works involves several players requiring that responsibilities and authority is shared among the participants. The study sought to establish whether contractors had clear organizational structures ensuring effectiveness and efficiency thus minimizing delays. The study findings are presented on Table 4.15.

Table 4.15: Contractors Organization Structures and Project Delays

Contractors have good organizational structures	Has ongoing delayed project				Total	
	Yes		No			
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Strongly disagree	6	9.8	1	1.6	7	11.5
Disagree	17	27.9	8	13.1	25	41.0
Undecided	3	4.9	3	4.9	6	9.8
Agree	11	18.0	5	8.2	16	26.2
Strongly agree	6	9.8	1	1.6	7	11.5
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

Table 4.15 shows that, among respondents with ongoing delayed projects, 17(27.9%) were of the view that contractors did not have organizational structures to minimize delays, while 11(18.0%) of the respondents felt that the contractors had organizational structures to minimize delays, an equal distribution of 6(9.8%) of the respondents either strongly agreed, strongly disagreed, whereas 3(4.9%) were undecided. Out of the 43(70.5%) respondents with at least an ongoing delayed project, 23(37.7%) of the respondents felt contractors did not have organizational structures to minimize delays, whereas 17(27.8%) were of the view that the contractors had organizational structures to minimize delays.

On the respondents without an ongoing delayed project, 8(13.1%) disagreed with the statement that contractors had organizational structures to minimize delays, while 5(8.2%) agreed, an equal distribution of 1(1.6%) of the respondents either strongly agreed or strongly disagreed, whereas 3(4.9%) were undecided. Out of the 18(29.5%) of the respondents without an

ongoing delayed project, 9(14.7%) felt contractors did not have organizational structures to minimize delays whereas only 6(9.8%) were of a contrary view. Thus, majority of the respondents, 23(37.7%) and 9(14.7%), both with and without an ongoing delayed project respectively, felt contractors had no organizational structures to minimize delays.

The study found out that contractors clear organizational structures as component of contractors capacities and delays in public sector building construction projects in Kisumu city (rho = -.162, p = .209) were unrelated. The findings suggest that delays in public sector building construction projects were not as a result of lack of contractors clear organizational structures. This is in concurrence with Akhwaba (2011), who found out that contractors management had clear organizational structures to minimize on time wastage indicating that delays in completion of CDF classrooms were as a result of factors beyond organizational structures.

4.5.2 Adequacy of Contractors personnel and project delays

There is great emphasis on registration and competence of contractors in public sector building construction industry in Kenya. In view of this, the study sought to examine the competence of contractors by establishing whether they had adequate personnel as a component of contractors' capacities. The result of the findings are illustrated in Table 4.16.

Table 4.16: Adequacy of Contractors' Personnel and Project Delays

Contractors have adequate personnel	Has ongoing delayed project				Total	
	Yes		No			
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Strongly disagree	3	5.1	0	0.0	3	5.1
Disagree	22	37.3	5	8.5	27	45.8
Undecided	1	1.7	4	6.8	5	8.5
Agree	12	20.3	5	8.5	17	28.8
Strongly agree	4	6.8	3	5.1	7	11.9
Total	**42**	**71.2**	**17**	**28.8**	**59**	**100**

The findings in Table 4.16 shows that from the respondents with ongoing delayed projects, 22(37.3%) of the respondents were of the view that contractors had inadequate personnel while 12(20.3%) felt contractors had adequate personnel, 3(5.1%) of the respondents strongly disagreed, whereas 4(6.8%) strongly agreed, and 1(1.7%) of the respondents were undecided. Most of the respondents, 42(71.2%) had at least an ongoing delayed project, out of which the majority of the respondents, 25(42.4%) either disagreed or strongly disagreed that contractors had adequate personnel and only 16(27.1%) felt to the contrary.

On the respondents without an ongoing delayed project, an equal distribution 5(8.5%) of the respondents either agreed or disagreed that contractors had adequate personnel whereas none strongly disagreed and 3(5.1%) of the respondents strongly agreed, leaving 4(6.8%) of the respondents undecided. The respondents without an ongoing delayed project totaled to 17(28.8%), and 8(13.6%) were of the view that contractors had adequate personnel. In total,

30(50.9%) of the respondents were of the view that contractors had inadequate personnel, whereas 24(40.7%) were of a contrary opinion. The results obtained suggested that the relationship between adequacy of contractors personnel as a component of contractors capacities and delays in public sector building construction projects (rho = .295*, p = .022) is statistically significant, and is a weak positive relationship. Hence, adequacy of contractors' personnel does influence delays in public sector building construction projects in Kisumu city.

This view is shared by Ahmed *et al.* (2003) and Alaghbari (2005), who state possible factors causing delay in Malaysia and attributable to contractors are namely; poor skills and experience of labour; shortage of site labour; low productivity of labour; lack of subcontractor's skills; lack of site contractor's staff among others. This is corroborated by Oraro (2012), who found out that there exists significant positive relationships between delays in project construction and lack of qualified manpower.

4.5.3 Qualifications of contractors personnel and project delays

Contractors are mostly invited to bid for public sector building construction projects, and, a requirement commonly requested for, is that they state qualifications of personnel they intend to use in executing works. This is so as to ensure the team has relevant qualifications and skills to deliver quality works on time and within budgets. The respondents were asked to state whether contractors employ qualified personnel at sites. Table 4.17 summarizes the findings.

Table 4.17: Qualifications of Contractors' Personnel and Project Delays

Contractors employ qualified personnel	Has ongoing delayed project				Total	
	Yes		No			
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Strongly disagree	1	1.6	0	0.0	1	1.6
Disagree	21	34.4	8	13.1	29	47.5
Undecided	5	8.2	1	1.6	6	9.8
Agree	12	19.7	2	3.3	14	23.0
Strongly agree	4	6.6	7	11.5	11	18.0
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

Table 4.17 shows that, among respondents with ongoing delayed projects, 21(34.4%) disagreed that contractors employed qualified personnel, while 12(19.7%) of the respondents agreed, 1(1.6%) of the respondents strongly disagreed, whereas 4(6.6%) strongly agreed and 5(8.2%) were undecided. Out of the 43(70.5%) respondents with at least an ongoing delayed project, 22(36.0%) of the respondents felt contractors did not employ qualified personnel whereas 16(26.3%) were of the view that the contractors employed qualified personnel.

On the respondents without an ongoing delayed project, 8(13.1%) disagreed with the statement that contractors had organizational structures to minimize delays, while 2(3.3%) agreed, none strongly agreed, whereas 7(11.5%) strongly agreed and 1(1.6%) of the respondents was undecided. Out of the 18(29.5%) of the respondents without an ongoing delayed project, 9(14.8%) felt contractors employed qualified personnel whereas 8(13.1%) were of a contrary view. The study found out that majority of the respondents, 30(49.1%), both with and without an ongoing delayed project, felt that contractors did not employ qualified personnel, compared to

25(41.0%) of the respondents who were of the view that contractors employed qualified personnel. The findings indicated that contractors did not employ qualified personnel at sites and this contributed to delays in public sector building construction projects in Kisumu city.

The results suggest that the relationship between contractors employing qualified personnel at sites as a component of contractors capacities and delays in building construction projects (rho = .315*, p = .013) is statistically significant, and has a weak positive relationship. This finding is corroborated by Oraro (2012), who found out that there exists significant positive relationships between delays in project construction and lack of qualified manpower,

4.5.4 Contractors equipment and tools and project delays

Contractors are also mostly required to confirm equipment and tools they have to do works, at the time of bidding for a project. This assists assessment of their capacity to carry out a project. The study sought to find out whether contractors supply of equipment and tools to sites were adequate. Table 4.18summarizes the findings.

Table 4.18: Contractors' Equipment and Tools and Project Delays

Contractors timely deliver equipment and tools to sites	**Has ongoing delayed project**				**Total**	
	Yes		**No**			
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Strongly disagree	1	1.6	1	1.6	2	3.3
Disagree	21	34.4	4	6.6	25	41.0
Undecided	6	9.8	4	6.6	10	16.4
Agree	10	16.4	7	11.5	17	27.9
Strongly agree	5	8.2	2	3.3	7	11.5
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

The findings in Table 4.18 shows that from the respondents with ongoing delayed projects, 21(34.4%) of the respondents disagreed that contractors timely supplied equipment and tools to sites, while 10(16.4%) felt that contractors supplied equipment and tools to sites on time, 1(1.6%) of the respondents strongly disagreed, whereas 5(8.2%) strongly agreed, and 6(9.8%) of the respondents were undecided. The study found out that out of the 43(70.5%) respondents with at least an ongoing delayed project, majority 22(36.0%) of the respondents felt that contractors did not supply equipment and tools to sites on time leading to delays, whereas only 15(24.6%) held a contrary view.

On the respondents without an ongoing delayed project, 7(11.5%) of the respondents agreed that contractors timely supplied equipment and tools to sites on time whereas 4(6.6%) disagreed, 2(3.3%) of the respondents strongly agreed and 1(5.1%) of the respondents strongly disagreed, leaving 4(6.6%) of the respondents undecided. The respondents without an ongoing delayed project totaled to 18(29.5%), out of which 9(14.8%) felt that contractors supplied equipment and tools to sites on time and 5(8.2%) held a contrary view. In total, 25(41.0%) of the respondents, both with and without ongoing delayed projects were of the view that contractors did not supply equipment and tools to sites on time, which contributed to delays, whereas 17(27.9%) were of a contrary view.

The results of the study suggest that the relationship between timely adequate supply of equipment and tools to sites and delays in building construction projects (rho = .233, p =.068) is statistically significant, but a weak positive relationship. The above findings indicated that the supply of equipment and tools to sites for public sector building construction projects in Kisumu city were not adequate and this contributed to delays on the building construction projects. The findings are supported by Oraro (2012), who found out that there exist significant positive

relationships between delays in project construction and availability of construction tools and equipment, logistics and scheduling of construction activities, all under the control of the contractors.

4.5.5 Construction materials and project delays

In a full building construction contract, commonly employed in public sector building construction projects, the onus of delivery of materials to site rests with the contractor. The contractor determines which materials to deliver, at what times and in what quantities, with the view to execute works according to contracts. The study sought to find out whether contractors deliver sufficient materials to site on time, and, the study findings are illustrated in Table 4.19.

Table 4.19: Delivery of Construction Materials and Project Delays.

Contractors timely deliver sufficient materials to sites	**Has ongoing delayed project**				**Total**	
	Yes		**No**			
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Strongly disagree	3	4.9	0	0.0	3	4.9
Disagree	22	36.1	5	8.2	27	44.3
Undecided	4	6.6	4	6.6	8	13.1
Agree	8	13.1	6	9.8	14	23.0
Strongly agree	6	9.8	3	4.9	9	14.8
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

The findings in Table 4.19 shows that from the respondents with ongoing delayed projects, 22(36.1%) of the respondents disagreed that contractors timely delivered sufficient materials to sites, while 8(13.1%) felt that contractors delivered sufficient materials to sites on

time, 3(4.9%) of the respondents strongly disagreed, whereas 6(9.8%) strongly agreed, and 4(6.6%) of the respondents were undecided. The study found out that, out of the 43(70.5%) respondents with at least an ongoing delayed project, majority 25(41.0%) of the respondents felt that contractors did not deliver sufficient materials to sites on time leading to delays, whereas 14(22.9%) held a contrary view.

On the respondents without an ongoing delayed project, 6(9.8%) of the respondents agreed that contractors timely delivered sufficient materials to sites whereas 5(8.2%) disagreed, 3(4.9%) of the respondents strongly agreed and none of the respondents strongly disagreed, leaving 4(6.6%) of the respondents undecided. The respondents without an ongoing delayed project totaled to 18(29.5%), out of which 9(14.7%) felt that contractors delivered sufficient materials to sites on time and 5(8.2%) held a contrary view. In total, 27(44.3%) of the respondents, both with and without ongoing delayed projects were of the view that contractors did not deliver sufficient materials to sites on time, which contributed to delays, whereas 14(23.0%) were of a contrary view.

The study results suggest that the relationship between delivery of sufficient materials to sites on time as a component of contractors capacities and delays in public sector building construction projects in Kisumu city (rho = .312*, p =.013) is a weak positive relationship and statistically significant. Majority of the respondents 30(49.2%) felt that contractors did not deliver sufficient materials to site on time, and which lead to delays in public sector building construction projects in Kisumu city.

This finding is in line with Al-Moumani (2000) who while investigating the causes of delays on 130 public projects in Jordan, found out that the main causes of delay in construction of public projects related to late deliveries of materials among others. This assertion is reinforced

by Naief (2002) in attributing other causes of delay to improper management of materials, attributed to contractors who are hampered by lack of explicit and detail model of project materials management process. According to Ahmed *et al.* (2003) and Alaghbari (2005), possible factors causing delay in Malaysia, attributable to contractors are namely delay in delivery of materials to site and shortage of materials on site among others.

4.5.6 Contractors financial resources and project delays

In the public sector building construction industry, contractors execute works and then get paid by clients for work done. This requires that contractors mobilize resources, including but not limited to financial, for them to work first before payments are made. At the time of bidding, contractors are required to present their audited accounts and bank statements in order for assessment of their capacity to mobilize financial resources. The study sought to find out whether contractors were able to avail required financial resources for their projects. Table 4.20 summarizes the findings.

Table 4.20: Contractors Financial Resources and Project Delays.

Contractors able to avail financial resources	**Has ongoing delayed project**				**Total**	
	Yes		**No**			
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Strongly disagree	5	8.2	0	0.0	5	8.2
Disagree	20	32.8	8	13.1	28	45.9
Undecided	4	6.6	1	1.6	5	8.2
Agree	10	16.4	6	9.8	16	26.2
Strongly agree	4	6.6	3	4.9	7	11.5
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

Table 4.20 shows that, among respondents with ongoing delayed projects, 20(32.8%) were of the view that contractors were not able to raise required financial resources for projects, while 10(16.4%) of the respondents felt that the contractors were able to avail required financial resources, 5(8.2%) of the respondents strongly disagreed, whereas an even distribution of 4(6.6%) either strongly agreed or were undecided. Out of the 43(70.5%) respondents with at least an ongoing delayed project, 25(41.0%) of the respondents felt contractors were not able to avail required resources, whereas 14(23.0%) were of the view that the contractors were able to avail required financial resources for projects.

On the respondents without an ongoing delayed project, 8(13.1%) disagreed with the statement that contractors were able to avail required financial resources, while 6(9.8%) of the respondents agreed, 3(4.9%) of the respondents strongly agreed, whereas none strongly disagreed, leaving 1(1.6%) undecided. Out of the 18(29.5%) of the respondents without an ongoing delayed project, 9(14.7%) felt contractors were able to avail required financial resources whereas 8(13.1%) were of a contrary view. Majority of the respondents, 28(45.9%), both with and without an ongoing delayed project, disagreed that contractors were able to avail required financial resources for projects, leading to delays in public sector building construction projects in Kisumu city. A total of 16(26.2%) of the respondents felt that contractors were able to avail required financial resources.

The study established that the relationship between contractors ability to avail required financial resources for projects, as a component of contractors capacities and delays in public sector building construction projects (rho = .301*, p =.018) is a weak positive relationship, and is statistically significant. This finding indicated that the contractors' non-ability to avail required financial resources for projects influenced delays in public sector building construction projects

in Kisumu city. This finding is in agreement with Ahmed *et al.* (2003) and Alaghbari (2005), who stated that possible factors causing delay in Malaysia, attributable to contractors were namely financial problems among others.

4.6 Client related factors and project delays

Clients, for public sector building construction projects, are the direct users for the buildings once completed. They are thus a key party during the project cycle and their actions have bearing on works. Hence, the third research question of this study, derived from the third research objective, sought to explore the extent to which client related factors influence delays in public sector building construction projects in Kisumu City. In order to get answers to this research question, the study inquired from the respondents their perceptions on a number of issues, including whether clients made payments on time, clients introduced changes on site as work progresses, changes introduced altered the original scope by a large margin and on whether decision making by clients influenced delays in building construction projects.

4.6.1 Payments to contractors and project delays

In execution of public sector building construction projects, the contractor, upon executing works, is required to raise an application for payment they consider due, the project manager is to assess that application and certify amounts actually due in accordance with the contract. The payment certificate is delivered to the employer who are required to make payments directly to the contractors in the amounts stated in the payment certificates within periods stipulated in the contract. The study sought to establish whether clients made payments on time. The findings are presented in table 4.21.

Table 4.21: Payments to Contractors and Project Delays

Clients make timely payments	Has ongoing delayed project				Total	
	Yes		No			
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Strongly disagree	3	5.0	1	1.7	4	6.7
Disagree	19	31.7	9	15.0	28	46.7
Undecided	3	5.0	0	0.0	3	5.0
Agree	14	23.3	3	5.0	17	28.3
Strongly agree	4	6.7	4	6.7	8	13.3
Total	**43**	**71.7**	**17**	**28.3**	**60**	**100**

Table 4.21 shows that, among respondents with ongoing delayed projects, 19(31.7%) were of the view that clients did not make timely payments to contractors, while 14(23.3%) of the respondents felt that clients paid the contractors on time, 3(5.0%) of the respondents strongly disagreed, while 4(6.7%) strongly agreed that clients paid contractors on time whereas 3(5.0%) were undecided. Out of the 43(71.7%) respondents with at least an ongoing delayed project, 22(36.7%) of the respondents felt clients made timely payments to contractors, whereas 18(30.0%) were of a contrary view.

On the respondents without an ongoing delayed project, 9(15.0%) disagreed with the statement that clients paid contractors on time, while 3(5.0%) agreed, 1(1.7%) of the respondents strongly disagreed, 4(6.7%) of the respondents strongly agreed and none were undecided. Out of the 17(28.3%) of the respondents without an ongoing delayed project, 10(16.7%) felt clients paid the contractors on time whereas 7(11.7%) were of a contrary view. Thus, majority of the

respondents, 22(36.7%) and 10(16.7%), with and without an ongoing delayed project respectively, felt that clients did not make timely payments to contractors.

The study results suggest that there is a strong positive relationship between clients making payments to contractors on time, and delays in public sector building construction projects (rho = .711**, p =.000), and which is statistically significant. The findings indicated that the clients failed to make payments on time, and this contributed to delays in public sector building construction projects in Kisumu city.

Ahmed *et al*. (2003), states that the construction industry is large, volatile, and requires tremendous capital outlays. With the demand for tremendous capital outlay, it becomes comparable that contractors receive payments from clients as construction work progresses. According to Mansfield *et al.* (1994), some of the most important factors contributing to delay and cost overrun in construction projects in Nigeria, were financing and payment for completed works. Assaf *et al.* (1995) records that according to contractors, payments by owners was a factor causing delays in building projects in Saudi Arabia. Abd El-Razek, Bassioni, and Mobarak (2008) in a study on the causes of delays in building construction projects in Egypt found that among the most important causes of delay are delays in contractor's payment by owner and partial payments during construction.

4.6.2 Changes during construction and project delays

Public sector building construction projects in Kenya are implemented using the traditional procurement method where design and construction are separated. Under the construction part, a contractor enters into a contract agreement with the client to carry out the works. In the course of construction, clients may wish to introduce changes in the works. The

study sought to examine the respondents' perception regarding changes being introduced by clients on site, as work progresses. The results are presented in Table 4.22

Table 4.22: Changes during Construction and Project Delays

Clients introduce changes on site	**Has ongoing delayed project**				**Total**	
	Yes		**No**			
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Strongly disagree	0	0.0	1	1.6	1	1.6
Disagree	2	3.3	2	3.3	4	6.6
Undecided	4	6.6	2	3.3	6	9.8
Agree	25	41.0	10	16.4	35	57.4
Strongly agree	12	19.7	3	4.9	15	24.6
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

The findings in Table 4.22 shows that from the respondents with ongoing delayed projects, 25(41.0%) of the respondents felt that clients introduced changes on sites while 2(3.3%) of the respondents disagreed, 12(19.7%) of the respondents strongly agreed changes were introduced at sites, whereas none of the respondents strongly disagreed and 4(6.6%) were undecided. A total of 37(60.7%) respondents with ongoing delayed projects were of the view that clients introduced changes on sites, whereas 2(3.3%) held a contrary view. On the respondents without an ongoing delayed project, 10(16.4%) of the respondents agreed that clients introduced changes on sites while 2(3.3%) of the respondents disagreed, 3(4.9%) of the respondents strongly agreed and 1(1.6%) strongly disagreed, leaving a balance of 2(3.3%) of the respondents undecided. Majority of the respondents without an ongoing delayed project 13(21.3%) were of

the view that clients introduced changes on sites while 3(4.9%) held a contrary opinion. The findings show that 50(82.0%) of the respondents, both with and without an ongoing delayed project agreed that clients introduced changes on sites as work progressed while 5(8.2%) disagreed.

The results suggest that the relationship between clients introducing changes on site as work progresses and delays in public sector building construction projects (rho =.254*, p =.049) was statistically significant, although it is a weak positive relationship. The findings indicated that clients introduced changes on site as work progressed, and this contributed to delays in building construction projects.

The findings are supported by Ambituuni (2011), who states that a project needs its goals and scope to be defined, based on the client requirements and that it is not uncommon to have clients change their requirements after construction works begin. Ambituuni (2011), contends that delay and cost overrun in project could be as a result of scope change. Bramble and Callahan (2011) studied owner-, designer-, contractor-, and others-related delays in U.S.A, and concluded that change orders and interference were found to be owner-caused delays. Sweis *et al.* (2008) states that too many change orders from owners were among the major sources of project delays in Jordan.

4.6.3 Clients decision making and project delays

Clients, as a key player in a building construction project, have a number of roles to play including making decisions on their requirements among others. The study sought to establish whether decision making by clients influence delays in public sector building construction projects in Kisumu city. Table 4.23 summarizes the findings.

Table 4.23: Decision Making by Clients and Project Delays

Clients decision making influence delays	Has ongoing delayed project				Total	
	Yes		No			
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	30	49.2	11	18.0	41	67.2
No	13	21.3	7	11.5	20	32.8
Total	**43**	**70.5**	**18**	**29.5**	**61**	**100**

The findings in Table 4.23 shows that out of the 43(70.5%) of the respondents with ongoing delayed projects, 30(49.2%) felt that clients decision making influenced project delays, whereas 13(21.3%) of the respondents were of a contrary view. Out of the remaining 18(29.5%) respondents with no ongoing delayed project, 11(18.0%) of the respondents felt that clients decision making influence delays, whereas 7(11.5%) held a contrary view. A total of 41(67.2%) respondents felt that clients decision making influenced delays, whereas 20(32.8%) felt otherwise.

The results suggest that a moderate positive relationship exists between clients decision making and delays in public sector building construction projects (rho = .694**, p =.000), and which is statistically significant. The study findings indicated that decision making by clients influenced delays in public sector building construction projects in Kisumu city.

This finding is supported by Assaf *et al.* (1995) who studied the causes of delays in large building projects and their relative importance for Saudi Arabia construction projects, and outlined the causes of delays according to respective stakeholders. According to the study, architects and engineers attributes slow decision making process by owners of building projects,

as one of the major causes of delays in projects. Odeyinka and Yusif (1997) concurs with this, in their study on client-, contractor-, and consultant-caused delays in housing projects in Nigeria, by identifying slow decision-making as a client-related delay. Chan and Kumaraswamy (1997) conducted a survey to determine and evaluate the relative importance of the significant factors causing delays in Hong Kong construction projects, and recorded that slow speed of decision making involving all project teams was a major factor causing delays in Hong Kong construction projects. Odeh and Battaineh (2002) also conducted a survey aimed at identifying the most important causes of delays in construction projects with traditional type of contracts, which indicated slow decision making as an important causes of delays. Motaleb and Kishk (2010), in an investigation into causes and effects of construction delays in United Arab Emirates found, with regard to clients, that lack of capability of client representative, slow decision making by client, and lack of experience of client in construction are the most important causes of delay as ranked by the respondents.

4.7 Force majeure factors and project delays

Building construction projects are generally executed within an environment, whether in an enclosed surrounding or open area. The environment within which the project is being executed would thus influence the activities taking place. The fourth research question of this study was derived from the fourth research objective which sought to explore the extent to which force majeure factors influence delays in public sector building construction projects in Kisumu City. The study sought to establish whether factors external to a contract influenced delays in public sector building construction projects. The results are summarized in Table 4.24

Table 4.24: Factors External to Contract and Project Delays

Response	Frequency	Percent
Yes	46	74.2
No	12	19.3
Undecided	4	6.5
Total	62	100.0

The findings in Table 4.24 shows that 46(74.2%) of the respondents agreed that factors external to a contract influenced delays in building construction projects whereas 12(19.3%) of the respondents disagreed with this statement and 4(6.5%) were undecided. The results indicated that external factors to contract influenced delays in building construction projects. This finding agrees with Ahmed *et al.* (2003) and Alaghbari (2005), who attributes other sources of delays as being a result of external factors. These external factors comprises of lack of materials in the market; lack of equipment and tools in the market; poor weather conditions; poor site conditions (location, ground, etc.); poor economic conditions (currency, inflation rate, etc.); changes in laws and regulations; transportation delays; and external work due to public agencies (roads, utilities and public services).

4.7.1 Availability of materials and project delays

The study investigated whether materials were readily available and the results are presented in Table 4.25.

Table 4.25: Availability of Materials and Project Delays

Response	Frequency	Percent
Strongly disagree	9	14.5
Disagree	20	32.3
Undecided	7	11.3
Agree	19	30.6
Strongly agree	7	11.3
Total	62	100.0

Table 4.25 shows respondents views on whether materials were readily available, and, 20(32.3%) disagreed with this statement while 19(30.6%) of the respondents agreed, 7(11.3%) of the respondents strongly agreed, 9(14.5%) respondents strongly disagreed, whereas 7(11.3%) of the respondent were undecided. The findings indicated that materials were not readily available leading to delays in public sector building construction projects in Kisumu city.

The results suggest that a moderate positive relationship exists between availability of materials and delays in public sector building construction projects (rho = .434**, p =.001), and which is statistically significant. The finding is supported by Sambasivan and Soon (2007) who identified the most important causes of delay in Malaysian construction industry as, among others, shortage in material, labor supply and equipment availability.

4.7.2 Skilled labour and project delays

It is always the desire of project implementing teams to engage capable, qualified and reputable contractors in construction of public sector projects. The contractors, nonetheless, rely on labour available in the market. The study sought to establish availability of skilled labour in

the market and its influence on public sector building construction projects in Kisumu city. Table 4.26 summarizes the findings.

Table 4.26: Availability of Skilled Labour in the Market

Skilled labour is readily available	Frequency	Percent
Strongly disagree	3	4.8
Disagree	20	32.3
Undecided	5	8.1
Agree	26	41.9
Strongly agree	8	12.9
Total	62	100.0

Table 4.26 shows respondents views on whether skilled labour was readily available, where 20(32.3%) disagreed with while 26(41.9%) respondents agreed, 8(12.9%) strongly agreed, and 3(4.8%) of the respondents strongly disagreed leaving 5(8.1%) respondents undecided. The results suggest that there exists a moderate positive relationship between availability of skilled labour, as a component of force majeure factors influence and delays in public sector building construction projects (rho = .458**, p =.000), and which is statistically significant. The results show a moderate positive relationship. Majority of the respondents, 34(54.8%) nonetheless were of the view that skilled labour was readily available, and hence this was not a cause for delays in public sector building construction projects in Kisumu city. This study finding is contrary to Ahmed *et al.* (2003) and Alaghbari (2005), who found out that possible factors causing delay in Malaysia, includes shortage of site labour among others.

4.7.3 Unskilled labour and project delays

Building construction work require human resources of all levels. During construction, unskilled labour is required to support and work with the skilled personnel. Contractors, mostly, rely on market where the projects are located, for the unskilled labour force. The study sought to establish availability of unskilled labour in the market and its influence on public sector building construction projects in Kisumu city. Table 4.27 summarizes the findings.

Table 4.27: Unskilled Labour and Project Delays

Response	Frequency	Percent
Strongly disagree	4	6.4
Disagree	5	8.1
Undecided	7	11.3
Agree	34	54.8
Strongly agree	12	19.4
Total	62	100.0

Table 4.27 shows that out of 62 respondents who participated in the study, 5(8.1%) disagreed with the statement that unskilled labour was readily available, while 34(54.8%) of the respondents agreed, 12(19.4%) respondents strongly agreed and 4(6.4%) of the respondents strongly disagreed leaving a distribution of 7(11.3%) of the respondents undecided. The results suggest that the relationship between availability of unskilled labour in the market, and delays in public sector building construction projects (rho = .347**, p =.008) is statistically significant, but however, is a weak positive relationship. The findings indicated that un-skilled labour was readily available, hence did not contribute to delays in public sector building construction

projects in Kisumu city. The findings is, however, in contrary to Sambasivan and Soon (2007) who identified the most important causes of delay in Malaysian construction industry as, among others, shortage in labor supply, similar to Ahmed *et al.* (2003) and Alaghbari (2005).

4.7.4 Inclement weather and project delays

Building construction projects are generally executed within an environment, whether in an enclosed surrounding or open area. The study sought to establish whether inclement weather conditions affecting public sector building construction projects in Kisumu city, occur frequently. Table 4.28 summarizes the findings.

Table 4.28: Inclement Weather and Project Delays

Response	Frequency	Percent
Strongly disagree	4	6.4
Disagree	29	46.8
Undecided	11	17.8
Agree	10	16.1
Strongly agree	8	12.9
Total	62	100.0

The findings in Table 4.28 shows respondents views on whether poor weather conditions affecting projects occur frequently, and, 29(46.8%) disagreed with this statement while 10(16.1%) of the respondents agreed, 8(12.9%) of the respondents strongly agreed, whereas 4(6.4%) of the respondents strongly disagreed, leaving 11(17.8%) of the respondents undecided. The results suggest that the relationship between frequent occurrences of poor weather conditions affecting projects as a component of force majeure factors and delays in public sector

building construction projects (rho = -.102, p =.444) is a weak negative relationship. The findings indicated that poor weather conditions affecting projects did not occur frequently, thus not delaying public sector building construction projects in Kisumu city.

This finding is contrary to Bordoli and Baldwin (1998) who examined the causes of delays in building projects in the United States of America and found weather and labour supply to be among the major causes of delays. Al-Momani (2000) investigated causes of delay in 130 public projects in Jordan and found that main causes of delay were related to weather.

4.7.5 Economic conditions (rates of interest) and project delays

Construction industry is large, volatile and requires tremendous capital outlay to execute works. It is not un-common for contractors to source for funding from financial institutions. Such funding are issued to the contractors under certain terms and are paid back with interests. The study investigated whether prevailing economic conditions, including rates of interests, are ideal for construction, and their relationship with delays in public sector building construction projects in Kisumu city. The results are presented in table 4.29.

Table 4.29: Economic Conditions and Project Delays

Response	Frequency	Percent
Strongly disagree	4	6.4
Disagree	23	37.1
Undecided	13	21.0
Agree	16	25.8
Strongly agree	6	9.7
Total	62	100.0

The findings in Table 4.29 shows respondents views on whether prevailing economic conditions (rates of interests) are ideal for construction, and, 23(37.1%) disagreed with this statement while 16(25.8%) of the respondents agreed, 6(9.7%) of the respondents strongly agreed, whereas 4(6.4%) of the respondents strongly disagreed, leaving 13(21%) of the respondents undecided. The results suggest that the relationship between prevailing economic conditions (rates of interests) being ideal for construction as a component of majeure factors, and influence on delays in public sector building construction projects (rho = .096, p =.472) is statistically significant, but however a weak positive relationship. The findings indicated that prevailing economic conditions (rates of interests) were not ideal for construction therefore contributing to delays in public sector building construction projects in Kisumu city.

This is consistent with the findings of Motaleb and Kishk (2010) who identified financial factors including inflation, prices fluctuation and high interest rate as external factors contributing to delays in UAE. Al-Momani (2000) investigated causes of delay in 130 public projects in Jordan and found that main causes of delay were related to economic conditions among other causes.

4.7.6 Changes in laws and regulations, and project delays

Building construction industry is a regulated sector requiring parties to adhere to the prevailing laws and regulations applicable to the industry. It follows therefore that any changes to the industry's regulations or laws will impact on a project. The study sought to investigate whether there were frequent changes in the laws and regulations for the building construction industry, and their influence in delays of public sector building construction projects in Kisumu city. The results are presented in Table 4.30.

Table 4.30: Changes in laws and regulations and project delays

Response	Frequency	Percent
Strongly disagree	7	11.3
Disagree	23	37.1
Undecided	10	16.1
Agree	17	27.4
Strongly agree	5	8.1
Total	62	100.0

The findings in Table 4.30 shows respondents views on whether frequent changes in building construction laws and regulations affected construction. Out of the 62 respondents, 23(37.1%) disagreed with this statement while 17(27.4%) of the respondents agreed, 5(8.1%) of the respondents strongly agreed, whereas 7(11.3%) of the respondents strongly disagreed, and 10(12%) respondents were undecided. The results suggest that the relationship between frequent changes in laws and regulations affecting construction as a component of force majeure factors and influence in delays of public sector building construction projects (rho =.008, p =.950) is statistically significant, but a weak positive relationship. Majority of the respondents, 30(48.4%) however felt that changes in the building laws or regulations were not frequent hence not contributing to delays in public sector building construction projects in Kisumu city. This is contrary to Saudi Arabia where Al-Khalil and Al-Ghafly (1999), found out that government regulations were important causes of delay in Saudi Arabia.

4.7.7 Regulatory approvals and project delays

Building construction projects in Kenya require approvals by statutory bodies key among them National Environmental Management Authority and the National Construction Authority among others. The study sought to investigate whether regulatory approvals delays public sector building construction projects in Kisumu city. The results are presented in Table 4.31.

Table 4.31: Regulatory approvals and project delays

Response	Frequency	Percent
Strongly disagree	3	4.8
Disagree	11	17.8
Undecided	10	16.1
Agree	28	45.2
Strongly agree	10	16.1
Total	62	100.0

The findings in Table 4.31 shows respondents views on whether regulatory approvals delays projects. Out of 62 respondents, 11(17.8%) disagreed with this statement while 28(45.2%) of the respondents agreed, 10(16.1%) of the respondents strongly agreed, leaving a distribution of 3(4.8%) of the respondents who strongly disagreed whereas 10(16.1%) of the respondent were undecided. The results suggest that the relationship between regulatory approvals as a component of force majeure factors and delays in public sector building construction projects (rho =.242, p =.000) is a weak positive relationship and statistically significant. The findings indicated that regulatory approvals delays public sector building construction projects in Kisumu city.

4.7.8 Construction labour disputes and project delays

Every building construction project involves various stakeholders comprising of clients, project management teams and contractors, each with their specific roles, responsibilities and interests. It is possible for parties to disagree giving rise to disputes. The study sought to establish whether construction disputes are common, and their influence in delays of public sector building construction projects in Kisumu city. The results are presented in Table 4.32.

Table 4.32: Construction Labour Disputes and Project Delays

Response	Frequency	Percent
Strongly disagree	3	4.8
Disagree	28	45.2
Undecided	7	11.3
Agree	19	30.6
Strongly agree	5	8.1
Total	62	100.0

Table 4.32 shows respondents views on whether construction disputes are common, and, out of the 62 respondents who participated in the study, 28(45.2%) disagreed with this statement while 19(30.6%) respondents agreed, 5(8.1%) respondents strongly agreed, 3(4.8%) respondents strongly disagreed while 7(11.3%) of the respondents were undecided. Majority of the respondents 31(50.0%) were of the opinion that construction disputes were not common in public sector building construction projects in Kisumu city. The findings were not in tandem with the findings of Odeyinka and Yusif (1997), who found labour dispute and strikes to be extraneous factors responsible for delays, in their study on the causes and effects of construction

delays on completion cost of housing projects in Nigeria, similar to findings of a study by Bramble and Callahan (2011), on construction delays in USA.

4.7.9 Political environment and project delays

Public sector building construction projects are subjected to all manner of forces prevailing in a given location where the project is situated. The study sought to establish whether political environment was favorable for construction, and the results are presented in Table 4.33.

Table 4.33: Political Environment and Project Delays

Response	Frequency	Percent
Strongly disagree	7	11.3
Disagree	28	45.2
Undecided	6	9.7
Agree	20	32.3
Strongly agree	1	1.6
Total	62	100.0

The findings in table 4.33 shows respondents views on whether political environment was favorable for construction. Out of the 62 respondents, 28(45.2%) disagreed with this statement while 20(32.3%) of the respondents agreed, 1(1.6%) of the respondents strongly agreed, and this left a distribution of 7(11.3%) of the respondents who strongly disagreed while 6(9.7%) of the respondent were undecided. The findings indicated that political environment was not favorable for construction thereby causing delays in public sector building construction projects in Kisumu city. The findings are supported by, Alinaitwe *et al*. (2013) in Uganda, who found out that political insecurity and instability, were among the five most important causes of delays in construction projects.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents discussions of the findings based on the objectives of the study, and leads into varying conclusions and a number of recommendations. The chapter further summarizes the study's contribution to the body of knowledge and gives suggestions for further research.

5.2 Summary of findings

The first objective of the study sought to assess the extent to which project management teams' capacities influence delays in public sector building construction projects in Kisumu City. The study revealed that Project Management Team members Capacities influenced delays in public sector building construction projects, as attested to by 42(70%) out of 62 respondents who participated in the study. The study reviewed various components of project management team members' capacities in order to establish to what extent this influence was. To this end, the study established that project management teams had adequate number of members and therefore, with regard to the numbers, project management teams' capacities were adequate. Out of the 62 respondents, 24(39.3%) agreed that project management teams had adequate members while 11(18.0%) strongly agreed. Thus majority 35(57.3%) of the respondents attested that the numbers were adequate. Hence, project management teams did not contribute to delays in public sector building construction projects as a result of their numbers.

The study established that poor supervision was associated with delays in public sector building construction projects in Kisumu city, with 23(39.0%) of the respondents disagreeing that projects are adequately supervised and 8(13.6%) strongly disagreeing. To this extent, the

majority 31(52.6%) attested that project management teams capacities contributed to delays in public sector building construction projects in Kisumu city. The study also established that project documentation was mostly completed before the work started and therefore could not be a cause of delay in public sector building construction projects in Kisumu city. It further established that delays in public sector building construction projects were influenced by non-availability of the project team members. Insufficient instruction given to contractors further aggravated the scenario leading to delays experienced in public sector building construction projects. It was equally established that project management teams did not give timely advice to clients, leading to the delays experienced in public sector building construction projects.

The second objective sought to establish to what extent capacities of contractors influenced delays in public sector building construction projects in Kisumu City. The study established that capacities of contractors did influence delays in public sector building construction projects in Kisumu city. This was attested to by 45(73.8%) out of the 62 respondents who participated in the study. The study examined components of contractors' capacities and established that contractors did not have clear organizational structures to help minimize delays. To this extent, contractors contributed to delays in public sector building construction projects in Kisumu city. Equally, the study established that the contractors neither had adequate personnel, nor did they employ qualified personnel at sites and, this contributed to delays in completion of public sector building construction projects in Kisumu city. The study further established that contractors did not supply adequate equipment and tools to sites on time. This equally contributed to delays in completion of public sector building construction projects in Kisumu city. The study established that insufficient materials were delivered to sites by contractors leading to delays in completion of public sector building construction projects in

Kisumu city. Contractors were further unable to avail required financial resources for projects, and which contributed to delays in completion of public sector building construction projects in Kisumu city.

The Third objective sought to assess the extent to which client related factors influence delays in public sector building construction projects in Kisumu City. The results suggest that the relationship between payments by the clients for work done and delays in public sector building construction projects (rho = 711**, p =.000) was a strong positive relationship and statistically significant. The study established that clients did not make payments to contractors on time, and this contributed to delays in completion of public sector building construction projects in Kisumu city. It further established that clients introduced changes on site as work progressed, which equally contributed to delays in completion of public sector building construction projects in Kisumu city. The study further indicated that the changes introduced altered the original work scope by a large margin, again leading to delays in building construction projects. Further it was established that decision making by clients influenced delays in completion of public sector building construction projects in Kisumu city.

The fourth objective sought to examine the extent to which force majeure factors influence delays in public sector building construction projects in Kisumu City. The results suggest that the relationship between poor weather conditions as a force majeure factor and delays in completion of public sector building construction projects in Kisumu city (rho = -.102, p =.444) was unrelated. The findings indicated that inclement weather conditions, which could affect projects did not occur frequently, thus delays in completion of public sector building construction projects in Kisumu city are not attributable to inclement weather. The study established that external factors influencing delays in completion of public sector building

construction projects in Kisumu city, included materials not being readily available in the market. However, the study established that both skilled and unskilled labour were readily available, hence were not among the factors contributing to delays in public sector building construction projects in Kisumu city. Prevailing economic conditions (rates of interests) were not ideal for construction therefore delaying public sector building construction projects in Kisumu city. The study established that building construction laws and regulations did not change frequently hence were not contributing to delays in public sector building construction projects in Kisumu city. While the study established that regulatory approvals delayed project construction, disputes within public sector building construction projects were not common. However, political environment was established not to be favorable for construction therefore contributing to delays in completion of public sector building construction projects in Kisumu city.

5.3 Conclusions

The main aim of this study was to establish determinants of delay in public sector building construction projects in Kisumu city, Kenya. The study concluded that project management teams' capacities does influence delays in public sector building construction projects in Kisumu City. There was thus need to enhance capacities of the project management team members to minimize delays in completion of projects.

On the second objective, the study concluded that capacities of contractors engaged in public sector building construction in Kisumu city were low. There was need to review assessment of the contractors at evaluation stage to ensure contractors awarded contracts had capacity to execute works.

On the third objective, the study concluded that consultants and clients liaise closely during documentation of projects for clients' desires to be fully accommodated so that changes during construction are minimized, if not eliminated. Clients are also to ensure funding for their projects were assured prior to commencement of works.

The fourth objective sought to examine the extent to which force majeure factors influence delays in public sector building construction projects in Kisumu City. The study concluded that, there was need for a risk assessment, evaluation and mitigation structure put in place to cushion force majeure factors.

5.4 Recommendations

In line with the first objective the researcher recommended that project management teams undergo continuous professional development trainings to enhance their capacities to manage projects.

The study recommended on the second objective that, effective ways must be designed to verify the list of staff produced by contractors in support of their application for contracts and that these key staff positions are continually filled by the staff named in their applications or technically competent individuals.

The study recommended on the third objective that, construction clients must ensure that funds are available or adequate arrangements for funds are made before projects are started.

The study recommended on the fourth objective that, a proper risk assessment must be done in order to mitigate on force majeure factors.

5.5 Suggestions for further research

The study suggests research on deployment of the use of information technology communication in mitigation against delays in public sector building construction projects in Kisumu city.

REFERENCES

Abd El-Razek, M.E., Bassioni, H.A., & Mobarak, A.M. (2008). Causes of delays in building construction projects in Egypt. *Journal of Construction Engineering and Management, 134 (11),* pp. 831-841.

African Building. (2014). The Challenges of the Construction industry in Kenya: Delays in construction projects. Retrieved online from https://www.africanbuilding.com on 3rd February, 2014.

Ahmed, S. M., Azhar, S., Kappagantula, P., & Gollapudi, D. (2003). Delays in construction: A brief study of the Florida Construction Industry. *Associated Schools of Construction Proc., 39th Annual Conference, Clemson University, Clemson, S.C.,* pp. 257–266.

Akhwaba J. K. (2011). *Determinants of delay on completion of Constituency Development Fund financed classrooms in public schools in Butere Constituency, Kenya*: Masters Thesis. University of Nairobi. Unpublished.

Alaghbari, W.A.M. (2005). *Factors affecting construction speed of industrialized building systems in Malaysia*: Masters Thesis. University Putra Malaysia, Serdang.

Alinaitwe H., Apolot, R., & Tindiwensi, D. (2013). Investigation into the Causes of Delays and Cost Overruns in Uganda's Public Sector Construction Projects. *Journal of Construction in Developing Countries, 18 (2),* pp. 33–47.

Al-Khalil, M., & Al-Ghafly, M. (1999). Important causes of delay in public utility projects in Saudi Arabia. *Journal of Construction Management Economics, 17(5),* pp. 647–655.

Al-Kharashi A. and Skitmore M. (2009). Causes of delays in Saudi Arabian public sector construction projects. *Construction Management and Economics Journal, 27(1),* pp.3-23.

Al-Moumani, H.A. (2000). Construction delay: a quantitative analysis. *International Journal of Project Management, 18,* pp. 51-59.

Ambituuni, A., (2011). *Five causes of Project delay and cost overrun, and their mitigation measures:* Masters Thesis. The Robert Gordon University (Unpublished).

Amer, W. H. (1994). *Analysis and evaluation of delays in construction projects in Egypt*. Masters Thesis. Zagazig University, Zagazig, Egypt. (Unpublished).

American Management Association, (2013). Why Projects Fail, Seminar on Project Team Leadership. Assessed at http://www.amanet.org on 2nd February, 2014.

Architects and Quantity Surveyors Act, Cap. 525 Laws of Kenya (1978). Nairobi, Kenya: Government Printer.

Assaf, S.A., Al-Khalil, M., & Al-Hazmi, M. (1995). Causes of delay in large building construction projects. *Journal of Management in Engineering, ASCE, 11(2),* pp. 45-50.

Assaf, S.A., & Al-Hejji, S. (2006). Causes of delay in large construction projects. *International Journal of Project Management 24(11),* pp. 349–357.

Atout, M. M. (2013). Contractors Project Managers contributions to the delays in projects of construction industry in gulf region. *International Academic Research Journal of Business and Management, 2(7),* pp.10-19

Bland, D. (2013). Brazil's PAC Infrastructure Project delays a major headache laments Rousseff. *Business News America.* Accessed from website hppts://www.bnamericas.com on 3rd February, 2014.

Bordoli, D.W., & Baldwin, A.N. (1998). A methodology for assessing construction project delays. *Journal of Construction Management Engineering 16 (3),* pp. 327–337.

Bramble, B.B., & Callahan, M. (1992). *Construction Delay Claims*. USA: John Wiley & Sons Inc.

Bramble, B. B., & Callahan, M. T. (2011). *Construction delay claims*. 4th edition. US: Aspen Publishers.

Calleam Consulting Ltd. (2014). Why Projects Fail, accessed online at http://www.calleam.com on 19th February, 2014.

Carlos, T. PMP. (2014). Reasons Why Projects Fail, accessed at http://www.projectsmart.co.uk on 2nd February, 2014.

Chan, D.W.M., & Kumaraswamy, M.M. (1997). A comparative study of causes of time overruns in Hong Kong construction projects. *International Journal of Project Management, 15(1),* pp. 55-63.

Construction Industry Development Board Malaysia (CIDB). (2009). *Integration of the construction industry through partnering – the Malaysian initiative*. Part 2: Theme paper of the 15th Asia Construct Conference, Kuala Lumpur, Malaysia.

Cooper, R. D., & Schindler, S. P. (2008). *Business Research Methods*. New York, USA: Mc Graw Hill.

Deming, W.E. (1994). *The New Economics: for industry, government, education*. 2nd Edition, Cambridge, Massachusetts: Masechusetts Institute of Technology, Centre for advanced educational services.

Dettmer, H.W. (1997). *Goldratts' Theory of Constraints: A Systems approach to continuous improvement.* Wisconsin, USA: Quality Press, Milwaukee.

Elder, A. (2006). *The Five Diseases of Project Management*. No Limits Leadership, Inc. Accessed online at http://www.nolimitsleadership.com.

Franco N. and Queiroz A. (2014). *Over $12.6 bi lost after infrastructure works delayed in Brazil*. Web page accessed on 7th November, 2014 at http://agenciabrasil.ebc.com.br/en/economia/noticia/2014-05/over-126-bi-lost-after-infrastructure-works-delayed-brazil.

Goldratt, E.M. (1990). *What is this thing called Theory of Knowledge and how should it be implemented?* New York: North River Press.

Joshi, M. (2009). *80 per cent of Malaysian government projects delayed, minister says.* Webpage accessed on 3rd February, 2014 at: http://www.topnews.in/80-cent-malaysiangovernment-projects-delayed-minister-says-2173299.

Kafuna, J. K. (2011). *Factors influencing performance of Infrastructural projects in Kenya: A case of Ministry of Public Works*. Masters Thesis. University of Nairobi. Unpublished.

Kerlinger, F. N. (1973). *Foundations of Behavioral Research* (2nd Edition). New Delhi: Surjet Publications.

Kikwasi, G.J. (2012). Causes and effects of delays and disruptions in construction projects in Tanzania. *Australasian Journal of Construction Economics and Building, Conference Series, 1(2),* pp. 52-59

Kothari, C.R. (2004). *Research Methodology: Methods and Techniques*. Second Edition, India: New age international (P) Ltd.

KPMG and PMI (2013). Study on project schedule and cost overruns. India

Mansfield, N.R., Ugwu, O.O., & Doran, T. (1994). Causes of delay and cost overruns in Nigerian construction projects. *International Journal of Project Management, 12(4),* pp. 254-260.

Manzoor, A. F., & Pheng, L.S. (2006). Effective Management of Contract Variations using a Knowledge Based Decision Support System, Centre of Education in the Built Environment. Cardiff University: Retrieved from www.cebe.ac.uk/publications/workpapers on 09/02/2014.

Marzouk, M.M., & El-Rasas, T.I. (2014). Analyzing delay causes in Egyptian construction projects. *Journal of Advanced Research, 5*, pp. 49-55.

Ministry of Devolution and Planning (2013). Republic of Kenya Economic Survey 2013. Nairobi: Kenya National Bureau of Statistics.

Ministry of Finance (2012). Republic of Kenya Budget statement for the Fiscal Year 2012/2013.

Ministry of State for National Treasury (2013). Republic of Kenya Budget statement for the Fiscal Year 2013/2014.

Ministry of State for Planning, National Development and Vision 2030 (2012). Republic of Kenya Economic Survey 2012. Nairobi: Kenya National Bureau of Statistics.

Motaleb, O., & Kishk, M. (2010). An investigation into causes and effects of construction delays in United Arab Emirates (UAE). *Procs 26th Annual Association of Researchers in Construction Management Conference, 6-8 September 2010, Leeds, UK*, pp. 1149-1157.

Mugenda, O. M., & Mugenda, A. G. (2003). *Research Methods: Quantitative and Qualitative Approaches.* Nairobi, Kenya: Acts Press.

Mwagesha, M. (2014). Buyers feel the pinch as mega estates delay. *The Standard newspaper*. Thursday 23rd January, 2014.

Nachmias C. F. & Nachmias D. (1996). *Research Methods in the Social Sciences.* (5th Ed.), New York: St. Martin's Press, Inc.

Naief, M. (2002). A Comparative Evaluation of Construction and Manufacturing Material Management. *International Journal of project management, 20,* pp 263-267.

Neef, D., Siesfeld, G.A., & Cefola, J. (1998). *The Economic Impact of knowledge*. USA: Butterworth-Heinemann.

Neelankavil, J.P. (2007). International Business Research. New York, USA: M.E. Sharpe, Inc.

Odeh A. M., & Battaineh, H.T. (2002). Causes of construction delay: traditional contracts. *International Journal of Project Management, 20*, pp. 67 - 73.

Odeyinka, H.A., & Yusif, A. (1997). The causes and effects of construction delays on completion cost of housing project in Nigeria. *Journal of Financial Management Property Construction 2(3)* pp. 31–44.

Okeyo, M. P. (2011). *Effects of contractual delay on completion of Sondu-Miriu Hydropower project.* Masters Thesis. University of Nairobi. Unpublished.

Oraro, E. J. (2012). *Determinants of delays in construction of community water projects in Rachuonyo district, a case of GOK UNICEF WASH Programme*. Masters Thesis. University of Nairobi. Unpublished.

Republic of Kenya (1985). *Government financial regulations and procedures*. Nairobi, Kenya: The Government printer.

Sambasivan, M., & Soon, Y. W. (2007). Causes and Effects of delays in Malaysian construction industry. *International Journal of Project Management, 25(5),* pp. 517-526.

Sekaran, U. (2006). *Research Methods for Business; A skill Building Approach*, (4th Ed), U.K: Wiley.

Sweis, G., Sweis, R., Hammad, A. A., & Shboul, A. (2008). Delays in construction projects: the case of Jordan. *International Journal of Project Management, 26(6),* pp. 665-674.

Tatu City (2014). About Tatu City. Retrieved online from website https://www.tatucity.com on 3rd February, 2014.

West, C. K. (2014). Four Common Reasons Why Projects fail. V.P. Project Insight. Assessed at http://www.projectinsight.net on 2nd February, 2014.

APPENDICES

APPENDIX I – LETTER OF TRANSMITTAL

P. O. Box 821 – 40100,
Kisumu, KENYA.
Date……..

Dear Respondent,

RE: REQUEST FOR PARTICIPATION IN A RESEARCH STUDY

I am a student at the University of Nairobi currently pursuing a Masters of Arts degree in Project Planning and Management. As part of my studies, I am conducting an academic research on **Determinants of Delays in Public Sector Building Construction Projects in Kisumu City.**

I wish to request you to participate in the study by giving information regarding the topic of the study, through answering the questions in the attached questionnaire, and returning the same to the above address as soon as possible, but within two weeks for my analysis. Kindly note that the information given will be used purely for academic purposes and will not be used for any other purposes. The information given will be treated with confidentiality and under no circumstances will your name be mentioned or quoted anywhere during the course of this study or in the final report.

Thank you.
Yours Sincerely,

Oliver Omondi Okello
Student Researcher
University of Nairobi.

APPENDIX II - QUESTIONNAIRE

DETERMINANTS OF DELAY IN PUBLIC SECTOR BUILDING CONSTRUCTION PROJECTS IN KISUMU CITY, KENYA

Research conducted with the authorization of the University of Nairobi, School of Continuing and Distance Education.

(Please tick responses as appropriate, where explanation is required kindly be concise.)

PART A. Demographic Questionnaire

1. What is your age bracket? 18-20 ☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ Above 50 ☐
2. Gender: Male ☐ Female ☐
3. Which part do you play in building construction project?
   Consultant ☐ Contractor ☐ Client ☐
4. Do you have training in any field in the building construction industry? Yes ☐ No ☐
5. If yes, what is your level of training?
   Degree ☐ Diploma ☐ Certificate ☐ Other ☐
6. How many years have you been engaged in project implementations?
   Less than 5 years ☐ 5-10 years ☐ 11-15 years ☐
   16-20 years ☐ 21 years or more ☐
7. Do you think you are adequately skilled for your role in project implementation?
   Yes ☐ No ☐
   In what way……
8. Do you have an ongoing delayed building construction project? Yes ☐ No ☐
   If yes, how many? (state number)……
9. How many building construction projects are you engaged in? (state number)……..

PART B. Determinants of delays in building construction projects

Section 1 Project Management Teams' Capacities

1. Do you think project management teams' capacities influence delays in building construction projects? Yes ☐ No ☐
   If yes, then in what way?.....
   ……

2. The table below provides determinants of project management teams' capacities that influence delay in building construction projects. Please rate them as per your evaluation by ticking in the appropriate box corresponding with your opinion.

No.	Determinants	5	4	3	2	1
		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	Project Management teams have adequate experience					
2	Project Management teams have adequate members					
3	Projects are supervised adequately					
4	Project documentations mostly complete when work starts					
5	Project team members handle a lot of projects at the same time					
6	Project team members always available when required					
7	Project team members give timely instructions to contractors					
8	Project team members give timely advice to clients					

Section 2 Capacities of Contractor

1. Do you think capacities of contractors influence delays in building construction projects?
   Yes ☐ No ☐
   If yes, then in what way?.....

2. The table below provides determinants of contractor's capacities that influence delay in building construction projects. Please rate them as per your evaluation by ticking in the appropriate box corresponding with your opinion.

No.	Determinants	5	4	3	2	1
		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	Contractor has clear organizational structures to minimize delays					
2	Contractor has adequate personnel					
3	Contractors employ qualified personnel at sites					
4	Contractors personnel at sites are experienced					
5	Supply of equipment and tools to sites is adequate					
6	Sufficient materials delivered to sites on time					
7	Contractor able to avail required financial resources for project					

Section 3 Clients Actions

1. By ticking in the provided boxes, rate the extent to which, in your view, the listed determinants attributable to the clients influence delays in building construction projects.

No.	Determinants	5	4	3	2	1
		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	Clients make payments on time					
2	Payments are made regularly					
3	Total amounts certified are paid at once					
4	Clients take decisions quickly					
5	Clients decisions go through stages for approval					
6	Clients introduce changes on site as work progresses					
7	Changes are introduced frequently as work continues on site					
8	Changes introduced alters the original scope by a large margin					

2. Do you think timeliness of payments to contractors influence delays in building construction projects? Yes ☐ No ☐

   If yes, then in what way?.....

   ……

3. Do you think decision making by clients influence delays in building construction projects?

   Yes ☐ No ☐

   If yes, then in what way?.....

   ……

4. Do you think changes made by clients to their requirements during construction period, influence delays in building construction projects?

   Yes ☐ No ☐

   If yes, then in what way?.....

   ……

Section 4 Force majeure Determinants

1. Do you think factors external to a contract influence delays in building construction projects?
   Yes ☐ No ☐

2. By ticking in the provided boxes, rate the extent to which, in your view, the listed external determinants influence delays in building construction projects in Kisumu City.

No.	Determinants	5	4	3	2	1
		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	Materials are readily available					
2	Construction equipment and tools are readily available					
3	Skilled labour is available					
4	Un-skilled labour is available					
5	Poor weather conditions affecting projects occur frequently					
6	Projects are located where soil conditions are good					
7	Prevailing economic conditions (rates of interests) are ideal for construction					
8	Prices of materials fluctuate					
9	There are frequent changes in laws and regulations thus affecting construction					
10	Regulatory approvals delay projects					
11	Construction labour disputes are common					
12	Political environment favourable for construction					

Thank you for your cooperation.

APPENDIX III- LETTER OF INTRODUCTION

UNIVERSITY OF NAIROBI
COLLEGE OF EDUCATION AND EXTERNAL STUDIES
SCHOOL OF CONTINUING AND DISTANCE EDUCATION
KISUMU CAMPUS

Our Ref: UON/CEES/KSM/4/13

Your Ref:

Telephone: 057-2021534 Ext. 28626

University of Nairobi Plaza
Oginga Odinga Street,
P.O. Box 825,
KISUMU, Kenya.

12TH November, 2014

TO WHOM IT MAY CONCERN

RE: OKELLO OLIVER OMONDI-REG NO. L50/62207/2013

This is to confirm to you that the above named **Okello Oliver Omondi** is a student of the University of Nairobi, College of Education and External Studies, School of Continuing and Distance Education undertaking Masters in Project Planning and Management in Kisumu Campus and he has successfully completed his course work and examinations as required.

In partial fulfilment of the requirements for the Masters in Project Planning and Management, **Oliver** is undertaking research for his Masters Project. We therefore request you to allow him access the data/information he may need for the purpose of his study. Any assistance, information or data collected is needed for academic purposes only and will therefore be treated in strict confidence.

We would appreciate any assistance that may be given to him to enable him carry out the study.

Thank you.

UNIVERSITY OF NAIROBI
12 NOV 2014
TEL: 057-2021534
KISUMU CAMPUS

Dr. Raphael O. Nyonje, PhD
RESIDENT LECTURER
KISUMU CAMPUS

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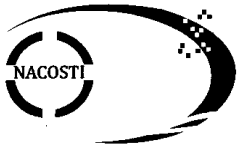
APPENDIX IV- LETTER FROM NACOSTI



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:

19th January, 2015

NACOSTI/P/14/2285/4289

Oliver Omondi Okello
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Determinants of delay in Public Sector Building Construction Projects in Kisumu City, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Kisumu County** for a period ending **16th March, 2015.**

You are advised to report **the County Commissioner and the County Director of Education, Kisumu County** before embarking on the research project.

On completion of the research, you are required to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. S. K. LANGAT, OGW
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kisumu County.

The County Director of Education
Kisumu County.

APPENDIX V- RESEARCH CLEARANCE PERMIT

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 4021

CONDITIONS: see back page

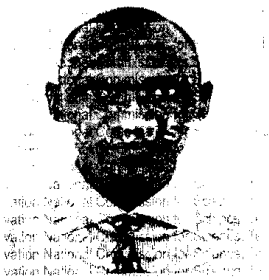
THIS IS TO CERTIFY THAT:
MR. OLIVER OMONDI OKELLO
of UNIVERSITY OF NAIROBI, 0-40100 Kisumu,has been permitted to conduct research in *Kakamega , Kisumu Counties*

on the topic: *DETERMINANTS OF DELAY IN PUBLIC SECTOR BUILDING CONSTRUCTION PROJECTS IN KISUMU CITY, KENYA*

for the period ending:
16th March,2015

.....
Applicant's Signature

Permit No : NACOSTI/P/14/2285/4289
Date Of Issue : 19th January,2015
Fee Recieved :Ksh 1,000



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for Secretary
National Commission for Science, Technology & Innovation

APPENDIX VI- CORRELATION DATA

Components of project management teams' capacities and project delays

			Project Management Team Capacity influence delays in building construction projects
Spearman's rho	Project Management Team Capacity influence delays in building construction projects	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	61
	project management team have adequate experience	Correlation Coefficient	-.152
		Sig. (2-tailed)	.242
		N	61
	project management team have adequate members	Correlation Coefficient	.135
		Sig. (2-tailed)	.299
		N	61
	project are supervised adequately	Correlation Coefficient	.247
		Sig. (2-tailed)	.059
		N	59
	project documentations mostly complete when work starts	Correlation Coefficient	.023
		Sig. (2-tailed)	.858
		N	61
	project team members handle a lot of projects at the same time	Correlation Coefficient	-.292*
		Sig. (2-tailed)	.022
		N	61
	project team members always available when required	Correlation Coefficient	.219
		Sig. (2-tailed)	.090
		N	61
	project team members give timely instructions to contractors	Correlation Coefficient	.096
		Sig. (2-tailed)	.460
		N	61
	project team members give timely advice to clients	Correlation Coefficient	.103
		Sig. (2-tailed)	.428
		N	61

Components of contractors' capacities and project delays

			contractors capacities influence delays in building construction projects
Spearman's rho	contractors capacities influence delays in building construction projects	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	62
	contractors has clear organizational structures to minimize delays	Correlation Coefficient	-.162
		Sig. (2-tailed)	.209
		N	62
	contractors has adequate personnel	Correlation Coefficient	.295*
		Sig. (2-tailed)	.022
		N	60
	contractors employ qualified personnel at sites	Correlation Coefficient	.315*
		Sig. (2-tailed)	.013
		N	62
	contractors personnel at sites are experienced	Correlation Coefficient	.273*
		Sig. (2-tailed)	.032
		N	62
	supply of equipment and tools to sites on time	Correlation Coefficient	.233
		Sig. (2-tailed)	.068
		N	62
	sufficient materials delivered to sites on time	Correlation Coefficient	.312*
		Sig. (2-tailed)	.013
		N	62
	contractor able to avail required financial resources for project	Correlation Coefficient	.301*
		Sig. (2-tailed)	.018
		N	62

*. Correlation is significant at the 0.05 level (2-tailed).

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

Components of force majeure factors and project delays

			Force majeure factors influence project delays
Spearman's rho	external factors to contract influence delays in building construction projects	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	59
	materials are readily available	Correlation Coefficient	.434**
		Sig. (2-tailed)	.001
		N	58
	construction equipment and tools are readily available	Correlation Coefficient	.427**
		Sig. (2-tailed)	.001
		N	58
	skilled labour is available	Correlation Coefficient	.271*
		Sig. (2-tailed)	.039
		N	58
	unskilled labour is available	Correlation Coefficient	.153
		Sig. (2-tailed)	.260
		N	56
	poor weather conditions affecting projects occur frequently	Correlation Coefficient	-.009
		Sig. (2-tailed)	.949
		N	57
	projects are located where soil conditions are good	Correlation Coefficient	.449**
		Sig. (2-tailed)	.000
		N	57
	prevailing economic conditions(rates of interests) are ideal for construction	Correlation Coefficient	.141
		Sig. (2-tailed)	.296
		N	57
	price of materials fluctuate	Correlation Coefficient	-.161
		Sig. (2-tailed)	.227
		N	58
	there are frequent changes in laws and regulations thus affecting construction	Correlation Coefficient	-.137
		Sig. (2-tailed)	.306
		N	58
	regulatory approvals delays projects	Correlation Coefficient	.015
		Sig. (2-tailed)	.914
		N	56
	construction labour disputes are common	Correlation Coefficient	-.131
		Sig. (2-tailed)	.323
		N	59
	political environment favourable for construction	Correlation Coefficient	.050
		Sig. (2-tailed)	.705
		N	59

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).