PROCUREMENT MANAGEMENT AND PERFORMANCE OF CONSTRUCTION PROJECTS IN UGANDA: A CASE STUDY OF NATIONAL HOUSING AND CONSTRUCTION COMPANY LIMITED (NHCCL)

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DECLARATION

I, **Harriet Okedi,** do hereby declare that the contents in this dissertation are original and have never been submitted to any institution of higher learning for any award.

Signed:

_____ Date:

APPROVAL

This dissertation is submitted to Uganda Management Institute for examination with our approval as supervisors.

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DEDICATION

This piece of work is dedicated to the Almighty God for his mercy, guidance and protection for seeing me through this programme successfully.

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I am deeply indebted to all those individuals who in one way or another contributed to the success of this study.

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LIST OF ABBREVIATIONS

D&B	Design and Build
JIT	Just In Time
KPI'S	Key Performance Indicators
MOFPED	Ministry of Finance Planning and Economic Development
NEDO	National Economic Development Office
NEF I	Naalya Executive Flats I
NEF II	Naalya Executive Flats II
NHCA	National Housing Corporation Act
NHCC	National Housing and Construction Company
NHCCL	National Housing and Construction Company Limited
OCP	Overall Performance Contractors model
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PPDA	Public Procurement and Disposal Authority
SBD	Standard Bidding Document
SMEs	Small Medium Enterprises
TPS	Traditional Procurement System

ABSTRACT

The study assessed how Procurement Management contributed to the Performance of Construction Projects in Uganda, the case study of National Housing and Construction Company Limited. The research objectives were; To Establish the Relationship between Procurement Planning and the Performance of Construction Project in NHCCL; To Establish the Relationship between Supplier Selection and the Performance of Construction Project in NHCCL; To Assess the Role of Contract Administration in Facilitating the Performance of Construction Projects in NHCCL and to Find out the Moderator Effect of the Procurement Legal Framework on Procurement Management and the Performance of Construction Project in NHCCL. A case study research design was used. Data was collected using questionnaires and interview guide from a sampled size of 166 respondents, from a targeted population of 183 individuals. The study established a positive, strong relationship between Procurement Planning and Performance, between Supplier Selection and Performance, and between Contract Administration and Performance. However, without The Procurement Legal Framework, the relationship between Procurement Planning, Supplier selection and Contract Administration with Performance would be weakened. The study recommends an improvement in Procurement Planning, through industrial training of procurement officers and the follow up of the consolidated procurement plan. The researcher recommends an improvement in Supplier Selection through monitoring suppliers' cash flow, mentoring and development activities, general and operating management training and through capacity building. Contract Administration should be improved through the adoption of best practices, introduction of project management skills and identifying risk mitigating factors. The researcher further recommends the use of sensitization programmes, to create awareness of the importance and role of The Procurement Legal Framework.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

The study was an investigation into the contribution of procurement management to the performance of construction projects in Uganda, a case study of National Housing and Construction Company Limited. This chapter presented the background to the study, statement of the problem, purpose of the study, research objectives, research questions, research hypothesis, conceptual background, significance of the study, scope of the study and operational definition of terms and concepts.

1.1 Background to the Study

1.1.1 Historical Background

Public procurement according to Thai (2004) had a long history written on a red clay tablet, found in Syria, the earliest procurement order dates from between 2400 and 2800 Before Christ. The order was for "50 jars of fragrant smooth oil for 600 small weights in grain". Other evidence of historical procurement includes the development of the silk trade between China and a Greek colony in 800 Before Christ.

In the United States of America, it was not until the late 1800s that state legislatures began to create boards or bureaus responsible for purchasing, but central purchasing was hardly a practice at that time in 1810. Oklahoma was the first state government to create a board that was charged to centrally procure for all state departments and agencies. The sheer magnitude of the public procurement

dollar expenditure outlay had a dramatic impact on the economy and thus needed to be well managed. Indeed, in all countries in the world estimates of the financial activities of government procurement managers are believed to be approximately 10%- 30% of Gross National Product. Thai (2004).

In the African region, the Malawian government with the support from the World Bank is currently reforming its procurement system to achieve an open, non-discriminatory and competitive procurement system so that the government departments and ministries can obtain needed goods, works and services in a timely and effective manner Gwaza, (2008).

Public procurement in Uganda had also undergone tremendous changes. Until 1990, the Central Tender Board was the main overseer of the public procurement process; however the economic and technological development made procurement complex Kiraso, (2005). In 1990 the government set up the Directorate of Central Purchasing with the responsibility to procure goods, services and works at the fairest prices and to carry out the procurement function expeditiously, which due to weakness of the law and the system, eventually lead to the implementation of key procurement reforms leading to the set up of the PPDA Act and Regulations 2003, with the objectives of ensuring fair procurement and disposal standards and practices, setting standards, monitoring compliance and building procurement capacity Kiraso ,(2005).

1.1.2 Theoretical Background

From a theoretical point of view, project management is about managing work and decomposing the total work effort into smaller chunks of work, which are called activities and tasks Kerzner et al, (2006). These activities and tasks are the unit of analysis in the core processes of project management, like scope management, time management, and cost management, and that their management and control is centralized.

Understanding of management is based on three theories: management-as-planning, the dispatching model and the thermostat model. In management-as-planning, which this study was based on, management at the operations level was seen to consist of the creation, revision and implementation of plans Koskela et al (2002) The planning processes are structured into ten core processes: scope planning, scope definition, activity definition, resource planning, activity sequencing, activity duration estimating, cost estimating, and schedule development, cost budgeting and project plan development. The outputs from these processes, the project plans, make up an input to the executing processes.

This approach to management views a strong causal connection between the actions of management i.e. procurement management and outcomes of the organization i.e. construction project performance. By assuming that translating a plan into action is the simple process of issuing “orders”, it takes plan production to be essentially synonymous with action Koskela et al, (2002). It is the task of managers to transform the inputs in an efficient and effective way, into outputs

using the managerial function of planning, organizing, staffing, leading and controlling, within the specified time allotted, Choudhury, (2000).

Extensive studies on management have resulted into a number of management theories Mullins, (2007). Fredrick Taylor is acknowledged as the father of scientific management because of his famous work entitled, Principles of Scientific Management (1911). His studies concentrate on the efficient use of time in the workplace. Taylor performed his first "time" studies in a machine shop and found out that the controlling factor in determining how much work a worker could do, was the percentage of time the worker was under load or resting and the length and frequency of resting periods. According to the scientific management movement of Fredrick Taylor, time particularly the avoidance of delays was among the main preoccupation of construction managers and the one most common problem.

Another important pioneer of the scientific management movement was Frank Bunker Gilbreth (1885), who was interested in one best way of carrying out a given task. The principle aim of construction managers was to achieve the right design or task under the right budget and schedule specifications rather than challenge it and search for higher levels of performance, Santos et al, (2002). These theorists evolved to form the production management theory

Thirdly, the administrative theorists were concerned with the efficiency of administrative processes through systems' co-ordination and endeavored to establish certain principles of good management. Fayol emphasized the role of

management to include all activities that occur in business organizations which he grouped as technical which is involved with production and manufacturing; commercial as the buying, selling and exchange of goods, services and works; financial concerned with obtaining and using capital; security concerned with protection of people and property; accounting is concerned with stock taking, costing, statistics and the balanced sheet and managerial is concerned with planning/organizing/commanding/ coordinating and controlling.

Fayol concluded that these activities are independent and it is the role of management to ensure the six activities work smoothly to achieve the goals of the enterprise. In construction, work is released by an administrative act, planning. In this sense, construction is directive driven and so measuring and improving planning system performance is the key to improving work flow reliability Koskela et al, (2002).

In order to appreciate procurement management in NHCCL and its contribution to the performance of construction projects, there was need to consider it in relation to other systems in NHCCL such as finance, commercial, legal, internal audit, human resource, and operations. All these functions in NHCCL mentioned above operate under the legal, economic, social and technological local and international environment, bringing together the necessary factors of production i.e. capital, materials, equipment and manpower and maintaining them to enable the business continue. Procurement plays a very vital role in the performance of construction projects and the supply chain of any organization and particularly in NHCCL.

This study was guided by the project management theory of planning, the scientific theorists of Fredrick Taylor and Frank Bunker Gilbreth under the production management theory and the administrative theorist of Henri Fayol, assisted by the procurement model or methods shown below.

The traditional procurement methods as shown in Table 1 are the Linear, and the Design and Build Models and are currently the dominant forms of procurement for construction activity in New Zealand Kaupape, (2008). The Linear Model is the long-standing method of procuring goods and services, with the D&B Model being a variation of it. The D&B Model can result in shorter project time frames than the Linear Model. The key difference is the point in time at which a tendering process is carried out. In the Linear Model it is after the project design has been completed, in the D&B Model it is before the design is done.

The Management Model has been more used recently for large, complex, individually designed projects (usually involving innovation). All three Models use tendering processes to choose contractors, with the main driver usually being cost, and in most cases the lowest bid will be the successful bid. Alliancing, Partnering or Joint Venture Models are new approaches to procurement that are being adopted by construction industries around the world. The key difference from the Traditional Procurement Models is that contracts in the newer forms of procurement are negotiated rather than competitively tendered for, Kaupape (2008).

The proposed construction models informed the study on the types of contracts that are used by NHCCL in the delivery of constructions services using their housing project approach. These models were relevant in guiding identification of the possible source of projects performance in terms of time, quality and costs.

Table 1: Summary of Procurement Models

Linear model	Design and build	Management model	Alliancing/joint venture models	Parameters
Longer timeframes due to linear steps	Can reduce timeframes as not sequential	Can reduce timeframes as not sequential	Flexible process to suit different projects	Time frame
Tender completed after project design	Tender covers design and build	Can be multiple tendering processes for various aspects of the work	Contracts negotiated rather than tendered	Tender Coverage
Greater control over design stage	Less control over detailed design as this can take place during construction	Good control over design phase as well as some ability to overlap design and construction	All parties can influence design and construction process	Control Levels and Quality
Contract sum largely determined before full construction starts	Contract sum more definitely determined before full construction starts	No certainty over costs at outset, and risk in terms of time	Cost reductions can be achieved by principals accepting greater share of risks, "open book" approach to cost disclosure	Contract Sum / Cost

Adopted from Te Tari Kaupape Whare (2008)

1.1.3 Conceptual Background

This study was based on Procurement Management as the independent variable with the dimensions consisting of Procurement Planning, Supplier Selection and Contract Administration Thai, (2004). The dependent variable was Construction Project Performance, consisting of Time, Quality and Cost as the dimensions

Kerzner et al, (2006). Procurement Legal Framework was the moderating variable.

Leslie and Lioyd, (1992) defined management as a form of work that involved coordinating an organizations resources – land, labor and capital towards accomplishing NHCCL vision of enhancing household wealth and living standards through a strong procurement system in order to ensure the performance of construction projects. It involved designing an effective operating system that would operate efficiently and dealt with the aggregate production planning that satisfied demand requirements while minimizing the cost of workforce and inventory fluctuations.

Procurement management is the process of obtaining goods, services or works in any way including borrowing, leasing and even force or pillage or theft. Procurement has two focal points; determination of the right content of the particular procurement in terms of product scope and quality and the selection of the right source in terms of price, time and other conditions of supply Kovacs, (2004).

Procurement planning involved the transformation of the organization's mission goals and objectives into measurable activities to be used to plan, budget, and manage the procurement function within the organization. Procurement planning occurs across functional units and activities by extending the value chain /supply chain management concepts to include procurement strategies that encompass the

estimation of the budget resources and anticipated expenditures and requirements determination, Thai, (2004).

Supplier selection phase focused on specification and methods of source selection as the indicators. This enables the public entity to fulfill its needs in a timely manner and at a reasonable cost, through a coordinated and integrated effort, by acquiring the right material and services in the right quantity, for delivery at the right time and to the right place, from the right source, with the right service and at the right price Baily et al, (2005).

Specification of the requirement meant a clear explanation of the desired product scope and quality. When selecting the source of supplies, the procuring entity should make sure that the final evaluation is based on credible promises of the candidate winner. Source selection required a variety of offers to choose from, that is why content, structure and quality of the solicitation documents are so important Kovacs,(2004). According to Monezka et al, (2002) the final step in the evaluation and selection process was to select the supplier(s), and is one of the most important activities.

Contract Administration focused on the achievement of three goals of quality products or services, delivery on time, and within budget, by assessing contract risk, quality assurance and contract termination to avoid delays in performance, disputes and appeals, Lysons and Farrington , (2006).

According to Baily et al (2005:3-4) the objective of procurement was to acquire the right quality of material, at the right time, in the right quantity, from the right source, at the right price. The author argued that in order to work effectively, the procurement function serves the organization with a flow of materials and services to meet its needs; ensure continuity of supply by maintaining effective relationships with the existing source and by developing other sources of supply either as alternatives to meet emerging or planned needs; to buy efficiently and wisely, obtaining by an ethical means the best value for every pound spent; to maintain sound cooperative relationships with other departments; to provide information and advice as necessary, to ensure the effective operation of the organization as a whole; to develop staff policies, procedures and organization to ensure the achievement of this objectives.

Project performance measures have tended to use the traditional diamond triangle which includes three dimensions of time, costs and quality Meredith & Mantel, (2000). The same criterion was used to measure construction projects performance.

Time refers to the duration and speed of delivering the service or product. Tasks needed to produce the deliverable are documented in a work breakdown structure. Tasks are prioritized, dependencies between tasks are identified which can affect the length of the overall project as can the availability of resources. Retrieved October 30, 2009, from Project Management Wikipedia. The Free Encyclopedia http://en.wikipedia,org/wiki/Project_management. It was scheduled to enable the product or service to be used by a date determined by the client's plans. According

to Chan & Chan, (2004), in the construction industry there are three formulae under the "time" category, namely construction time, speed of construction and time variation.

According to Chan & Chan (2004), quality is another criterion that is repeatedly cited by previous researchers. However, the assessment of quality is rather subjective. In the construction industry, quality is defined as the totality of features required by a product or services to satisfy a given need. The amount of time put into individual tasks determines the overall quality of the project. Some tasks may require a given amount of time to complete adequately, but given more time could be completed exceptionally.

Over the course of a large project, quality can have a significant impact on time and cost or vice versa, Retrieved October 30, 2009, from http://en.wikipedia,org/wiki/Project_management. Nowadays, quality is the guarantee of the products that convinces the customers or the end-users to purchase or use. It is the fitness for purpose and is measured by the *defects* i.e. the number of defects on similar projects and *Clients' satisfaction on quality* is one way to measure quality, and can be measured subjectively (Xiao et al, 2002).

Cost according to Chan and Chan (2004) is defined as the degree to which the general conditions promote the completion of a project within the estimated budget. Cost is not only confined to the tender sum, it is the overall cost that a project incurs from inception to completion, which includes any costs arising from variations, modification during construction period and the cost arising from the

legal claims, such as litigation and arbitration. Cost can be measured in terms of *construction cost*, which is the unit price for the project, and *cost certainty*, which is the probability to finish the project on budget Xiao et al, (2002).

1.1.4 Contextual Background

National Housing Construction Company Limited is a Ugandan public enterprise that was established by the National Housing Corporation Act of 1964. The Act was later repealed by the 1974 Decree to form NHCC. In July 2002, the Corporation became a Public Limited liability company known as NHCCL. The company's mandate is to increase the housing stock in the country, rehabilitate the housing industry and encourage Ugandans to own homes in an organized environment.

NHCCL recognizes the importance of the procurement function in delivering its corporate objectives and in realizing the company's competitive advantage. NHCCL has a procurement strategic plan which states that the procurement of goods, works and services is of strategic importance because it; has a direct impact on overall spend, savings, value for money and the cost of service provision to the company; directly affects the speed and quality of constructed products; contributes to the achievement of corporate, departmental and service objectives; provides a mechanism for delivering key policy objectives, including sustainability; operates within a complex regulatory framework that must be adhered to; carries potential high risk, with impact on service, financial performance, level of strategic fulfillment and on the reputation of the company.

The procurement strategic plan unfolded in three broad thrusts as follows,

a) In the short term, the procurement function will focus on ensuring maximum leverage, reduce leakage and minimize transaction costs for routine indirect goods and services.
b) In the medium term, NHCCL shall seek to deepen relationship with suppliers. A focus shall be placed on raising the quality of inward logistics, introduce web-based reverse auctions and encourage NHCCL suppliers to have access to a secure part of the NHCCL website designed to enable order and payment processing.
c) In the long term, with all these systems adequately developed and tested, NHCCL can begin working towards JIT delivery.

The execution of the projects has been slow and the company exceeded most of the scheduled completion dates on projects. In the annual performance reports to the board the management of NHCCL had consistently noted a failure to achieve the expected project performance mostly with respect to time. Project timeframe achievement has equally affected the costs of the projects. The management noted that many construction projects recorded an increased time variation, costs and compromise on quality due to the capacity of the procurement staff, the huge number of projects, complicated projects, and the nature of the contract e.g. use of sub-contractors NHCCL Strategic Plan, (2005).

Selected Performance of Naalya Exclusive Flats (NEF I and NEF II) Projects

Table 2: NEF I Project Performance (40 Flats) 2004-2007

	Project Time	**Project costs (billions of shilling)**	**Expected customer satisfactions level ***
Planned	37 months	2,957	99.9997%
Actual	41 months	3,500	80%
Variance	4 months	543	19.9997%

Table 3: NEF II Project Performance (32 Flats) 2006-2008

	Project Time	**Project costs (billions of shilling)**	**Expected customer satisfactions level ***
Planned	14 months	2,628	99.9997%
Actual	26 months	3,059	90%
Variance	12 months	431	9.9997%

**Customer satisfaction level derived from the number of customer complaints.*

Source: *Project Development Unit - NHCCL*

The site engineers and project managers attributed the variations to the procurement process to deliver the required materials and services to project sites which had not been functioning well due to incomplete construction details. The engineers spent much of their time in the procurement of materials and follow up of suppliers and material orders, thus reducing the time for construction, supervision and management. Payment of suppliers sometimes delayed and most business suppliers built the cost of delayed payment into the product price NHCCL projects evaluation reports, (2008).

It should however be noted that customer complaints do not entirely reflect customer dissatisfaction, but because customers define quality and expect performance, therefore NHCCL recognized the Voice of the Customer in its

vision of quality and used six sigma basics, the voice of the customer and criticality to quality, that is. 99.9997% perfection.

1.2 Statement of the Problem

The management of NHCCL acknowledged the strategic role of the procurement function in the performance of their construction projects. NHCCL as a government Procuring and Disposal Entity has a well-established and functional procurement unit charged with responsibility of managing the procurement of goods, works and services. The procurement function in NHCCL has a strong focus on ensuring maximum leverage; reduce leakages and minimization of transaction cost for routine indirect goods and services.

NHCCL procurement unit had undertaken to deepen relationships with suppliers especially those providing construction material, through focusing on the quality of inward logistics to achieve the planned project performance in terms of quality, cost and time. Despite the establishment of the procurement unit, the focus of the unit and efforts to build relationships with suppliers, construction project performance and customer satisfaction have been low. This could be due to procurement management issues.

The failure to achieve the expected performance as shown by table 2, consequently strained the merger resources of NHCCL and ultimately customer satisfaction. The site engineers and project managers attributed the variations to the need to fulfill the procurement legal and company policy provisions, as stated in the NHCCL procurement manual, which is compliant with the PPDA Act 2003.

The study therefore assessed the relationship between Procurement Management and the Performance of Construction Projects in NHCCL.

1.3 Purpose of the Study

The purpose of the study was to assess how Procurement Management contributed to the Performance of Construction Projects in Uganda, the case study of National Housing and Construction Company Limited.

1.4 Research Objectives

The study was guided by the following objectives:

1. To establish the relationship between Procurement Planning and the performance of Construction Projects in NHCCL
2. To establish the relationship between Supplier Selection and the Performance of Construction Projects in NHCCL
3. To assess the role of Contract Administration in facilitating the Performance of Construction Projects in NHCCL
4. To find out the moderator effect of the Procurement Legal Framework on Procurement Management and the Performance of Construction Project in NHCCL

1.5 Research Questions

The study answered the following research questions:

1. What is the relationship between Procurement Planning and the performance of Construction Projects in NHCCL?

2. Is there relationship between Supplier Selection and the Performance of Construction Projects in NHCCL?
3. What is the role of Contract Administration in facilitating the Performance of Construction Projects in NHCCL?
4. What moderator effect does the Procurement Legal Framework have on Procurement Management and the Performance of Construction Projects in NHCCL?

1.6 Hypotheses of the Study

The following hypotheses were tested during the study:

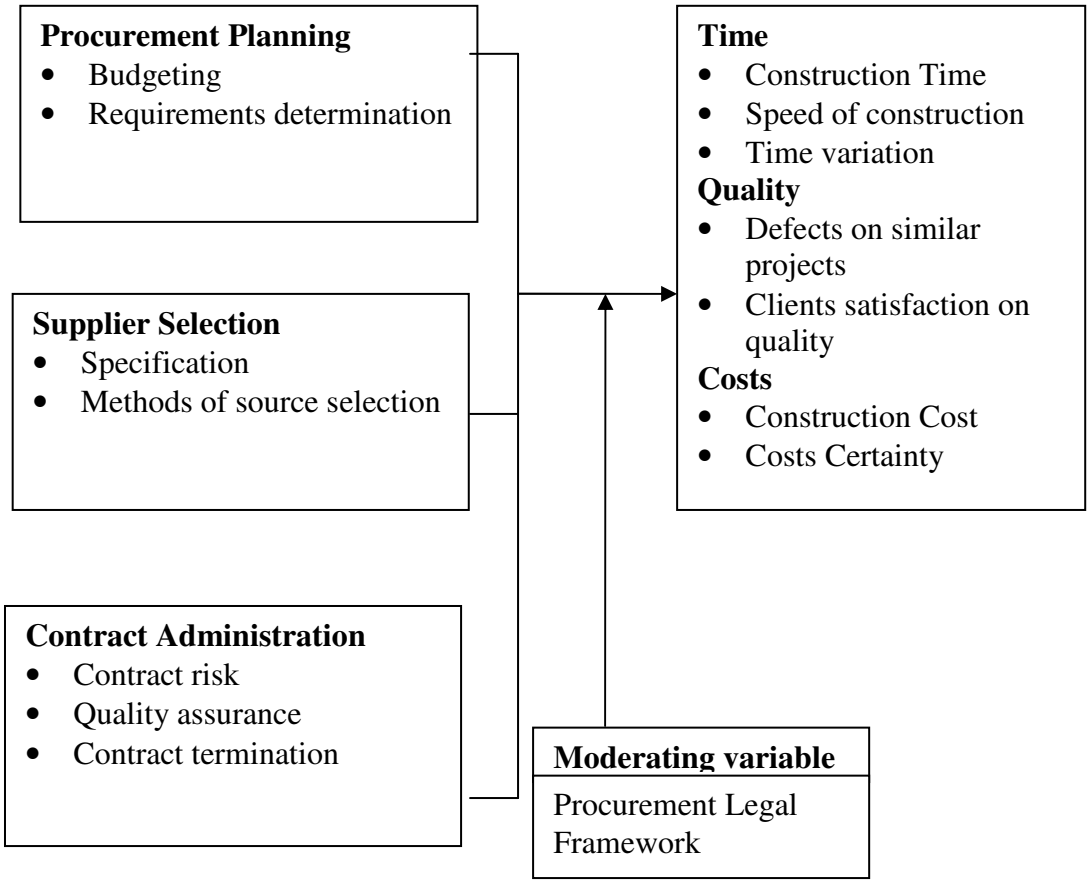
1. There is a significant relationship between Procurement Planning and the performance of Construction Projects in NHCCL.
2. There is a significant relationship between Supplier Selection and the performance of Construction Projects in NHCCL.
3. Contract Administration plays a significant role in the Performance of Construction Projects in NHCCL.
4. The Procurement Legal Framework has a significant moderator effect on Procurement Management and the Performance of Construction Projects in NHCCL

1.7 Conceptual Framework showing the relationship between Procurement Management and Construction Project Performance in NHCCL.

Figure 1: Conceptual Framework

Independent Variable
Procurement Management

Dependent Variable
Construction Project Performance in NHCCL.



Source: Adapted from Thai, 2004; Meredith, Mantel, 2000; Chan, Chan, 2004 and Xiao et al, 2002; PPDA Act and Regulations 2003.

The model shows that the procurement function through procurement planning, supplier selection and contract administration leads to the performance of construction projects. The study was based on the assumption that project success

depends on Procurement Management, because any project is only as good as it is used. Due to the limited time available, this study focused on, Procurement Planning, Supplier Selection and Contract Administration, as the dimensions.

Procurement Planning identified Budgeting and Requirements Determination as the indicators. The end user originates the requirements for the provision of goods or services and also the source of funding through budgetary allocations. There can be no good procurement budget without a plan, and there can be no procurement without a budget to fund it, Thai, (2004).

Under Supplier Selection the indicators included Specification and Methods of source selection. It is here that the key mission of the procurement profession is maximized to acquire the right materials and services in the right quantity, for delivery at the time and to the right place, from the right source, with the right service, and at the right price, Thai, (2004).

Contract Administration involved, Contract Risk, Quality Assurance and Contract Termination as the indicators, Thai, (2004). There is continuous interaction with the supplier that extends far beyond the simple satisfaction of a requirement. Contract performance must be monitored and controlled, problems must be properly documented and resolved, and supplier relationships need to be managed.

Construction Project Performance was measured in terms of Time, Quality and Cost (Chan and Chan, 2006; Meredith and Mantel, 2000 and Xiao et al, 2002). Quality in construction is directly related to time and cost, and vice-versa. A poor

quality managed project can result in extra cost and time extensions, a poor time and cost controlled project can affect the conformance of requirements, which is quality.

The moderating variable focused on the Procurement Legal Framework, which included the PPDA Act of 2003. The laws put in place the regulatory provisions that is, to achieve value for money. In order to achieve project success in terms of Time, Quality and Cost, Procurement Management had to incorporate the laws of the PPDA Act and Regulations 2003.

1.8 Significance of the Study

This study is significant in that it may enable document the procurement function in NHCCL and how it affects the performance of construction projects. This would enable the management of NHCCL appreciate the strategic role of procurement in ensuring project performance and to the project managers by providing helpful information that is necessary for the achievement of successful construction projects.

Similarly, the study recommended what the management of NHCCL can adopt to improve on its procurement for effective project performance. It also helped to set a benchmark for measuring the performance of a project.

Lastly, the study provided a basis for future policy formulation, future research and be a reference for future scholars to investigate further on the role of

procurement management in the performance of construction projects by filling in the knowledge gap.

1.9 Justification for the Study

The construction industry has of late developed a lot of problems which lead to the collapse of buildings, loss of life, jobs and property. This study is of importance because the researcher suspected that procurement was not considered of valuable time. The pattern of not prioritizing procurement within a project and having to deal with downstream consequences e.g. poor specifications can doom a project to delays (time), budget overruns (cost) and poor workmanship (quality).

The study helped fill the knowledge gap of emphasizing the importance of procurement in project success. First, if one wants to have outstanding performance, one must know what the definition of success is in order to make correct measures to achieve this goal. Without a general agreement on how to measure success, project managers will manage their resources by nothing more than their perceiving intuition. It can also enhance clients', contractors', and designers' understanding of running a successful project and set a base for them to improve their performance.

1.10 Scope of the Study

Content Scope

The study was limited to Procurement Management with emphasis on Procurement Planning, Supplier Selection and Contract Administration, which made up the independent variable. Construction Project Performance was based

on the triple constraint of Time, Quality and Cost and were the dependent variable. The moderating variable was the Procurement Legal Framework.

Geographical Scope

The study was carried out at NHCCL in Kampala, Uganda, focusing on the NEF I NEF II.

Time Scope

The study investigated how procurement management contributes to the performance of construction projects covering the period February 2004 to November 2008; because this is the period NEF I & NEF II were constructed.

1.11 Operational Definition of Terms and Concepts

Success - can be defined as the set of principles or standards by which favorable outcomes can be completed within a set specification and is used interchangeable with performance.

Client- this term is used to refer to the current occupants or residents of NEF I & NEF II

1.12 Limitations of the Study

The first limitation was the difficulty getting information from respondents because of their busy schedules and the complaint from the respondents that the questions were too many, that caused the researcher to re-distribute the questionnaires to the employees of NHCCL, because the first batch of questionnaires was not answered.

Secondly locating the contractors was also a big problem because the ones NHCCL used to construct NEF I & II had relocated to other construction sites and were not readily available.

Thirdly the residents of NEF I & II are working class and therefore not readily available to provide feedback to the questions asked. This has contributed tremendously to the delay of the project. However, these limitations did not affect the results as the researcher was able to cover 93.7% of the respondents through the use of both interviews and questionnaires. .

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presented a theoretical review, the actual literature review on Procurement Management and the Performance of Construction Projects. This is followed by a presentation of related literature on Supplier Selection and the Performance of Construction Projects; Contract Administration and the Performance of Construction Projects; the Procurement Legal Framework and lastly the Summary of the Literature Review

The main objective of this chapter was to review the literature related to Procurement Management and the Performance of Construction Projects. Saunders, Lewis and Thornhill (2000), gave two reasons for literature review, the first was the preliminary search which helps one to generate and refine your research ideas, and calls it the Delphi technique.

Secondly, was the critical review, which is part of the research project. This critical review of the literature is necessary because project assessment criteria usually requires one to demonstrate awareness of the current state of knowledge in your subject, its limitations and how your research fits in this wider context, because “knowledge doesn’t exist in a vacuum, and your work only has value in relation to other people’s” Saunders, Lewis and Thornhill, (2000, pg 42). The literature review formed the foundation on which the research was built, and it developed a good understanding and insight into relevant previous research and the trends that have emerged

2.1 Theoretical Review

2.1.1 Project Management Theory – Theory of Planning

Project management theory was developed alongside with the systems theory by the Tavistock Institute in the 1950s, due to the idea of differentiation and the management by task Yiu, (2008). Project management, and indeed all production, has three kinds of goals. Firstly, the goal of getting intended products produced in general. Secondly, internal goals, such as cost minimization and level of utilization. Thirdly, the external goals related to the needs of the customer, like quality, dependability and flexibility. Koskela and Howell (2002).

The theory of planning (project planning) is a very critical stage during the project life cycle, since if planning is faulty; a proper execution following the approved plan will end with a faulty project. Studies have identified planning as one of the critical success factors in a project. Thus, high-quality planning increases the chances that the project will be properly executed and completed Zwikael and Globerson, (2006), by decomposing the total work effort into smaller chunks of work, called activities and tasks by minimizing the costs of each task independently.

According to Koskela and Howell, (2002) in a construction environment there are multiple resource inputs or conditions that need to be satisfied simultaneously for a task to be able to be started and completed. Fearne and Fowler, (2006) suggested therefore that the proper planning of these tasks and activities will contribute to the performance of construction projects. This is in support of the NHCCL institutional and operational framework where procurement planning falls within

the strategic plan. Procurement therefore cannot work in isolation but through systems coordination of the different departments.

However, this theory is still developed on the assumption of a fixed firm boundary, i.e. intra-firm operations. The management in a construction project is always transient and dynamically changing, where the use of an independent project manager to coordinate construction projects has become popular.

2.1.2 Scientific Management Movement - Production Management Theory

Fredrick Taylor (1911) and Frank Bunker Gilbreth (1885) are one of the key contributors of the production management theory, through the scientific management movement. Their contribution was on the aspect of the reduction of cycle time and finding the best way to carry out a given task. Both writers analyzed time as the avoidance of delays which according to them was the main preoccupation of construction managers and a costly problem encountered in construction projects. They suggested minimization of distances in order to reduce cycle time and discovered excessive work in progress i.e. the waiting time between process stage; lack of continuity of work across different projects; lack of flexibility in work stations and workers; isolation of value adding activities from supporting activities and at the managerial level controls were restricted to schedule and inventory controls, Aguinaldo and Marjan (2002).

The scientific management movement of Taylor and Gilbreth under the production management theory is important because it concentrates on time (avoidance of delays) which is one of the problems encountered in the

performance of construction projects, in NHCCL. Xiao et al, (2002) contend that construction time is important to both clients and contractors because of its economic implications. Delays lead to an increase in construction costs and a reduction in quality. They further argue that delays occur in every construction project and the magnitude of these delays varies considerably from project to project. Because of the overriding importance of time for both the owner (in terms of performance) and the contractor (in terms of money), it is the source of frequent disputes and claims leading to lawsuits.

Although the production management theory under the scientific movement of Taylor and Gilbreth measure performance on the avoidance of delay i.e. time as critical to the performance of construction projects, but the aspects of quality and cost are not considered.

2.1.3 The Modern Operational Management Theory

Henry Fayol defined management functions as to plan, to organize, to command, to coordinate and to control the process of a firm Yiu, (2008). The theory of planning, of decomposing tasks and activities is supported by the administrative theory of Henry Fayol which emphases that activities are independent and it is the role of management to ensure the six activities (technical, commercial, financial, security, accounting and managerial) work smoothly to achieve the goals of the enterprise).

Fayol argued that all industrial undertakings precipitate activities that can be categorized into the above six groups and focused on the latter category,

management. For Fayol, management was not so much that of devising systems and methods for increasing the velocity of through-put as it had been for scientific management. Fayol's emphasis is on the role of management (as planning, organizing, commanding, coordinating and controlling), which also in the construction process involves four elements; namely planning, organizing, leading and controlling, with individual processes being carried out concurrently Pheng,(2007). Without a well thought out plan, it would be impossible to ensure that construction works involving thousands of workers can precede smoothly Pheng, (2007)

Thus; Fayol's management function was a way of identifying management as something apart from technical activities but essential to getting economy from their integration. Thus, Fayol considered his principles of management to be flexible and adaptable to every change and need Yoo et al, (2006). The common goal is to suggest general guidelines that will advise managers to administer their organizations effectively. However, the above theory focuses on the process and neglects the persons who carry out the process. Procurement management in NHCCL has to involve all the departments in order for procurement to achieve performance in terms of time, cost and quality. Because although these departments are independent, they are related in terms of their activities and tasks.

2.2 Procurement Planning and Construction Projects Performance

Basheka, (2008), states that procurement planning is the primary function that sets the stage for subsequent procurement activities. It 'fuels and then ignites' the engine of the procurement process. A mistake in procurement planning therefore

has wide implications for local governance, measured from the two indicators of accountability and participation. Procurement Planning is a legal requirement in Uganda. Section 34 (2) of the Public Procurement and Disposal of Public Assets Act, 2003 and Local Government Regulation 62 of 2006 require the User Department to prepare a work plan for procurement based on the approved budget and submit it to PDU for orderly execution and Section 31 (f) require a Procurement Unit to plan the procurement activities of the Entity. In number of cases, people do assume that planning procurement is a one time event.

Procurement Planning is a process of determining the procurement needs of an entity and the timing of their acquisition and their funding such that the entities operations are met as required in an efficient way. As a function, procurement planning endeavors to answer the following questions; what do you want to procure? When do you want to procure it? When are you to use the procurement? Where will you procure them from? When will resources be available? Which methods of procurement will you use? How will timely procurement or failure affect the user of the item(s) and the Procuring and Disposing Entity? How can you be more efficient in the procurement process? Who will be involved in the procurement?

Thai (2004) contends that, to remain competitive, companies are constantly faced with challenges to reduce time-to-market, improve product quality, and slash production costs and lead times. These challenges cannot be effectively met merely by changes within specific organizations or organizational units, and also manage the procurement planning within the organization that cuts across

functional units and activities by extending the value chain / supply chain management concepts. This idea is supported by Kumaraswamy, Ekambaram and Humphreys (2000), and considers the welfare of any business entity in the supply chain directly depends on the performance of the others, along with their willingness and ability to co-ordinate, which can be considered as the essence of supply chain management.

Evenett and Hoekman, (2005) raised the concern that procurement planning enabled the identification of major investment expenditures, which in turn facilitates budgetary decision-making. It is difficult to imagine how a state can deliver substantial improvements in the well being for its citizens without a public expenditure system that includes effective public procurement policies. If there is no budget or cost expectation for a product or service then it is impossible to determine whether any procurement activity has exceeded, equaled or fallen short of that expectation. In addition to that if a budget or expectation has been set then the procurement professional or team tasked with managing that expectation needs to understand it and understand the method by which it will be measured. Failure to be involved and/or understand this goal-setting process leads to an inability to devise a methodology for achieving it, which in turn leads to a lack of focus for forthcoming activities and ultimately little chance of achieving controlling cost.
Adequate guidelines and communication channels through various contractual arrangements are important to control the process so that the project goals of budget, schedule and quality can be achieved, @ Jigsawsearch.com 2006

Likewise, for the successful execution of a project, effective planning is essential and involves successful scheduling, budgeting, availability of materials, logistics etc. (http://en.wikipedia.org/wiki/Construction). Pheng, (2007) advocates that project time management entails adequate planning to predict when a project will end. He further contends that project cost management involves the process of calculating the costs of the identified resources needed to complete the project, taking into consideration the possible fluctuations, conditions and other causes of variances that could affect the total cost of the estimate. In the design and planning processes, the client who wants to build a house must first estimate the resources at his disposal, determine the size of his house, and consider the amount of building materials and labor needed for the project. Design cost management is an integral process for both development and design-build construction projects to ensure that construction budgets are maintained, design risks are managed, and projects are delivered on time and to a level of quality that meets or exceeds company, client and end-user expectations. It is an essential process in achieving a good balance in the time, cost, and quality triangle.

Love and Smithl, (1999) raised the concern that the absence of a quality focus throughout the supply-chain in construction often results in rework, which invariably takes the form of changes, errors, and omissions and as a result adversely affects project performance.

Basheka, (2008) argues that proper planning for the 34% huge expenditure on local governments in Uganda is an essential element of good procurement. He further contends that, to secure goods and services at competitive prices requires

accurate planning and that core procurement planning practices are embedded in all local government procurement systems, and the importance of procurement planning must be rigorously shared among the stakeholders. Therefore, it has been observed that the proper planning of the procurement system will contribute to the performance of construction projects.

2.3 Supplier selection and Construction Projects Performance

William (2006) echoed that purchasing had the ultimate responsibility for establishing and maintaining good supplier relationships. The type of relationship was often related to the length of a contract between buyers and sellers. Keeping good relations with suppliers was increasingly recognized as an important factor in maintaining a competitive edge. Many companies adopted a view of suppliers as partners. This viewpoint stressed a stable relationship with relatively few reliable suppliers who provided high-quality supplies, maintained precise delivery schedules, and remained flexible relative to changes in productive specifications and delivery schedules. William, (2006) argued that, among the duties of purchasing were identifying sources of supply, negotiating contracts, maintaining a database of suppliers, obtaining goods and services that met or exceeded operations requirements in a timely and cost-efficient manner, and managing suppliers.

Rodriguez and Angel, (2005) suggested that in advanced supplier development, time and accurate information was crucial to decision-making and ultimately to performance. Involving suppliers in the product design process provided them with the opportunity to work with purchasers to identify parts that can be most

efficiently and effectively produced thus increasing purchasing performance. Hendrik, (2007) also argued that performance criteria are directed to compliance to specification, at the lowest possible price. It means that much attention be given to the price and quality of product and logistic processes. Hendrik (2007) suggested that cost, quality, and delivery performance were the three most important criteria that needed to be considered for supplier selection purposes. It was argued that it is extremely difficult for any vendor to excel in all of these dimensions of performance. This implied that some choices must be made in prioritizing supplier selection/evaluation criteria. Criteria should be adapted to the purpose of a purchase and its implication for the aim of the organization.

However, William, (2006) suggested that the main factor a company took into account to determine supplier selection included quality, flexibility, location, price, financial stability, lead time and on-time delivery. In support of this, Kannan and Keah, (2003) raised the concern that while price, quality, delivery reliability, and service are typical determinants of supplier selection, the specific criteria used and their relative importance are highly dependent on the type of purchase being made and the circumstances surrounding the purchase. Moreover, while there may be a tendency to focus on measurable selection criteria such as price, “soft”, intangible criteria such as management compatibility can and should play an important role in selection decisions.

Kovacs, (2004) reiterated the fact that, the quintessence of source selection is the consolidation of different merits like product quality, price, and delivery time. Kumaraswamy, Ekambaram and Humphreys (2000) reflected on the apparent (but

often misleading) economy and convenience of awarding contracts to the lowest bidder is particularly comforting in the public sector, where high accountability regimes may require onerous justification if awarded to any other bidder. However, as the nineteenth century English philosopher John Ruskin is reputed to have remarked in the last century: ``there is hardly anything in the world that some man cannot make a little worse and sell a little cheaper, and the people who consider price only, are this man's lawful prey" (Kumaraswamy, Ekambaram and Humphreys 2000, pg 672).

Shen and Walker, (2001) suggested that time management was an important part of construction management process. Time management was aimed to ensure a timely completion of the project. Love and Smith, (1999) demonstrated that in New South Wales –, for example, an appropriate procurement method for a project will depend on the characteristics of the project, the factors that impact its delivery and the desired risk allocation and as a result the appropriate selection will provide value for money, manage risk, and meet project objectives with, for example in deciding project scope and work packaging. The selection of work allocation structures, conditions of contract, payment modalities, and participant selection methods themselves are critical procurement aspects that should be tailored to match project objectives.

The above writers hinted on the importance of supplier selection as a way to maintain a competitive edge and looked at suppliers as very important partners in the field, and contribute to the achievement of construction project performance.

2.4 Contract Administration and Construction Projects Performance

Thai, (2004), Lysons and Farrington, (2006), stated that Contract Administration focused on the achievement of three goals of quality products or services, delivery on time, and within budget. This idea was supported by Xiao and Proverbs (2002), who asserted that Contractor Performance has long been defined in terms of cost, time and quality, and is critical to the success of any construction project as it is contractors who convert designs into practical reality. Improved contractor performance lead to increased client satisfaction, and therefore an improvement in the reputation of contractors and hence their competitiveness in the market.

Contractor performance is one of the most important determinants of predictive performance i.e. contractors who complete projects successfully are more likely to achieve project targets in the future. Delays were not uncommon and had significant cost and quality implications, especially so in subcontracting leading to the primary cause of defects. Xiao and Proverbs (2002) reiterated clients' long term interests lie in the high quality of the project. The work performed must conform to the specifications established for the project. Low cost and speedy construction should not be achieved at the expense of the quality of the project. Poor quality performance results in increased rework, which had a significant cost and schedule implications. Quality of construction products as well as the quality of the processes that produce the products was crucial to contractors' competitiveness in the market.

Construction quality may sometimes be taken for granted and insufficient attention may be paid to it. This was deeply rooted in the traditional procurement

system where competitive bidding emphasized the easily quantified construction cost and time. Xiao and Proverbs (2002) further stated that defects were not inevitable in a building and the aim should be right 1st time, every time. Further more buildings were designed to last for many years and therefore should be free from defects and be easy to maintain, giving clients quality assurance and therefore confidence in the construction products produced. Kashiwagi and Savicky ,(2003) suggested that theoretical analysis of the construction industry structure identified the low-bid award, design–bid–build (DBB) process as one of the main reasons for construction industry non-performance (time delays, poor quality and being over budget with change orders). Awarding construction contracts to the lowest bidder lead to poor construction performance.

Smith, Georgiou and Love , (2004) raised the concern that the financial risk and reason for dispute and arbitration mainly arised from the shortage of necessary capital, resulting in the arrears in payment by clients to contractors or by the contractors to their sub-contractors or employees. Furthermore, the reason for dispute and arbitration and the risk arising from time, cost and quality slippage was largely as a result of failing to execute sound construction management and project administration. They further stated that although many regional construction contracts are available for use, they do not effectively cover the necessary aspects and characteristics of all related contractual issues. There was no standard system of procurement documentation for reference in the practice. Tendering documents and procedures varied for different projects at different localities. The inconsistency of procurement documentation (especially for small-

and medium-sized projects) resulted in many contractual disputes between parties involved.

Acharya and Young (2006) argued that claims and disputes, which generally arised as a result of changes, errors, or omissions, adversely affected the performance and quality of the finished product. Any errors in meeting quality in technical performance or time more often than not resulted in loss to a contractor or the dissatisfaction of the client.

Another common occurrence during construction was the constant search by the contractor to obtain products that cost less than those actually specified, and offered them to the architect/engineer as substitutes that invited conflicts later. Kumaraswamy, Ekambaram and Humphreys (2000) suggested that sub-contractor selection was a vital element on construction projects, since a large proportion (e.g. up to 90 percent) of construction activities may be sub-contracted on a given project. Ironically, improvements in sub-contractor selection processes have not received the attention that one would expect from such a significant contribution to the industry. Price-based selection often squeezed out the more responsible sub-contractors, driving down both prices and performance levels.

Rahman, (1997) also echoed, the selection of contractors a significant aspect in achieving project success of Design and Build projects, where prequalification was necessary to make an initial assessment of the interested parties' suitability to undertake the works, the procedures and the system for tender evaluation also attracted much attention. Therefore, the appointment of a competent contractor

increased the chance of success. Quality in construction was directly related to time and cost, and vice-versa. A poor quality managed project resulted in extra cost and time extensions, a poor time and cost controlled project affected the conformance of requirements, which is quality. It was therefore vital for project managers to understand the client's requirements in terms of cost, quality and time. Quality management in construction involved satisfying the client's requirements in terms of time, cost and quality. It was therefore concluded that contract administration is very important in the performance of construction projects in terms of time, quality and cost.

2.5 The Procurement Legal Framework

The legal and regulatory framework provided a sound background for efficient public procurement. The Public Procurement Act and Regulations adequately established the institutional framework required to support public procurement, the stages of the procurement process, the main methods of procurement and their conditions for use, and the conditions for review and auditing.

The PPDA Act, 2003 and the Local Governments Act 2006 is currently the principle law governing Procurement and Disposal in both Local governments and Central government. It prevails over all regulations and guidelines relating to procurement at all levels of the public sector in Uganda, and advises the various government departments on procurement as well as monitors compliance, audits, evaluates performance, and gives capacity training. It created a new procurement framework intended to achieve a number of objectives. Firstly, was to promote economy and efficiency in procurement and disposal activities of the local and

central governments. Second was to ensure public procurement and disposal is conducted in a fair, transparent and non-discriminatory manner within a government environment; and thirdly, to contribute towards the creation of a sound business climate in Uganda. These objectives were supported by the code of ethical conduct in business found in the fifth schedule of the Act.

A procurement plan must be integrated into annual sector expenditure, programmed to enhance financial predictability– Reg 62(2). A Procurement Unit shall use the combined work plan to plan, forecast and schedule a Procurement Disposal Entity's procurement activities for the financial year Reg 62(3) Basheka, (2008). The recent procurement reforms in Uganda placed procurement among the critical functions of government. Procurement takes more than 50% of government spending and this made procurement a very critical function, with a need therefore to focus on the Legal Framework, which includes the Procurement and disposal principles of which are economy, efficiency, openness, equal competition, fairness, honesty, transparency, accountability and redress. These are the primary objectives in developing an effective procurement law to serve as a basis for Government public procurement; Key Players who are the various stakeholders in the procurement process included but not limited to project sponsors, lenders and contracting authorities and their consultants, all of whom wished to ensure compliance with the regulatory regime ; Procurement Process-successive stages involved the procurement cycle including planning, choice of procedure, measures to solicit offer from bidders, examination and evaluation of those offers, award of contract and contract management; Procurement Procedures (methods); Documentation and Administrative Review for any breach or omission

by a procuring and disposing entity of the Act, Regulation or Guidelines made under the Act or provisions of bidding documents, including best practices, (Acts Supplement No.1 17th January, 2003).

This therefore made it vital to have rules and regulations that govern the conduct of public procurement which are provided in the Guidelines-section 55 of the Act and Regulation 88(1) that all public procurement and disposal shall be carried out in accordance with the rules set embedded in the PPDA Act, 2003; The PPDA Guidelines, 2003; The Local Government (Amendment) Act, 2006; and The Local Government (PPDA) Regulations, 2006.

2.6 Summary of the Literature Review

The performance of construction projects depended on procurement management as depicted by the various writers above. Procurement entails a lot of processes involved in planning, supplier selection and contract administration, which according to Fearne and Fowler (2006) required proper planning of these tasks and activities in order to contribute to the performance of construction projects.

As cited in chapter one, procurement falls within the strategic plan of NHCCL and procurement cannot work in isolation but through systems coordination with the other departments. The literature portrayed procurement management as a core function in the delivery of construction projects and therefore a major cause of delayed projects caused by weak or poor management as cited in the statement of the problem. Under procurement planning was expected that organizations prepare a procurement plan that brings together the requirements and the analysis of the

information gathered the content and size of the procurement plan will vary depending on the size and resources of the organization, the detail of the plan will depend on the value of the procurement and the content will include the scope of the procurement, the procurement method, the evaluation model, the risks, the timelines, financial and human resources and the budget.

The writers, suggested time and accurate information was crucial to performance in supplier development, while others reiterated that compliance to specification, cost, quality and delivery performance were the most important criteria needed for supplier selection. However they all hint on the aspects of flexibility, location, price, financial stability, lead time and on-time delivery, which according to NHCCL strategic plan, supplier relationship is of importance and might be the reason why the expected performance was not achieved.

Contract administration starts at the procurement planning phase. Organizations should manage the delivery of goods and services ensuring what has been agreed is delivered to the appropriate quality standards and managing the performance of the supplier to ensure value for money. It is therefore vital to identify and avoid or minimize the risks of the contract. Procedures for raising issues and handling problems were set up, so that any issues or problems are dealt with as early as possible. The literature talked about contractor performance in order to avoid or mitigate risks, avoid delays which would have a negative impact on time, quality and cost. Because according to one writer Xiao et al, (2002), defects are inevitable but it should be right first time, every time, and defects should not occur in order to give clients quality assurance. According to Smith et al, (2004), dispute,

arbitration and risk from time, cost and quality slippage may be largely as a result of failure to execute sound construction management and project administration. The procurement function in NHCCL had a strong focus of delivering its strategic plan; however the procurement process had not been functioning well due to incomplete transaction details, complicated projects and the nature of contracts, which carried a potential high risk.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter explained the approaches the researcher used to gain information on the research problem and includes the research design, study population, sample size and selection, sampling techniques and procedure, data collection methods and instruments, procedure of data collection, data analysis and measurement of variables.

3.1 Research Design

This study used a case study research approach using both quantitative and qualitative approaches because it provided detailed and intense knowledge about procurement management's contribution to the performance of construction projects. Amin (2005) asserts that a case study provides an in-depth study of the problem when there is limited time scale. This study utilized a cross sectional survey design because it was flexible in both qualitative and quantitative data collection. It enabled the study to be carried out at a particular time and the notion of combining qualitative and quantitative data in a case study research offers the promise of getting closer to the whole of a case in a way that a single method study could not achieve.

The quantitative approach was used to quantify incidences in order to describe current conditions and investigated the relationship between procurement management and the performance of construction projects using information gained from the questionnaires. The qualitative approach was also used to explain

the events and describe findings using interviews and documentary analysis Amin, (2005). All this enabled the researcher to gain data that was used to find solutions for the research questions on procurement management and construction project performance in NHCCL.

3.2 Study Population

The full set of cases from which a sample is taken is called the population and in sampling it can be anything not necessarily people (Saunders et al, 2000). The target population was the population to which the researcher ultimately wanted to generalize the results. This target sometimes called the parent population may not be accessible and therefore a sample is drawn which is accessible (Amin, 2005). The study was carried out at NHCCL Uganda. The total population was 183 and that included the NHCCL employees consisting of 91 permanent staff, the occupants of NEF I & NEF II consisting of 72 residents, and 20 contractors.

3.3 Sample size and Selection

A sample is a collection of some elements of a population (Amin, 2005). Sampling techniques provided a range of methods that enabled one to reduce the amount of data needed to be collected, by considering only data from a sub-group rather than all possible cases or elements (Saunders et al, 2000). The sampling techniques and procedure enabled the researcher obtain accurate and reliable samples that helped her collect both quantitative and qualitative data on procurement management and the performance of construction projects in NHCCL.

Probability sampling focused on stratified random sampling technique used to obtain quantitative data from employees of NHCCL and residents of NEF I & NEF II. Non-probability sampling focused on purposive sampling technique used to obtain qualitative data from top management employees of NHCCL. The use of stratified random sampling was due to the heterogeneous nature of the population to be sampled, consisting of the officers and office assistants, residents and contractors of NEF I & NEF II.

Purposive sampling was used to collect data using interviews, so as to capture the perception of respondents, which was chosen based on their knowledge on procurement management and its contribution to the performance of construction projects and will be the key informants.

Table 4: Accessible Population and Sample Size

NO.	Population category	Total Population	Sample Size	Sampling method
1.	Chief Executive officer	1	1	Purposive Method
2.	Heads of Depart. i) Commercial ii) Legal iii) Internal audit iv) HR v) Finance vi) Operations	 1 1 1 1 1 1	 1 1 1 1 1 1	 Purposive Purposive Purposive Purposive Purposive purposive
3.	Managers	12	12	Purposive
4.	Officers	36	32	Stratified
5.	Assistants	36	32	Stratified
6.	Residents NEF I	40 flats	36	Stratified
7.	Residents NEF II	32 flats	28	Stratified
8.	Contractors	20	19	Stratified
9.	TOTAL	183	166	

Source: *Adapted from R.V.Krejcie and D.W.Morgan (1970) Cited by Amin 2005*

3.3.1 Sampling Techniques and Procedure

The sampling frame included all the NHCCL employees, the clients of NEF I & NEF II, which was a total population of 183 from which a sample was selected, which consisted of 166 members which was representative of the total population. The researcher used non probability sampling which focused on purposive sampling method based on the small sample and the informants' knowledge on the procurement function and construction projects. Probability sampling method was chosen, which focused on stratified random sampling, where the sampling frame was divided into 3 subsets consisting of non-management employees, residents and contractors due to the need to give each section / respondent a chance of being selected. . The procedure used in selecting the stratified random sample method was due to the size of the population being heterogeneous and a 95% level of certainty that the characteristics of the data collected represented the characteristics of the total population.

3.4 Data collection methods

Data was collected using questionnaire i.e. delivery and collection questionnaire and structured interview method. The questionnaire used descriptive research undertaken using opinion questionnaires because it gave an accurate profile of the situation. (Saunders et al 2000). The data provided described who, what, how, when and where of the variables in the study were accessed and established the relationship between the independent and dependent variables. In the structured interview, the researcher was able to control the interview process and be able to generalize her findings on the moderator effect of the Procurement Legal Framework., (Amin, 2005).

3.4.1 Data collection instruments

a) Questionnaire

Questionnaires are self-administered questions that come in form of structured or close-ended questions and unstructured or open-ended questions. Three comprehensive close-ended questionnaires covered all the aspects of the study variables and were accompanied by a Likert scale response continuum, that is strongly agree, agree, undecided, disagree and strongly disagree (Amin 2005) were used for this study on three types of respondents. One specifically was for employees of NHCCL, another questionnaire for the clients of NEF I & II and another questionnaire for the contractors.

The questionnaires were first pre-tested before going for the actual data collection. The questionnaire approach was selected because it enabled the respondents to express freely their opinion about the variables under study. This was because the variables recorded what the respondents felt, thought or believed was true or false. The questionnaire was delivered to the officers, office assistants, residents and contractors.

b) Interview schedules

Structured interviews were used as a probing technique based on questionnaires where the interviewee physically met respondents and asked questions face to face related to procurement management and the performance of construction projects, which ultimately included the Chief Executive Officer, Heads of Departments and Managers. This was because management level employees were more likely to agree to be interviewed, rather than complete a questionnaire. An interview provided them with an opportunity to reflect on events without needing to write

anything down, and they felt that it was not appropriate to provide sensitive and confidential information to someone they had never met. This situation also provided an opportunity for the interviewee to receive feedback and personal assurance about the way in which information will be used Saunders et al, (2000).

c) Document Analysis

The study also reviewed existing literature related to the study problem and variables in form of reports, journals and websites to gain information on the topic.

3.5 Measurement of variables

Different variables can be measured at different levels, (Bell, 1997). Both the nominal and ordinal scales of measurement were used in the questionnaire. The nominal scale of measurement was mainly used in the first part of the questionnaire (demographics) which comprised of items with some common set such as gender or sex, as well as age and qualification of respondents. According to (Mugenda & Mugenda, (1999), nominal scales are assigned only for purposes of identification but do not allow comparisons of the variables being measured.

The researcher used ordinal measurement which categorized and ranked the variables being measured e.g. the use of statements such as greater than, less than or equal to (Amin, 2005). The likert scale was used to collect opinion data and this was used to measure the stakeholders' belief on the contribution of procurement management to the performance of construction projects using the five scales: - 5= strongly agree; 4 = agree; 3 = undecided; 2 = disagree; 1 = strongly disagree,

(Amin, 2005). The numbers in the ordinal scale represented relative position or order among the variables ((Mugenda & Mugenda, 1999; Amin, 2005). Both nominal and ordinal scales measured discreet variables and only the specified numbers such as 1, 2,3,4,5, can occur (Amin, 2005, p.111).

3.6 Validity and Reliability of the instrument

3.6.1 Validity

This ensured that the instruments used yielded relevant and correct data. The instruments used were given to two experts to comment on the ambiguity , difficult and relevancy of questions to ensure construct, content and face validity and content validity ratio (CVR) The questionnaires for employees, residents and contractors were 0.84, 0.86 and 0.87 (see Appendix 5 for the calculations), respectively. Given that the CVRs for the questionnaires were all above 0.6, which is recommended by Nunnally (1967) cited by Kent (2001), the questionnaires were considered suitable for collecting data.

3.6.2 Reliability

Reliability was used to measure the degree to which an instrument would produce consistent results if used under the same conditions. The questionnaires were pilot tested on 20 respondents and the results subjected to Cronbach alpha reliability, which was a test of internal consistency. Cronbach's Alpha coefficients for the questions for questionnaires for employees, residents and contractors were 0.78, 0.62 and 0.87 (see Appendix 6 for the calculations), respectively. Given that the alphas for the questionnaires were all above 0.6, which is recommended by Nunnally (1967) cited by Kent (2001), the questionnaires were considered reliable for collecting data.

3.7 Procedure of data collection

A letter of authorization from the Department of Higher Degrees of Uganda Management Institute was provided as a request for permission to conduct the study. A covering letter accompanied the questionnaires explaining the purpose of the study and the questionnaires were distributed directly to the respondents in their respective areas for filling and were later collected. The cover letter was also used to provide access to the interview process, which was done on appointment.

3.8 Data Analysis

Two types of analyses were conducted and these were quantitative and qualitative analyses. The following subsections explained the analyses in detail.

3.8.1 Quantitative Analysis

Quantitative data was collected, edited and coded using the Statistical Package for the Social Sciences (SPSS) 10. Two types of analyses were computed. The first was descriptive statistics (frequencies and percentages) and the second inferential statistics (correlations). The frequencies and percentages were used to determine the respondents' views on each of the study variables. Pearson correlation and Partial correlation tests were used to test for significant relationships between the variables. A correlation close to +1 or -1 showed that there was a relationship between the variables whereas a correlation close to 0 showed that there was no relationship. A star in the correlation results meant that the probability that those results will occur by chance was less than 0.05 hence significant.

The outcome of the findings of Residents on Procurement Planning described, 18% of residents disagreed, 13% were neutral and 71% agreed. Descriptive finds of Employees about Procurement Planning suggested that 6% of employees disagreed, 5% were neutral while 89% agreed. Descriptive findings on Contractors about Procurement Planning were that 16% of contractors disagreed, 9% were neutral and 76% agreed.

Descriptive finds about Residents on Performance of Construction Projects was that 34% of residents disagreed, 15% were neutral while 51% agreed. Descriptive findings of Employees about Performance of Construction Projects suggested 12% of the employees disagreed, 11% were neutral and 77% agreed.

Descriptive findings of Contractors observed that on average 36% disagreed, 13% were neutral and 51% agreed. Pearson correlation and Partial correlation tests observed a very strong and positive correlation between Procurement Planning and the Performance of Construction Projects in NHCCL, because the (*rho=.965)* and (*p=.000)* was less than the recommended critical at .05.

Descriptive findings of Employees on Supplier Selection observed 5% of employees disagreed, 6% were neutral and 88% agreed. Descriptive finds of contractors on Supplier Selection observed an average of 8% of contractors disagreed, 12% were neutral and 81% agreed.

Pearson correlation and Partial correlation tests observed a very strong and positive correlation (*rho=.934)* and (*p=.000)* was less than the recommended critical at .05, thus a significant relationship.

Descriptive findings of Employees about Contract Administration observed, 8% disagreed, 9% were neutral and 83% agreed. Descriptive findings of Contractors about Contract Administration observed 12% of contractors disagreed, 7% were neutral and 81% agreed. The Pearson and Partial correlation tests showed a very strong and positive correlation of (*rho=.970)*. The test of correlation significance at (*p=.000)* is less than the recommended critical at .05 thus contract administration plays a significant role in the performance of construction projects in NHCCL

Descriptive findings of employees about the Procurement Legal Framework observed 18% of employees disagreed, 14% were neutral and 68% agreed. The Pearson and Partial correlation tests showed that after controlling the Procurement Legal Framework there was a weak positive correlation (*r=.230)* between Procurement Planning and Performance of Construction Projects; a weak positive correlation (*r=.367)* between Supplier Selection and Performance of Construction Projects; and a moderate positive correlation (*r=.550)* between Contract Administration and Performance of Construction Projects. Despite the decrease in correlation they remained significant since the p-values were all less than the critical at 0.05.

3.8.2 Qualitative Analysis

In qualitative analysis, content analysis was used to edit the data and reorganize it into meaningful shorter sentences. This was then presented to supplement the quantitative data in order to have a clear interpretation of the results.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.0 Introduction

In this chapter, the findings are presented, analyzed and interpreted. It is arranged into five sections. The first section presents, analyzes and interprets results on the respondents' background information. The second section presents, analyzes and interprets results on the relationship between Procurement Planning and the performance of Construction Projects in NHCCL. The third section presents, analyzes and interprets results on the relationship between Supplier Selection and the Performance of Construction Projects in NHCCL. The fourth section presents, analyzes and interprets results on the role of Contract Administration in facilitating the Performance of Construction Projects in NHCCL. The fifth section presents, analyzes and interprets results on the moderator effect of the Procurement Legal Framework on Procurement Management and the Performance of Construction Project in NHCCL.

4.1 Response Rate

According to Saunders, Lewis and Thornhill (2000), the most important aspect of a probability sample is that it represents the population and a perfect representative sample is one that exactly represents the population from which it was taken. However, in any study, there will always be non-respondents for at least four reasons: refusal to respond, ineligibility to respond, inability to locate respondents, and respondents located but unable to make contact. Therefore, as part of a process of reporting results, a researcher should be able to explain the active response rate, which the researcher differentiates from the total response

rate. With a two-thirds response rate (that is 67%), a researcher can go ahead to analyze the data obtained from the field. The response rate is calculated using the following formula:

$$\text{Response rate} = \frac{\text{Actual number of respondents}}{\text{Targeted sample}}$$

Thus, using the above formula, the actual number of respondents in this study (155) to the targeted sample (166) was 0.933 and when expressed as a percentage was 93.3%. This was well above the recommended response rate of 67% for a researcher to go ahead to analyze data from the field.

4.2 Background Characteristics of Respondents

The background characteristics of the respondents included their age, gender and education level. Results about the background of the respondents are presented in Table 5, 6 and 7 using descriptive statistics, which were mainly frequencies and percentages.

4.2.1 Gender of Respondents

NHCCL residents, employees and contractors were asked about their gender. Table 5 presented results on gender of respondents in form of frequencies and percentages. The first column presented the gender of the respondents, the third to the fourth column presented the categories of respondents and the distribution of according to gender, and the last column presented the overall total distribution of the respondents according to gender. Following the presentation is the analysis and interpretation of the findings.

Table 5: Gender of Respondents

Gender of respondents	Respondents			Total
	NHCCL residents	NHCCL employees	NHCCL contractors	
Male	15 (24.6%)	36 (47.4%)	17 (94.4%)	68 (43.9%)
Female	46 (75.4%)	40 (52.6%)	1 (5.6%)	87 (56.1%)
Total	61 (100.0%)	76 (100.0%)	18 (100.0%)	155 (100.0%)

Findings in Table 5 showed that most of the NHCCL residents (75.4%) who participated in the study were female. This showed a big difference between the male and female NHCCL residents who participated in the study. The reason why there were more female respondents compared to the male respondents can be attributed to the fact that most NHCCL clients who have been buying houses have been females. Firstly, this could be due to female emancipation that has lead to an increase of female graduate's thereby increasing their incomes, hence leading to more females having more capital to invest. Secondly, it could also be that women are better savers and planners and look towards building a strong firm foundation for their families by buying more houses. Thirdly, women trust NHCCL because of its reputation and therefore prefer buying turnkey properties.

In addition, it is shown that although most of the NHCCL employees (52.6%) who participated in the study were females, the difference between the male and female NHCCL employees who participated in the study was small. The reason why most employees who participated in the study were female may be attributed to the fact that most support staff at NHCCL compromise of females.

However, most of the NHCCL contractors (94.4%) who participated in the study were male. This showed a big difference between the male and female NHCCL

contractors who participated in the study. This is because the construction sector is mainly dominated by male workers; this could be due to the fact that the construction sector is still highly labor intensive which gives males a superior advantage. Secondly the education system is still biased towards males in the technical and vocational institutions; thirdly NHCCL hires experienced contractors whom consist mainly of males, the female contractors are few and relatively new in the field.

4.2.2 Age of Respondents

NHCCL residents, employees and contractors were asked about their age. Table 6 presented results on age of respondents in form of frequencies and percentages. The first column presented the age of the respondents, the third to the fourth column presented the categories of respondents and the distribution of according to age, and the last column presented the overall total distribution of the respondents according to age. Following the presentation is the analysis and interpretation of the findings.

Table 6: Age of Respondents

Age of respondents	Respondents			Total
	NHCCL residents	NHCCL employees	NHCCL contractors	
Below 30 years	5 (8.2%)	16 (21.1%)	5 (27.8%)	26 (16.8%)
31-40 years	22 (36.1%)	36 (47.4%)	12 (66.7%)	70 (45.2%)
41-50 years	21 (34.4%)	15 (19.7%)	1 (5.6%)	37 (23.9%)
51-60 years	11 (18.0%)	7 (9.2%)	0 (.0%)	18 (11.6%)
Over 60 years	2 (3.3%)	2 (2.6%)	0 (.0%)	4 (2.6%)
Total	61 (100.0%)	76 (100.0%)	18 (100.0%)	155 (100.0%)

Findings in Table 6 further showed that most of the NHCCL residents (70.5%) who participated in the study were aged from 31 to 50 years. Similarly, it is shown that most of the NHCCL employees (67.1%) who participated in the study were aged from 31 to 50 years. Lastly, most of the NHCCL contractors (72.3%) who participated in the study were also were aged from 31 to 50 years. The reason why most of the respondents were aged from 31 to 50 years can be attributed to the fact that most of the targeted sample comprised active workers and these are usually in their 30s and 40s. This showed that respondents who participated in the study were those who had worked for sometime and thus were more likely to have gained knowledge on the issues that the study was focused on and hence they were more likely to provide reliable information.

4.2.3 Education Level of Respondents

NHCCL residents, employees and contractors were asked about their level of education. Table 7 presented results on level of education of respondents in form of frequencies and percentages. The first column presented the level of education of the respondents, the second, third and fourth columns presented the categories of respondents and the distribution according to level of education, the last column presented the overall total distribution of the respondents according to level of education. Following the presentation was the analysis and interpretation of the findings.

Table 7: Level of Education

Level of education	Respondents			Total
	NHCCL residents	NHCCL employees	NHCCL contractors	
Secondary	5 (8.2%)	8 (10.5%)	2 (11.1%)	15 (9.7%)
Diploma	25 (41.0%)	25 (32.9%)	11 (61.1%)	61 (39.4%)
University	30 (49.2%)	41 (53.9%)	5 (27.8%)	76 (49.0%v
Others	1 (1.6%)	2 (2.6%)	0 (.0%)	3 (1.9%)
Total	61 (100.0%)	76 (100.0%)	18 (100.0%)	155 (100.0%)

Findings in Table 7 showed that most of the NHCCL residents (90.2%) who participated in the study had a diploma or university level of education. Similarly, it is shown that most of the NHCCL employees (86.8%) who participated in the study had a diploma or university level of education. Lastly, most of the NHCCL contractors (72.2%) who participated in the study also had a diploma or university level of education. This showed that respondents who participated in the study were those who had achieved a higher education level and thus were more likely to have understood the questions that were asked in English and hence they were more likely to provide reliable information. Secondly this could be because this is the minimum level of education required to be employed.

4.3 Relationship between Procurement Planning and the Performance of Construction Projects in NHCCL

According to American Psychological Association (APA), it is advised that when presenting the results of statistical tests, the researcher should give descriptive statistics before the corresponding inferential statistics. In other words, the researcher should give means and/or percentages (perhaps referring to a table or

figure), before talking about the results of any statistical tests performed. This helps in interpreting the results of the statistical tests performed. Thus, in this section and subsequent sections, this advice was adopted and the descriptive statistics used included frequencies and percentages, which were used to describe the variables of the study. The following are the descriptive results on procurement planning and performance of the construction projects in NHCCL.

4.3.1 Descriptive Findings on Procurement Planning

This sub section presented, analyzed and interpreted descriptive results about procurement planning. Six questions about procurement planning were presented to NHCCL residents who were supposed to respond by selecting one of the following responses: "SD = Strongly Disagree" or "D = Disagree" or "U = Undecided" or "A = Agree" or "SA = Strongly Agree". Findings are presented in the following table followed by an analysis and interpretation. In the table, the first column contains the items that were presented to the residents and secondly the last column contains the number of employees to the responses for each of the items.

Table 8: Descriptive Findings of Residents on Procurement Planning

Items about procurement planning	SD	D	U	A	SA
1. NHCCL's management is aware of customer requirements and is responsible for creating the right environment	1	2	4	36	18
2. Residents demand higher quality performance	1	8	4	25	23
3. Quality of flats is related to the purchase price	4	7	16	31	3
4. Quality of flats is related to time of finishing	15	12	0	15	19
5. The contract protects the right of the buyer and seller	1	2	12	27	19
6. Shorter construction time leads to improved client satisfaction	2	10	10	33	6
Total	24	41	46	167	88
Percentage total	7%	11%	13%	46%	25%

Analysis of the findings involved summing all the respondents on the responses of the six items to get the total, which was also expressed as a percentage. There after, the percentages of strongly disagree and disagree were computed and represented respondents who disagreed that procurement planning was well conducted. The sums of the percentages of strongly agree and agree represented respondents who agreed that procurement planning was well conducted. The percentage of respondents who were undecided was taken to represent respondents who were neutral on whether procurement planning was well conducted or not. The three categories of respondents who disagreed, were neutral and agreed were then compared in order to interpret the findings. This procedure is applied to the rest of the descriptive statistics in this chapter. The following is the analysis of the findings in Table 8. It can be observed that on average 18% of the residents disagreed, 13% were neutral while 71% agreed.

From the above analysis, the percentage of residents who disagreed was smaller than the percentage of residents who agreed while a small percentage of residents were undecided. This shows that in most case the procurement planning was properly conducted while in a few instances it was not. Thus, from this interpretation, it can be concluded that although most residents were of the view that procurement planning was properly conducted in NHCCL, few of the residents were of the view that it was not.

Likewise, eighteen questions about procurement planning were presented to NHCCL employees who were supposed to respond by selecting one of the following responses: "SD = Strongly Disagree" or "D = Disagree" or "U =

Undecided" or "A = Agree" or "SA = Strongly Agree". Findings are presented in the following table followed by an analysis and interpretation. In the table, the first column contained the items that were presented to the employees and the second to the last column contained the number of employees who responded to each of the items.

Table 9: Descriptive Findings of Employees about Procurement Planning

Items about procurement planning	SD	D	U	A	SA
1. NHCCL prepares an annual budget	0	0	3	32	41
2. NHCCL prepares an annual procurement plan	0	1	3	43	29
3. Procurement plan is always linked to the budget	0	4	2	42	28
4. The procurement plan indicates the procurement method to be used	5	5	4	41	21
5. Procurement plan is prepared and approved on time	1	2	2	43	28
6. Procurement planning helps identify major investment expenditure	1	4	4	45	22
7. Procurement is called upon to provide estimates of the cost of various items	2	7	3	43	21
8. All procurement personnel have training in procurement	2	1	3	43	27
9. All procurements are done in adherence to the PPDA regulations	3	2	3	38	30
10. Procurement plans are implemented in accordance with the NHCCL procurement plan	2	5	4	36	29
11. Budget monitoring process exist between the procurement plan and actual procurement	0	5	6	35	30
12. Funds are committed before a local purchase order is issued to the supplier	1	3	5	48	19
13. The Procurement unit participates in planning decisions	0	1	5	48	22
14. NHCCL procurement plan for construction materials is based on the project development unit's specification	2	2	7	45	20
15. NHCCL procurement forecasts its future needs	0	10	6	35	25
16. NHCCL procurement selects the best pricing strategy	1	2	3	43	27
17. Requirements by user departments are incorporated into the procurement plan	1	2	2	52	19
18. Technical employees participate in the procurement process	0	2	3	39	32
Total	21	58	68	751	470
Percentage total	2%	4%	5%	55%	34%

The following is the analysis of the findings in Table 9: It can be observed that on average 6% of the employees disagreed, 5% were neutral while 89% agreed. From the analysis, the percentage of employees who disagreed was smaller than the percentage of employees who agreed while a small percentage of employees were undecided. The NHCCL employees' responses concur with the NHCCL residents' views because they also show that in most cases, procurement planning was properly conducted while in a few instances it was not. Thus, from this interpretation, it can be concluded that although most employees were of the view that procurement planning was properly conducted in NHCCL, few of the employees were of the view that it was not.

Similarly, eleven questions about procurement planning were presented to NHCCL contractors who were also supposed to respond by selecting one of the following responses: "SD = Strongly Disagree" or "D = Disagree" or "U = Undecided" or "A = Agree" or "SA = Strongly Agree". Findings were presented in the following table followed by an analysis and interpretation. In the table, the first column contained the items that were presented to the contractors; the second to the last column contained the number of employees to the responses for each of the items.

Table 10: Descriptive Findings of Contractors about Procurement Planning

Items about procurement planning	SD	D	U	A	SA
1. Contractors finance their activities and provide employees to work	2	2	3	11	0
2. Shorter construction time leads to improved client satisfaction	0	0	0	7	11
3. To reduce construction time designs variations have been minimized	2	0	0	2	14
4. Quality is determined by the cost of items	1	1	1	13	2
5. Contractors quality and time of finishing are affected by the decrease in costs	0	1	2	15	0

6. Delays decrease construction cost and leads to quality products	10	6	0	1	1
7. Contractors experience inconsistencies in the procurement documents resulting in contractual disputes	2	3	5	8	0
8. Payment to suppliers, contractors and service providers is done promptly	0	1	3	4	10
9. Contract implementation plan is clearly shown	0	0	0	14	4
10. Materials are available on site	0	0	1	15	2
11. Equipment is available on site	0	0	2	11	5
Total	17	14	17	101	49
Percentage total	9%	7%	9%	51%	25%

The following is the analysis of the findings in Table 10. It can be observed that on average 16% of the contractors disagreed, 9% were neutral, while 76% agreed. From the above analysis, the percentage of contractors who disagreed was smaller to the percentage of contractors who agreed while a small percentage of contractors were undecided. The contractors' responses concur with the NHCCL residents' and employees' views because they also show that in most cases procurement planning was properly conducted while in a few instances it was not. Thus, from this interpretation, it can be concluded that although most contractors were of the view that procurement planning was properly conducted in the NHCCL, few of the contractors were of the view that it was not.

Interview findings were supportive of the findings from the questionnaire. For example, when key informants where asked to comment on the procurement planning in NHCCL, findings from the interview emphasized "**planning**", **"coordination among functions and departments",** and **"utilities and access to utilities**" as shown in the following:

Planning: Five out the seven of those interviewed stated that the NHCCL does not plan and invest in a strategic and proactive way in its infrastructure and development. Procurement is not integrated in the budget formulation process. At present there is no linkage between the budget planning and procurement planning. Thus, procurement plans are made after budget allocation and approval. Procurement plans are not followed, carrying out procurements in accordance with the plan remains a major challenge, due to poor planning skills, time constraints, and to some extent external interferences and unexpected procurements constitute major obstacles in this regard. The inadequate procurement competence levels in procuring are a challenge to the development of an efficient procurement system.

Coordination among Functions and Departments: A perceived lack of coordination across NHCCL planning functions was cited as a key issue in three out of seven of the interviews. Two participants recommended greater coordination between advanced, long-range and current planning functions to increase the efficiency of planning and construction processes. Others felt that better coordination among stakeholders could help facilitate planning and strategic investments in infrastructure development. Some functions and responsibilities of the procurement planning were unclear to some interview participants, and greater coordination was articulated as a benefit for procurement planning.

Utilities and Access to Utilities: Utilities were cited as a key issue in three of the seven interviewed. Some interviewees stated that the land available for development was not well served by infrastructure, which is poor public private

partnership and poor urban planning. Sewer availability and costs was cited as a key issue for some areas.

4.3.2 Descriptive Findings on Performance of Construction Projects

This sub section presented analyzed and interpreted descriptive results about the performance of construction projects. Five questions about performance of construction projects were presented to NHCCL residents who were supposed to respond by selecting one of the following responses: "SD = Strongly Disagree" or "D = Disagree" or "U = Undecided" or "A = Agree" or "SA = Strongly Agree". Findings are presented in the following table followed by an analysis and interpretation.

Table 11: Descriptive Findings of Residents about Performance of Construction Projects

Items about performance of construction projects	SD	D	U	A	SA
1. There are no defects in the flats	11	33	3	13	1
2. Residents are happy with the finishing	5	16	12	20	8
3. Residents are happy with the designs	2	12	12	28	7
4. The flats are fit for occupation	1	7	5	30	18
5. Construction materials are of good quality	7	10	13	26	5
Total	26	78	45	117	39
Percentage total	9%	26%	15%	38%	13%

The following is the analysis of the findings in Table 11. It can be observed that on average 34% of the residents disagreed, 15% were neutral while 51% agreed. From the above analysis, the percentage of residents who disagreed was smaller to the percentage of residents who agreed while a small percentage of residents were undecided. This showed that in most cases the performance of construction projects was satisfactory while to a few it was not. Thus, from this interpretation,

it can be concluded that according to NHCCL residents, the performance of the construction projects was satisfactory except in a few instances.

NHCCL employees were also asked about the performance of construction projects. Twenty one questions about procurement planning were presented to them and were supposed to respond by selecting one of the following responses: "SD = Strongly Disagree" or "D = Disagree" or "U = Undecided" or "A = Agree" or "SA = Strongly Agree". Findings are presented in the following table followed by an analysis and interpretation.

Table 12: Descriptive Findings of Employees about Performance of Construction Projects

Items about performance of construction projects	SD	D	U	A	SA
1. Projects are completed on time	9	14	7	27	19
2. Shorter construction time leads to improved client satisfaction	9	8	3	24	32
3. Increased construction time leads to a drop in quality standards due to accelerated work	7	13	9	25	22
4. Time management issues are identified and recommended for improvements	2	9	12	33	20
5. To reduce construction time design variations need to be minimized	1	8	6	35	26
6. Delays are avoided in the construction process	1	6	15	34	20
7. Materials are available on site	1	16	8	31	20
8. Funds are available to purchase the required materials	0	3	14	37	22
9. Funds are available to pay contractors	1	7	11	40	17
10. Materials and equipments are secure on site	2	10	8	26	30
11. NHCCL recognizes the importance of good quality flats	1	2	3	26	44
12. NHCCL builds according to customer requirements	7	7	3	31	28
13. The clients/residents are happy with the quality of the flats	0	7	9	42	18
14. Construction material are of good quality	3	5	12	34	22

15. Quality is determined by the cost of the items	3	13	7	36	17
16. To reduce construction cost design variations had to be minimized	1	4	3	30	38
17. Cost control is important in construction project management	0	0	5	21	50
18. Good workmanship leads to a decrease in construction cost	0	1	4	23	48
19. Equipment is available on site	0	3	11	40	22
20. Projects are completed on budget	2	12	17	33	12
21. The overall cost of the completion of the project are clear	0	2	2	29	43
Total	50	150	169	657	570
Average	3%	9%	11%	41%	36%

The following is the analysis of the findings in Table 12. It was observed that on average 12% of the employees disagreed, 11% were neutral while 77% agreed. From the above analysis, the percentage of employees who disagreed was smaller to the percentage of employees who agreed while a small percentage of employees were undecided. This shows that in most case the performance of the construction projects was satisfactory while to a few it was not. These findings supported the findings of the NHCCL residents. Thus, from this interpretation, it can be concluded that according to the employees, in most cases the performance of the construction projects was satisfactory except in a few instances.

Lastly, NHCCL contractors were also asked about the performance of construction projects whereby seven questions were presented to them and were supposed to respond by selecting one of the following responses: "SD = Strongly Disagree" or "D = Disagree" or "U = Undecided" or "A = Agree" or "SA = Strongly Agree". Findings are presented in the following table followed by an analysis and interpretation.

Table 13: Descriptive Findings of Contractors about Performance of Construction Projects

Items about performance of construction projects	SD	D	U	A	SA
1. Contractors do the job right the first time	0	0	4	14	0
2. Contractors complete work on time (avoid delays)	1	2	5	2	8
3. Contractors obtain products that cost less than actually specified	2	9	1	5	1
4. Contracts are completed on schedule and within the originally approved contract price, cost and time	0	10	3	3	2
5. Contractors produce good quality work	2	1	1	8	6
6. Increased construction speed leads to quality standards due to accelerated work	0	7	2	8	1
7. Good workmanship leads to an increase in construction cost	6	5	1	4	2
Total	11	34	17	44	20
Average	9%	27%	13%	35%	16%

The following is the analysis of the findings in Table 13. It was observed that on average 36% of the contractors disagreed, 13% were neutral while 51% agreed. From the above analysis, the percentage of contractors who disagreed was smaller to the percentage of contractors who agreed while a small percentage of contractors were undecided. The response by most of the NHCCL contractors is similar to that of the NHCCL residents and employees, that in most cases the performance of construction projects was satisfactory with the exception of a few instances. Thus, from this interpretation, it can be concluded that according to the contractors, in most cases the performance of the construction projects was satisfactory except in a few instances.

The findings about procurement planning of NHCCL and performance of construction projects in NHCCL suggest a relationship between the two. However, the question this study sought to answer was whether the relationship was significant. Thus, the findings about the procurement planning of NHCCL

and performance of construction projects in NHCCL were subjected to a Pearson correlation test. These are presented in the following subsection.

4.3.3 Testing of First Hypothesis: There is a Significant Relationship between Procurement Planning and the Performance of Construction Projects in NHCCL

For purposes of interpretation, the symbol (*rho*) is the correlation coefficient, which is used to determine the strength of the relationship between procurement planning and the performance of construction projects. The sign of the correlation coefficient is used to determine the change in the two variables. The significance of the correlation coefficient (p) is used to test the hypothesis. The symbol for the number of respondents who participated in the study is "n". Results are presented in Table 14 followed by an analysis and interpretation of the results.

Table 14: Correlations between Procurement Planning and the Performance of Construction Projects in NHCCL

	Procurement planning	Performance of construction projects
Procurement planning	*rho* = 1.000 p = .000 n = 155	
Performance of construction projects	*rho* = .965** p = .000 n = 155	*rho* = 1.000 p = .000 n = 155

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

Findings show a very strong and positive correlation (*rho* = .965) between procurement planning and the performance of construction projects. Subjecting these findings to a test of significance, the correlation significance (p = .000) was less than the recommended critical at .05 (Amin, 2005). Thus, the hypothesis "*There is a significant relationship between procurement planning and the performance of construction projects in NHCCL*" was accepted. The very strong

nature of the correlation coefficient implies that a change in procurement planning is related to a very big change in the performance of construction projects. The positive nature of the correlation coefficient implied that an improvement in procurement planning is related to an improvement in the performance of construction projects. Thus, from the descriptive and statistical findings, it can be concluded that most situations where procurement planning was properly conducted, the performance of construction projects was satisfactory except in a few instances. Similarly, a few situations where procurement planning was not properly conducted, the performance of the construction projects was not satisfactory.

Interview findings portrayed a negative effect of procurement planning on the performance of the construction projects. The delay in obtaining approval to fund projects has been a challenge which contributed to the delay. The new approval process had been clarified and as such, NHCCL did not anticipate any other delays like the one noted above.

4.4 Relationship between Supplier Selection and the Performance of Construction Projects in NHCCL

4.4.1 Descriptive Findings on Supplier Selection

This sub section presented, analyzed and interpreted descriptive results about supplier selection. Sixteen questions about supplier selection were presented to NHCCL employees who were supposed to respond by selecting one of the following responses: "SD = Strongly Disagree" or "D = Disagree" or "U =

Undecided" or "A = Agree" or "SA = Strongly Agree". Findings are presented in the following table followed by an analysis and interpretation.

Table 15: Descriptive Findings of Employees about Supplier Selection

Items about supplier selection	SD	D	U	A	SA
1. Specifications describe minimum requirements	2	3	8	32	31
2. Specifications are according to the nature of requirement	0	2	2	33	39
3. Contractors, service providers adhere to all specifications	1	4	5	44	22
4. Specifications identify quality and operational characteristics	2	2	5	45	22
5. Specifications require the ability of the end user to accurately and concisely describe the product or service required	1	2	3	39	31
6. Specifications are clearly understandable	0	5	5	42	24
7. Standard specifications are included in all bid documents	2	2	5	45	22
8. In complex procurement specifications are agreed upon by the procurement unit and user	1	2	3	38	32
9. Standard procurement documents are used in all procurement methods	1	2	2	44	27
10. The procurement methods are set according to thresholds set by the regulation	1	4	7	38	26
11. Minimum bidding method is observed in all procurements	1	1	5	47	22
12. Tenders are awarded competitively in accordance with the procurement laws	0	1	2	35	38
13. Selection criteria is adapted to the purpose of the purchase, size, complexity, scope of goods, service or works	1	3	5	39	28
14. Good supplier relationship is maintained as per the procurement manual	1	4	5	38	28
15. The procurement process is open and transparent	1	5	7	48	15
16. The public is involved in the procurement process	1	3	6	31	35
Total	16	45	75	638	442
Percentage total	1%	4%	6%	52%	36%

The following is the analysis of the findings in Table 15. It was observed that on average 5% of the employees disagreed, 6% were neutral while 88% agreed. From the above analysis, the percentage of employees who disagreed was smaller to the percentage of employees who agreed while a small percentage of employees were undecided. The implication of these findings as based on the NHCCL employees was that in most cases, supplier selection was satisfactory except in a few instances.

NHCCL Contractors were also asked about supplier selection. This was to help establish if the contractors also held similar views with those of the NHCCL employees. Thus, eleven questions were presented to the contractors and they were supposed to respond by selecting one of the following responses: "SD = Strongly Disagree" or "D = Disagree" or "U = Undecided" or "A = Agree" or "SA = Strongly Agree". Findings are presented in the following table followed by an analysis and interpretation.

Table 16: Descriptive Findings of Contractors about Supplier Selection

Items about supplier selection	SD	D	U	A	SA
1. All procurements in NHCCL are done in adherence to the PPDA regulations	0	0	3	8	7
2. The PPDA guidelines ensures transparency and competitive procurement	0	0	1	4	13
3. Contractors, service providers adhere to all specifications	0	0	2	8	8
4. Specifications are clearly understandable	0	2	2	6	8
5. Standard specifications are included in all bid documents	0	0	2	9	7
6. The procurement process is open and transparent	0	0	2	14	2
7. Contracts are awarded to the best evaluated responsive bidder	3	0	3	12	0
8. The contract describes the delivery terms and any penalties	1	4	0	13	0
9. There is transparency in the procurement process in awarding of contracts	0	1	3	6	8

10. Award of contracts is communicated to both successful and unsuccessful bidders	1	1	3	11	2
11. Contracts are signed on time	0	1	2	12	3
Total	5	9	23	103	58
Percentage total	3%	5%	12%	52%	29%

The following is the analysis of the findings in Table 16. It was observed that on average 8% of the contractors disagreed, 12% were neutral while 81% agreed. These findings showed that most of the NHCCL contractors were of the view that supplier selection was satisfactory as shown by the percentage that concurred with all the items despite the fact that some contractors expressed their dissatisfaction about supplier selection. These findings are similar to those obtained from the NHCCL employees. Under such circumstances, it was concluded that supplier selection in the NHCCL was satisfactory in most cases despite in a few instances.

Interview findings were supportive that NHCCL's supplier selection was satisfactory but some times compromised due to various criteria that dictate supplier selection. For example, according to the conducted interviews, price is one of the most determining supplier selection criterions where low quotations are most considered. However, in some situations, NHCCL prefers to purchase from certain suppliers regardless of higher price level because of easiness of contact and flexibility. In addition to those, NHCCL chooses suppliers basing on the distance where suppliers within the area the projects are constructed are selected. This was because NHCCL considers purchasing to be easier and less risky compared to purchasing from suppliers far away from the construction projects. All interviewed emphasized that NHCCL uses competitive bidding in supplier selection and that delivery reliability and quality are essential during supplier selection. However, it established that many bidders are constrained by various

capacity issues, including lack of basic knowledge about the procurement system, inadequate technical and legal capacity to understand the SBDs, and insufficient technical and managerial skills to be competitive in the tender process.

Secondly, SMEs face multiple constraints to participating in tenders, including poor access to tender information and documents, inability to meet collateral requirements, and lack of access to credit. There was no follow up on contract execution. Although contract administration provisions facilitating effective contract execution exist, the findings showed that there is inadequate follow-up on execution of contracts that is, ensuring that execution is in accordance with agreement, quality assurance, and progress monitoring. The main reason for the lack of follow-up was due a lack of adequate procurement staffing levels in the procuring entity which leads procurement officers to relax their least visible tasks.

Large contractors do not want the procurement department to be involved in the procurement process because they think they have capacity. Awareness of procedures to be followed when a complaint is received is very limited. This was due to the fact that the procuring entity receives few complaints and thus has very little or no experience handling complaints, thus, the legal framework remains largely untested. A low number of written complaints were due to low awareness of formal complaint procedures among bidders, a widespread perception that complaining does not make a difference and fear of being blacklisted for filing complaints is still prevalent among bidders and in practice still constitutes an obstacle, because people are not aware of the laws governing contract administration.

Based on the responses from the questionnaires, there appeared to be a relationship between supplier selection in NHCCL and the performance of construction projects. However, in order to determine whether the relationship is significant, these findings were subjected to a Pearson correlation test. Findings are presented in the following subsection.

4.4.2 Testing of Second Hypothesis: There is a Significant Relationship between Supplier Selection and the Performance of Construction Projects in NHCCL

A similar approach of interpreting the Pearson correlation as that in section 4.2.3 was adopted. Findings are presented in the following table followed by an analysis and interpretation.

Table 17: Correlations between Procurement Supplier Selection and the Performance of Construction Projects in NHCCL

	Supplier selection	Performance of construction projects
Supplier selection	*rho* = 1.000 p = . n = 155	
Performance of construction projects	*rho* = .934** p = .000 n = 155	*rho* = 1.000 p = . n = 155

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

Findings showed a very strong and positive correlation (*rho* = .934) between supplier selection and the performance of construction projects. Subjecting these findings to a test of significance, the correlation significance (p = .000) was less than the recommended critical at .05 (Amin, 2005). Thus, the hypothesis "*There is a significant relationship between supplier selection and the performance of construction projects in NHCCL*" was accepted. The very strong nature of the correlation coefficient implied that a change in supplier selection is related to a

very big change in the performance of construction projects. The positive nature of the correlation coefficient implied that an improvement in supplier selection is related to an improvement in the performance of construction projects. Thus, from the descriptive and statistical findings, it can be concluded that most situations where supplier selection was properly conducted, was related to most situations where the performance of the construction projects was satisfactory except in a few instances. Likewise, a few situations where supplier selection was not properly conducted, was related to a few situations where the performance of the construction projects was not satisfactory. Interview findings also revealed that when supplier selection was handled well, the construction of projects was satisfactory.

4.5 Role of Contract Administration in Facilitating the Performance of Construction Projects in NHCCL

4.5.1 Descriptive Findings on Contract Administration

This sub section presented, analyzed and interpreted descriptive results about contract administration. Thirty five questions about contract administration were presented to NHCCL employees who were supposed to respond by selecting one of the following responses: "SD = Strongly Disagree" or "D = Disagree" or "U = Undecided" or "A = Agree" or "SA = Strongly Agree". Findings are presented in the following table followed by an analysis and interpretation.

Table 18: Descriptive Findings of Employees about Contract Administration

Items about contract administration	SD	D	U	A	SA
1. Risk analysis is seen as a powerful tool in the management of projects	2	3	5	50	16
2. Contracts are awarded to the best evaluated responsive bidder	3	3	7	40	23
3. The contract specifies breach notification	1	10	7	29	29

	process and the steps to cure the breach, i.e. dispute resolution					
4.	The contract describes the delivery terms and any penalties	1	3	4	38	30
5.	Contracts are completed on schedule and within the originally approved price, cost and time	2	9	8	37	20
6.	The PDU follows up , monitors performance of contracts	4	4	7	23	38
7.	Payment to suppliers, contractors and service providers is done promptly	4	3	5	39	25
8.	There is transparency in the procurement process in awarding of contracts	1	4	6	36	29
9.	All listed contracts have a proven record of reliability and dependability	1	6	7	31	31
10.	Measures are undertaken to ensure cost effectiveness of procured goods and services	2	3	9	38	24
11.	Contract implementation plan is clearly shown	1	1	8	34	32
12.	Award of contracts is communicated to both successful and unsuccessful bidders	3	4	4	43	22
13.	Contracts are signed on time	2	5	3	42	24
14.	NHCCL views quality as very important to its customers	0	2	2	26	46
15.	NHCCL has a quality assurance manual	0	4	9	43	20
16.	The manual provides guidelines on the type of testing facilities	0	5	7	42	22
17.	NHCCL verifies that goods, equipment or services conform to specifications	0	4	4	34	34
18.	Procured goods and services are of good quality	1	3	4	30	38
19.	There is a formal reporting system for complaints and deficiencies	0	7	6	30	33
20.	NHCCL employs defect prevention strategies	1	3	7	33	32
21.	Subcontracting leads to good quality workmanship	0	3	8	40	25
22.	Quality assurance measures capability and performance of the contractor	1	4	9	41	21
23.	There is inspection of the plant of prospective contractor of subcontractor	0	8	8	50	10
24.	Auditing of records of contractor or subcontractor takes place	1	5	13	46	11
25.	Contract administration is an essential part of the procurement process	1	1	3	37	34
26.	Contracts are monitored to ensure progress of the contract	2	4	7	34	29
27.	Procedures exist for modifying and terminating contracts	1	1	9	30	35
28.	Contracts are terminated due to breach of contract	0	3	8	37	28
29.	Contracts are terminated due to	1	3	9	39	24

faults/defects					
30. Contracts are terminated/cancelled due to mutual consent or agreement	0	3	10	40	23
31. Contracts are terminated due to unethical behavior of contractors	3	2	8	36	27
32. Disputes are handled tactfully, effectively and in a timely manner	0	6	11	33	26
33. Termination procedures are after thoughtful consideration of consequences	1	8	15	37	15
34. Suppliers deliver goods according to the contracts terms and conditions	3	14	7	28	24
35. The contracts protect the rights of buyer and seller	1	6	5	26	38
Total	44	157	249	1272	938
Percentage total	2%	6%	9%	48%	35%

The following is the analysis of the findings in Table 18. It was observed that on average 8% of the employees disagreed, 9% were neutral while 83% agreed. From the analysis, the percentage of employees who disagreed (8%) was smaller to the percentage of employees who agreed (83%) while a small percentage of employees were undecided (9%). The implication of these findings is that most NHCCL employees were of the view that contract administration was satisfactory while few were of the view that it was not satisfactory. Basing on the employees' view, the findings suggest that contract administration in most cases was properly handled except in a few instances.

NHCCL contractors were also asked about contract administration in order to determine whether their view were similar to those of the NHCCL employees. Thirty five questions about contract administration were presented to NHCCL contractors who responded by selecting one of the following responses: "SD = Strongly Disagree" or "D = Disagree" or "U = Undecided" or "A = Agree" or "SA = Strongly Agree". Findings are presented in the following table, followed by an analysis and interpretation.

Table 19: Descriptive Findings of Contractors about Contract Administration

Items about contract administration	SD	D	U	A	SA
1. Contractors use high quality materials and supplies	0	1	2	4	11
2. Contractors subcontract part of their work	1	1	0	11	5
3. Contractors have the ability to correct defects in their work	1	1	3	13	0
4. Subcontracting increases risk on quality, time, cost	1	2	1	11	3
5. Subcontracting leads to poor quality	3	9	0	3	3
6. There is inspection of the plant of prospective contractor of subcontractor	0	1	4	11	2
7. Auditing of records of contractor or subcontractor takes place	0	0	1	12	5
8. Contracts are monitored to ensure progress of the contract	0	0	0	9	9
9. Procedures exist for modifying and terminating contracts	0	0	0	15	3
10. The contract protects the rights of the buyer and seller	0	1	2	11	4
Total	6	16	13	100	45
Average	3%	9%	7%	56%	25%

The following is the analysis of the findings in Table 19. It was observed that on average 12% of the employees disagreed, 7% were neutral while 81% agreed. Thus, the interpretation of these findings was that they are similar to those of the NHCCL employees. This is because they also show that most NHCCL contractors were of the view that contract administration was satisfactory while few were of the view that it was not. Thus, a similar conclusion drawn from the findings of NHCCL employees is also applicable to the findings of the NHCCL contractors.

Findings from the interview were supportive of those obtained using the questionnaires. For example, it was established that although the legal framework in place constitutes an excellent framework for addressing ethics and anti-corruption issues in the field of public procurement, there are weaknesses related to the compliance and performance of the established control mechanisms. Some

staff do not follow a prescribed procurement plan. This was because some do not have time while others do not have experience in that task or they do not have interest. In addition, enforcement of internal and external recommendations and procedures remains weak. Thus, actions due to misappropriation of funds or other violations in the procurement process are not enforced

The responses from the questionnaires about contract administration in NHCCL suggested a relationship with the performance of construction projects. Thus, a Pearson correlation test was performed to test the relationship. Findings are presented in the following subsection.

4.5.2 Testing of Third Hypothesis: Contract Administration Plays a Significant Role in the Performance of Construction Projects in NHCCL

The earlier interpretation of the Pearson correlation was also followed in this subsection. Following the presentation of the findings in Table 20 are the analysis and interpretation of the findings.

Table 20: Correlation role of Contract Administration in facilitating the Performance of Construction Projects in NHCCL

	Contract administration	Performance of construction projects
Contract administration	*rho* = 1.000 p = . n = 155	
Performance of construction projects	*rho* = .970** p = .000 n = 155	*rho* = 1.000 p = . n = 155

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

Findings showed a very strong and positive correlation (*rho* = .970) between contract administration and the performance of construction projects. Subjecting these findings to a test of significance, the correlation significance (p = .000) was less than the recommended critical at .05 (Amin, 2005). Thus, the hypothesis "*Contract administration*

plays a significant role in the performance of construction projects in NHCCL" was accepted. The very strong nature of the correlation coefficient implied that a change in contract administration is related to a very big change in the performance of construction projects. The positive nature of the correlation coefficient implied that an improvement in contract administration is related to an improvement in the performance of construction projects. Thus, from the descriptive and statistical findings showed that most situations where contract administration was properly conducted, was related to similarly situations where the performance of the construction projects was satisfactory except in a few instances. Likewise, a few situations where contract administration was not properly conducted, related to a few situations where the performance of the construction projects was not satisfactory.

4.6 Moderator Effect of Procurement Legal Framework on Procurement Management and the Performance of Construction Projects in NHCCL

4.6.1 Descriptive Findings on Procurement Legal Framework

This sub section presented, analyzed and interpreted descriptive results about procurement legal framework. Ten questions about the procurement legal framework were presented to NHCCL employees who were supposed to respond by selecting one of the following responses: "SD = Strongly Disagree" or "D = Disagree" or "U = Undecided" or "A = Agree" or "SA = Strongly Agree". Findings are presented in the following table followed by an analysis and interpretation.

Table 21: Descriptive Findings of Employees about the Procurement Legal Framework

Items about procurement legal framework	SD	D	U	A	SA
1. NHCCL procurement manual adheres to the PPDA act and regulation 2003	1	1	5	26	43
2. The procurement legal framework has successfully prevented any arbitrations	0	4	14	35	23
3. The procurement legal framework contributes to a sound business climate	0	4	7	40	25
4. The PPDA guidelines ensures transparency and competitive procurement	0	1	10	35	30
5. The PPDA monitors and regulates procurement management issues	0	2	16	33	25
6. The PPDA exposes unethical practices	1	6	16	30	23
7. The technical personnel are familiar with the PPDA regulation and act 2003	0	0	9	35	32
8. Technocrats ignore procurement laws due to personal interests	20	38	8	7	3
9. Technocrats are influenced by service providers and contractors	12	39	10	11	4
10. PPDA is the primary gauge/measure for quality goods, services and works	3	7	10	35	21
Total	37	102	105	287	229
Percentage total	5%	13%	14%	38%	30%

The following is the analysis of the findings in Table 21. It was observed that on average 18% of the employees disagreed, 14% were neutral while 68% agreed. These findings showed that most NHCCL employees were of the view that the procurement legal framework was adhered to in NHCCL while few were of the view that it was not. Interview findings were supportive of the findings obtained using the questionnaires as shown in the following.

Interview findings revealed that the regulatory environment was viewed as a deterrent for development. One of the interviewees when asked to comment about the procurement legal framework observed that the procurement process is lengthy with various stages that make the procurement process cumbersome. The lack of procurement proficiency furthermore covers a wide range of areas from a basic understanding of the legal framework in place and a core understanding of

what is considered good procurement practice to a detailed technical understanding of how to use e.g. the Standard Bidding Document.

However, whether the legal framework was significant at moderating the effect on procurement management and the performance of construction projects in NHCCL was one of the issues this study investigated. Thus, findings are presented in the following subsection.

4.6.2 Testing of Fourth Hypothesis: The Procurement Legal Framework has a Significant Moderator Effect on Procurement Management and the Performance of Construction Projects in NHCCL

In order to test this hypothesis, there was need to control the procurement legal framework. This was achieved using a Partial correlation. Findings are presented in Table 22 followed by an analysis and interpretation.

Table 22: Correlations of Procurement Management and the Performance of Construction Projects while controlling for Procurement Legal Framework

Control Variables		Procurement planning	Supplier selection	Contract administration	Performance of construction projects
Procurement legal framework	Procurement planning	r = 1.000 p = . df = 0			
	Supplier selection	r = .246 p = .033 df = 73	r = 1.000 p = . df = 0		
	Contract administration	r = .229 p = .048 df = 73	r = .467 p = .000 df = 73	r = 1.000	
	Performance of construction projects	r = .230 p = .048 df = 73	r = .367 p = .001 df = 73	r = .550 p = .000 df = 73	r = 1.000 p = . df = 0

Findings showed a weak positive correlation (r = .230) between procurement planning and performance of construction projects and yet earlier in Table 12 before controlling the procurement legal framework, it was a very strong correlation. In addition, there was a weak positive correlation (r = .367) between supplier selection and performance of construction projects and yet earlier in Table 15 before controlling the procurement legal framework, it was a very strong correlation. Lastly, there was a moderate positive correlation (r = .550) between contract administration and performance of construction projects and yet earlier in Table 18 before controlling the procurement legal framework, it was a very strong correlation. Despite the decrease in the correlation in Table 20, they remained significant since the p-values were all less than the critical at 0.05. The implication of these findings is that without the procurement legal framework, the relationship between procurement planning, supplier selection and contract administration with performance of the construction projects would be weakened.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary, discussion, conclusions and recommendations. It is arranged into four sections. The first section presents the summary. The second section presents the discussions according to the objectives of the study. The third section presents the conclusions. The fourth section presents the recommendations.

5.1 Summary

There was a positive very strong relationship between procurement planning and the performance of construction projects. The very strong nature of the relationship coefficient implied that a change in procurement planning was related to a very big change in the performance of construction projects. The positive nature of the relationship coefficient implied that an improvement in procurement planning is related to an improvement in the performance of construction projects.

There was a positive very strong relationship between supplier selection and the performance of construction projects. The very strong nature of the relationship coefficient implied that a change in supplier selection was related to a very big change in the performance of construction projects. The positive nature of the relationship coefficient implied that an improvement in supplier selection was related to an improvement in the performance of construction projects.

There was a positive very strong relationship between contract administration and the performance of construction projects. The very strong nature of the relationship coefficient implied that a change in contract administration was related to a very big change in the performance of construction projects. The positive nature of the relationship coefficient implied that an improvement in contract administration was related to an improvement in the performance of construction projects.

Findings revealed that without the procurement legal framework, the relationship between procurement planning, supplier selection and contract administration with performance of the construction projects would be weakened.

5.2 Discussions

5.2.1 Relationship between Procurement Planning and the Performance of Construction Projects in NHCCL

Findings show a positive very strong relationship between procurement planning and the performance of construction projects. The very strong nature of the relationship coefficient implied that a change in procurement planning was related to a very big change in the performance of construction projects. The positive nature of the relationship coefficient implied that an improvement in procurement planning is related to an improvement in the performance of construction projects. In particular, it was established that most situations where procurement planning was properly conducted were related to situations where the performance of the construction projects was satisfactory except in a few instances. Similarly, a few situations where procurement planning was not properly conducted were related to

a few situations where the performance of the construction projects was not satisfactory.

Given that some respondents who participated in this study indicated dissatisfaction with the procurement planning in NHCCL, then basing on Basheka's, (2008), observation, it can be argued that procurement planning did not effectively set the stage for subsequent procurement activities of NHCCL. Because of this and basing on Thai (2004), the findings of the study show NHCCL cannot remain very competitive if it does not address the few shortcomings in its procurement planning. This is because the welfare of any business entity in the supply chain directly depends on the performance of others, along with their willingness and ability to co-ordinate, which can be considered as the essence of supply chain management (Kumaraswamy et al, 2000).

Because of the few shortcomings in NHCCL's procurement planning, an argument this study adopted from Evenettz, (2005) is that procurement planning does not effectively enable NHCCL to identify major investment expenditures, which in turn facilitate budgetary decision-making. This explains why NHCCL does not successful execute all its projects as indicated by the dissatisfaction expressed by the respondents who participated in this study.

5.2.2 Relationship between Supplier Selection and the Performance of Construction Projects in NHCCL

The study showed a positive very strong relationship between supplier selection and the performance of construction projects. The very strong nature of the

relationship coefficient implied that a change in supplier selection was related to a very big change in the performance of construction projects. The positive nature of the relationship coefficient implied that an improvement in supplier selection was related to an improvement in the performance of construction projects. In particular, it was established that that most situations where supplier selection properly conducted were related to most situations where the performance of the construction projects was satisfactory except in a few instances. Similarly, a few situations where supplier selection was not properly conducted were related to a few situations where the performance of the construction projects was not satisfactory.

These findings concur with Hendrik et al, (2007) who argued that performance criteria are directed to compliance to specification, at the lowest possible price. Thus, the findings of this study support Hendrik et al (2007) who suggested that cost, quality, and delivery performance are the three most important criteria that need to be considered for supplier selection purposes. The findings of the study agree with Kovacs, (2004) who reiterated that the quintessence of source selection is the consolidation of different merits like product quality, price, and delivery time.

The reason why there are shortfalls in the supplier selection was that NHCCL did not all the time establish and maintain good supplier relationships as shown by the respondents who were dissatisfied with the supplier selection in NHCCL and yet this is contrary to William's (2006) observation about establishing and maintaining good supplier relationships. In addition, this finding is also contrary

to William, (2006) who argues that, among the duties of purchasing are identifying sources of supply, negotiating contracts, maintaining a database of suppliers, obtaining goods and services that meet or exceed operations requirements in a timely and cost-efficient manner, and managing suppliers. The findings of the study support Rodriguez et al, (2005) who suggest that in advanced supplier development, time and accurate information is crucial to decision-making and ultimately to performance.

5.2.3 Role of Contract Administration in Facilitating the Performance of Construction Projects in NHCCL

Findings show that there was a positive very strong relationship between contract administration and the performance of construction projects. The very strong nature of the relationship coefficient implied that a change in contract administration was related to a very big change in the performance of construction projects. The positive nature of the relationship coefficient implied that an improvement in contract administration was related to an improvement in the performance of construction projects. In particular, it was established that most situations where contract administration was properly conducted were related to most situations where the performance of the construction projects was satisfactory except in a few instances. Similarly, a few situations where contract administration not properly conducted were related to a few situations where the performance of the construction projects was not satisfactory.

The findings of this study showed that quality in construction was directly related to time and cost, and vice-versa. In addition, they showed that a poor quality

managed project can result in extra cost and time extensions, a poor time and cost controlled project can affect the conformance of requirements.

Findings of this study concur with Thai, (2004), Lysons and Farrington, (2006) who stated that contract administration focuses on the achievement of three goals of quality products or services, delivery on time, and within budget. Like in their study, the findings of this study showed that contractors who complete projects successfully are more likely to achieve project targets in the future.

The findings further agree with Xiao et al, (2002) in that they also show that quality of construction products as well as the quality of the processes that produce the products is crucial to contractors' competitiveness in the market. The study findings also support Acharya et al, (2006) who argued that claims and disputes, which generally arise as a result of changes, errors, or omissions, adversely affect the performance and quality of the finished product. In addition, the study findings support Kumaraswamy et al, (2000) who suggested that sub-contractor selection is a vital element on construction projects. The study findings also support Rahman, (1997) who echoed that the selection of contractors is a significant aspect in achieving project success of Design and Build projects, where prequalification is necessary to make an initial assessment of the interested parties' suitability, to undertake the works and the procedures and the system for tender evaluation.

5.2.4 Moderator Effect of Procurement Legal Framework on Procurement Management and the Performance of Construction Projects in NHCCL

There was a weak positive relationship between procurement planning and performance of construction projects and yet before controlling for procurement legal framework, it was a very strong relationship. In addition, there was a weak positive relationship between supplier selection and performance of construction projects and yet before controlling for procurement legal framework, it was a very strong relationship. Lastly, there was a moderate positive relationship between contract administration and performance of construction projects and yet before controlling for procurement legal framework, it was a very strong relationship. The implication of these findings was that without the procurement legal framework, the relationship between procurement planning, supplier selection and contract administration with performance of the construction projects would be weakened.

5.3 Conclusions

5.3.1 Relationship between procurement planning and the performance of construction projects

Findings show a positive very strong relationship between procurement planning and the performance of construction projects. In particular, most situations where procurement planning was properly conducted were related to most situations where the performance of the construction projects was satisfactory except in a few instances. Similarly, a few situations where procurement planning was not properly conducted were related to a few situations where the performance of the construction projects was not satisfactory.

5.3.2 Relationship between supplier selection and the performance of construction projects

There was a positive very strong relationship between supplier selection and the performance of construction projects. In particular, most situations where supplier selection was properly conducted were related to most situations where the performance of the construction projects was satisfactory except in a few instances. Similarly, a few situations where supplier selection not properly conducted were related to a few situations where the performance of the construction projects was not satisfactory.

5.3.3 Role of Contract Administration in Facilitating the Performance of Construction Projects

There was a positive very strong relationship between contract administration and the performance of construction projects. In particular, most situations where contract administration was properly conducted were related to most situations where the performance of the construction projects was satisfactory except in a few instances. Similarly, a few situations where contract administration was not properly conducted were related to a few situations where the performance of the construction projects was not satisfactory.

5.3.4 Moderator Effect of the Procurement Legal Framework on Procurement Management and the Performance of Construction Project

Lastly, it was established that without the procurement legal framework, the relationship between procurement planning, supplier selection and contract administration with performance of the construction projects would be weakened.

5.4 Recommendations

The recommendations of the study are derived from the conclusions drawn from the research findings. These recommendations are specific to the study objectives.

5.4.1 Relationship between procurement planning and the performance of construction projects

With regard to the first objective, the study identified weaknesses in procurement planning, where the following recommendations were based on. Efforts should be made towards encouraging the preparation of procurement plans, e.g. through the organization's dissemination of a compulsory procurement plan template. Training in the use of procurement plans has to be initiated. Secondly, the study recommended a follow up of the consolidated procurement plan, in order to deliver on time and within budget. Thirdly, training should be aimed at upgrading the procurement proficiency of procurement officers inform of industrial training in order to get exposure and increase delivery time.

5.4.2 Relationship between Supplier Selection and the Performance of Construction Projects in NHCCL

The study identified that NHCCL should improve supplier selection in order to improve the performance of construction projects. Supplies cash flows and financial statements should be monitored in order to improve supplier selection and capacity to supply by developing proactive, dynamic supplier diversity programs, therefore fostering supplier sustainability and strategic integration by mentoring, development and training.

It is critical that our suppliers have the awareness, knowledge and skills to successfully implement our standards and help improve our performance because many bidders are constrained by various capacity issues, including lack of basic knowledge about the procurement system, inadequate technical and legal capacity to understand the SBDs, and insufficient technical and managerial skills to be competitive in the tender process.

The researcher also recommends focused supplier mentoring and development activities to help strengthen the capabilities of the existing diverse supplies while increasing overall supplier diversity spend by;

Firstly, is the use of general management leadership training, through the use of business school executive programs and/or matching supplier executives with internal executives in direct mentoring relationships. Because lack of appropriate skills or personnel at the executive level can limit a supplier's ability to meet challenges associated with growth. Secondly, is the use of operating management training. This is the use of continuous improvement programs for small diverse suppliers.

Thirdly, is by capacity building. Inability to access capital is one of the greatest obstacles suppliers face .Help suppliers acquire capital by advising them on potential strategies for financing and guiding the development of business plans while advising on future priorities.

5.4.3 Role of Contract Administration in Facilitating the Performance of Construction Projects in NHCCL

NHCCL should improve contract administration in order to improve the performance of construction projects. NHCCL should adopt best practices in order to manage third parties (contractors) and roles should be very clear. Secondly, in order to manage contracts NHCCL should introduce project management skills in areas of cost, time quality and reporting. This can be enhanced by computer tools that will enable contract monitoring. NHCCL can minimize risk by identifying mitigating factors through risk assessment because as reiterated by Xiao et al, (2002), contractor performance is one of the most important determinants of predictive performance, where delays are not uncommon and have significant costs and quality implications leading to the primary cause of defects.

5.4.4 Moderator Effect of Procurement Legal Framework on Procurement Management and the Performance of Construction Projects in NHCCL

Lastly, NHCCL employees and its stakeholders should improve their knowledge of the procurement legal framework through the use of sensitization programmes, in order to improve procurement planning, supplier selection, contract administration and thus the performance of the construction projects.

5.5 Contributions of the Study

In addition to achieving the primary objectives, this study has in the process made a humble contribution to the body of knowledge in the field of procurement management within construction projects in Uganda. The first contribution of the

study is, it has thrown more light on procurement management and the performance of construction projects. This will therefore be a reference material for future research.

Secondly, the study has identified weaknesses in the current procurement management system in NHCCL and made appropriate managerial and policy recommendations.

Lastly this study has established new findings hence adding to the body of knowledge and offers empirical evidence that shows the extent to which each of the functions of procurement management contributes to the performance of construction project.

5.6 Area for Further Research

The study further revealed other possible factors that impact on procurement management and construction project performance but not investigated by the researcher, for example, inventory forecasting, pricing strategies and source selection, all have a relationship with the performance of construction project performance and can therefore be an area for future investigation.

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25th August 2009

TO WHOM IT MAY CONCERN

MASTERS IN MANAGEMENT STUDIES DEGREE RESEARCH

Ms. Harriet Okedi is a student of the Masters Degree in Management Studies of Uganda Management Institute 17th Intake 2008/2009 specializing in Procurement Supply Chain Management, Registration Number: **08/MMSPSCM/17/008.**

The purpose of this letter is to formally request you to allow this participant to access any information in your custody/organisation, which is relevant to her research.

Her Research Topic is: ***Procurement Management and its Contribution to the Performance of Construction Projects in Uganda: A case study of NHCCL.***

Basheka Benon
HEAD, HIGHER DEGREES DEPARTMENT/
PROGRAMME MANAGER. MMS

APPENDICES

Appendix 1: Questionnaire for NHCCL Employees

SECTION A: DEMOGRAPHICS

Dear respondent, my name is Harriet Okedi a student at the Uganda Management Institute. I am conducting a study into Procurement Management and the Performance of Construction Projects in National Housing and Construction Company Limited. This study will result into the partial fulfillment of the requirement for the award of Masters Degree in Management Studies (Procurement and Supply Chain Management). You are kindly requested to spare a few minutes of your precious time to answer all questions in this questionnaire. Your responses will be purely for academic purposes and will be treated with utmost confidentiality. You may not write your name on this questionnaire. Answer by ticking the correct alternative to the question according to you. Once again I am privileged to have you as one of my respondents during this study.

Thanks for your cooperation.

BACKGROUND INFORMATION		
1	Sex	1. Male 2. Female
2.	Age	1. Below 30 years 2. 31-40 years 3. 41-50 years 4. 51-60 years 5. Over 60 years
3	Level of Education	1. Secondary 2. Diploma 3. University 4. Others (Specify)
4	Category of Respondent	1. Employee of NHCCL 2. Contractor 3. Client / Resident

QUESTIONAIRE: A

SECTION B: PROCUREMENT MANAGEMENT

In this section answer the questionnaire, using the following scale to indicate the best option that reflects your opinion on each statement, for example, if you strongly agree with the statement circle or tick no.5 against that statement.

(5= strongly agree; 4 =agree; 3 = undecided; 2= disagree; 1= strongly disagree)

i) PROCUREMENT PLANNING - BUDGETING		**SA**	**A**	**U**	**DA**	**SDA**
1	NHCCL prepares an annual budget	**5**	**4**	**3**	**2**	**1**
2	NHCCL prepares an annual procurement plan	**5**	**4**	**3**	**2**	**1**
3	Procurement plan is always linked to the budget.	**5**	**4**	**3**	**2**	**1**
4	The procurement plan indicates the procurement method to be used	**5**	**4**	**3**	**2**	**1**
5	Procurement plan is prepared and approved on time	**5**	**4**	**3**	**2**	**1**
6	Procurement planning helps identify major investment expenditure.	**5**	**4**	**3**	**2**	**1**
7	Procurement may be called upon to provide estimates of the costs of various items	**5**	**4**	**3**	**2**	**1**
8	All procurement personnel have training in procurement	**5**	**4**	**3**	**2**	**1**
9	All Procurements are done in adherence to the PPDA Regulations	**5**	**4**	**3**	**2**	**1**
10	Procurement plans are implemented in accordance with the NHCCL procurement manual	**5**	**4**	**3**	**2**	**1**
11	Budget monitoring process exist between the procurement plan and actual procurement	**5**	**4**	**3**	**2**	**1**
12	Funds are committed before a local purchase order is issued to the supplier	**5**	**4**	**3**	**2**	**1**
13	Procurement office participates in planning decisions in terms of expertise	**5**	**4**	**3**	**2**	**1**

ii)	**PROCUREMENT PLANNING - REQUIREMENTS DETERMINATION**					
14	NHCCL procurement plan for construction materials is based on the project development unit's specification	**5**	**4**	**3**	**2**	**1**
15	NHCCL procurement forecasts its future needs	**5**	**4**	**3**	**2**	**1**
16	NHCCL procurement selects the best pricing strategy	**5**	**4**	**3**	**2**	**1**
17	Requirements by user departments are incorporated into the procurement plan	**5**	**4**	**3**	**2**	**1**
18	Technical staff participate in the procurement process	**5**	**4**	**3**	**2**	**1**
iii)	**SUPPLIER SELECTION - SPECIFICATION**					
19	Specifications describe minimum requirements	**5**	**4**	**3**	**2**	**1**
20	Specifications are according to the nature of requirement	**5**	**4**	**3**	**2**	**1**
21	Contractors, service providers adhere to all specifications	**5**	**4**	**3**	**2**	**1**
22	Specifications identify quality and operational characteristics	**5**	**4**	**3**	**2**	**1**
23	Specifications require the ability of the end user to accurately and concisely describe the product or service required	**5**	**4**	**3**	**2**	**1**
24	Specifications are clearly understandable	**5**	**4**	**3**	**2**	**1**
25	Standard specifications are included in all bid documents	**5**	**4**	**3**	**2**	**1**
26	In complex procurement specifications are agreed upon by the Procurement Unit and the user	**5**	**4**	**3**	**2**	**1**
iv)	**SUPPLIER SELECTION - METHODS OF SOURCE SELECTION**					
27	Standard procurement documents are used in all procurement methods	**5**	**4**	**3**	**2**	**1**
28	The procurement methods are set according to thresholds set by the regulation	**5**	**4**	**3**	**2**	**1**
29	Minimum bidding method is observed in all procurements	**5**	**4**	**3**	**2**	**1**
30	Tenders are awarded competitively in accordance with the procurement laws	**5**	**4**	**3**	**2**	**1**

31	Selection criteria is adapted to the purpose of the purchase; size, complexity, scope of goods, service or works	**5**	**4**	**3**	**2**	**1**
32	Good supplier relationship is maintained as per the procurement manual	**5**	**4**	**3**	**2**	**1**
33	The procurement process is open and transparent	**5**	**4**	**3**	**2**	**1**
34	The public is involved in the procurement process	**5**	**4**	**3**	**2**	**1**
CONTRACT ADMINISTRATION –CONTRACT RISK						
35	Risk analysis is being seen as an powerful tool in the management of projects	**5**	**4**	**3**	**2**	**1**
36	Contracts are awarded to the best evaluated responsive bidder	**5**	**4**	**3**	**2**	**1**
37	The contract specifies breach notification process and the steps to cure the breach, i.e. dispute resolution	**5**	**4**	**3**	**2**	**1**
38	The contract describes the delivery terms and any penalties	**5**	**4**	**3**	**2**	**1**
39	Contracts are completed on schedule and within the originally approved contract price, cost and time	**5**	**4**	**3**	**2**	**1**
40	The PDU follows up/monitors performance of contracts	**5**	**4**	**3**	**2**	**1**
41	Payment to suppliers, contractors and service providers is done promptly	**5**	**4**	**3**	**2**	**1**
42	There is transparency in the procurement process in awarding of contracts	**5**	**4**	**3**	**2**	**1**
43	There is transparency in the procurement process in awarding of contracts	**5**	**4**	**3**	**2**	**1**
44	Measures are undertaken to ensure cost effectiveness of procured goods and services	**5**	**4**	**3**	**2**	**1**
45	Contract implementation plan is clearly shown	**5**	**4**	**3**	**2**	**1**
46	Award of contracts is communicated to both successful and unsuccessful bidders	**5**	**4**	**3**	**2**	**1**
47	Contracts are signed on time	**5**	**4**	**3**	**2**	**1**
48	NHCCL views quality as very important to its	**5**	**4**	**3**	**2**	**1**

	customers					
49	NHCCL has a quality assurance manual	**5**	**4**	**3**	**2**	**1**
50	The manual provides guidelines on the type of testing facilities	**5**	**4**	**3**	**2**	**1**
51	NHCCL verifies that goods, equipment or services conform to specifications.	**5**	**4**	**3**	**2**	**1**
52	Procured goods and services are of good quality	**5**	**4**	**3**	**2**	**1**
53	There is a formal reporting system for complaints or deficiencies	**5**	**4**	**3**	**2**	**1**
54	NHCCL employs defect prevention strategies	**5**	**4**	**3**	**2**	**1**
55	Subcontracting leads to good quality workmanship	**5**	**4**	**3**	**2**	**1**
56	Quality assurance measures capability and performance of the contractor	**5**	**4**	**3**	**2**	**1**
57	There is inspection of the plant of prospective contractor of subcontractor	**5**	**4**	**3**	**2**	**1**
58	Auditing of records of contractor or subcontractor takes place	**5**	**4**	**3**	**2**	**1**
vii)	**CONTRACT ADMINISTRATION - CONTRACT TERMINATION**					
59	Contract administration is a essential part of the procurement process	**5**	**4**	**3**	**2**	**1**
60	Contracts are monitored to ensure progress of the contract	**5**	**4**	**3**	**2**	**1**
61	Procedures exist for modifying and terminating contracts	**5**	**4**	**3**	**2**	**1**
62	Contracts are terminated due to breach of contracts	**5**	**4**	**3**	**2**	**1**
63	Contracts are terminated due to defaults/defects	**5**	**4**	**3**	**2**	**1**
64	Contracts are terminated / cancelled due to mutual consent or agreement	**5**	**4**	**3**	**2**	**1**

65	Contracts are terminated due to unethical behavior of contractors	**5**	**4**	**3**	**2**	**1**
66	Disputes are handled tactfully , effectively and in a timely manner	**5**	**4**	**3**	**2**	**1**
67	Termination procedures are after thoughtful consideration of consequences	**5**	**4**	**3**	**2**	**1**
68	Suppliers deliver goods according to the contracts terms and conditions	**5**	**4**	**3**	**2**	**1**
69	The contracts protect the rights of buyer and seller	**5**	**4**	**3**	**2**	**1**
SECTION C: CONSTRUCTION PROJECT PERFORMANCE **i) TIME**						
70	Projects are completed on time	**5**	**4**	**3**	**2**	**1**
71	Shorter construction time leads to improved client satisfaction	**5**	**4**	**3**	**2**	**1**
72	Increased construction time leads to a drop in quality standards due to accelerated work	**5**	**4**	**3**	**2**	**1**
73	Time management issues are identified and recommended for improvements	**5**	**4**	**3**	**2**	**1**
74	To reduce construction time design variations need to be minimized	**5**	**4**	**3**	**2**	**1**
75	Delays are avoided in the construction process	**5**	**4**	**3**	**2**	**1**
76	Materials are available on site	**5**	**4**	**3**	**2**	**1**
77	Funds are available to purchase the required materials	**5**	**4**	**3**	**2**	**1**
78	Funds are available to pay contractors	**5**	**4**	**3**	**2**	**1**
79	Materials and equipment are secure on site	**5**	**4**	**3**	**2**	**1**
ii)	**QUALITY**					
80	NHCCL recognizes the importance of good quality flats	**5**	**4**	**3**	**2**	**1**
81	NHCCL builds according to customer requirements	**5**	**4**	**3**	**2**	**1**

82	The clients/residents are happy with the quality of the flats	**5**	**4**	**3**	**2**	**1**
83	Construction materials used are of good quality	**5**	**4**	**3**	**2**	**1**
84	Quality is determined by the cost of items	**5**	**4**	**3**	**2**	**1**
iii)	**COST**					
85	To reduce construction cost design variations need to be minimized	**5**	**4**	**3**	**2**	**1**
86	Cost control, is important in construction project management	**5**	**4**	**3**	**2**	**1**
87	Good workmanship leads to an decrease in construction cost	**5**	**4**	**3**	**2**	**1**
88	Equipment is available on site	**5**	**4**	**3**	**2**	**1**
89	Projects are completed on budget	**5**	**4**	**3**	**2**	**1**
90	The overall costs of the completion of the project are clear	**5**	**4**	**3**	**2**	**1**
i) SECTION D: THE PROCUREMENT LEGAL FRAMEWORK						
91	NHCCL procurement manual adheres to the PPDA Act and Regulation 2003	**5**	**4**	**3**	**2**	**1**
92	The procurement legal framework has successfully prevented any arbitrations	**5**	**4**	**3**	**2**	**1**
93	The procurement legal framework contributes to a sound business climate	**5**	**4**	**3**	**2**	**1**
94	The PPDA guidelines ensures transparency and competitive procurement	**5**	**4**	**3**	**2**	**1**
95	The PPDA monitors and regulates procurement management issues	**5**	**4**	**3**	**2**	**1**
96	The PPDA exposes unethical practices	**5**	**4**	**3**	**2**	**1**
97	The technical personnel are familiar with the PPDA Regulation and ACT 2003	**5**	**4**	**3**	**2**	**1**
98	Technocrats ignore procurement laws due to personal interests	**5**	**4**	**3**	**2**	**1**
99	Technocrats are influenced by service providers and	**5**	**4**	**3**	**2**	**1**

	contractors					
100	PPDA is the primary gauge/measure for quality goods, services and works	**5**	**4**	**3**	**2**	**1**

Appendix 2: Questionnaire for Residents/Clients

SECTION A: DEMOGRAPHICS

Dear respondent, my name is Harriet Okedi a student at the Uganda Management Institute. I am conducting a study into Procurement Management and the Performance of Construction Projects in National Housing and Construction Company Limited. This study will result into the partial fulfillment of the requirement for the award of Masters Degree in Management Studies (Procurement and Supply Chain Management). You are kindly requested to spare a few minutes of your precious time to answer all questions in this questionnaire. Your responses will be purely for academic purposes and will be treated with utmost confidentiality. You may not write your name on this questionnaire. Answer by ticking the correct alternative to the question according to you. Once again I am privileged to have you as one of my respondents during this study.

Thanks for your cooperation.

BACKGROUND INFORMATION		
1	Sex	1. Male 2. Female
2.	Age	6. Below 30 years 7. 31-40 years 8. 41-50 years 9. 51-60 years 10. Over 60 years
3	Level of Education	5. Secondary 6. Diploma 7. University 8. Others (Specify)
4	Category of Respondent	4. Employee of NHCCL 5. Contractor 6. Client / Resident

QUESTIONAIRE: B

In this section answer the questionnaire, using the following scale to indicate the best option that reflects your opinion on each statement, for example, if you strongly agree with the statement circle or tick no.5 against that statement.

(5= Strongly Agree; 4 = Agree; 3 = Undecided; 2 = Disagree; 1 = Strongly Disagree)

	PROCUREMENT MANAGEMENT AND THE PERFORMANCE OF CONSTRUCTION PROJECTS IN NATIONAL HOUSING AND CONSTRUCTION COMPANY LTD	**SA**	**A**	**U**	**DA**	**SDA**
1	NHCCL'S management is aware of customer requirements and is responsible for creating the right environment	**5**	**4**	**3**	**2**	**1**
2	There are no defects in the flats	**5**	**4**	**3**	**2**	**1**
3	Residents are happy with the finishing's	**5**	**4**	**3**	**2**	**1**
4	Residents are happy with the designs	**5**	**4**	**3**	**2**	**1**
5	The flats are fit for occupation	**5**	**4**	**3**	**2**	**1**
6	Residents demand higher quality performance	**5**	**4**	**3**	**2**	**1**
7	Construction materials are of good quality	**5**	**4**	**3**	**2**	**1**
8	Quality of flats is related to the purchase price	**5**	**4**	**3**	**2**	**1**
9	Quality of flats is related to time of finishing	**5**	**4**	**3**	**2**	**1**
10	The contracts protect the rights of buyer and seller	**5**	**4**	**3**	**2**	**1**
11	Shorter construction time leads to improved client satisfaction	**5**	**4**	**3**	**2**	**1**

Appendix 3: Questionnaire for Contractors

SECTION A: DEMOGRAPHICS

Dear respondent, my name is Harriet Okedi a student at the Uganda Management Institute. I am conducting a study into Procurement Management and the Performance of Construction Projects in National Housing and Construction Company Limited. This study will result into the partial fulfillment of the requirement for the award of Masters Degree in Management Studies (Procurement and Supply Chain Management). You are kindly requested to spare a few minutes of your precious time to answer all questions in this questionnaire. Your responses will be purely for academic purposes and will be treated with utmost confidentiality. You may not write your name on this questionnaire. Answer by ticking the correct alternative to the question according to you. Once again I am privileged to have you as one of my respondents during this study.

Thanks for your cooperation.

BACKGROUND INFORMATION		
1	Sex	1. Male 2. Female
2.	Age	11. Below 30 years 12. 31-40 years 13. 41-50 years 14. 51-60 years 15. Over 60 years
3	Level of Education	9. Secondary 10. Diploma 11. University 12. Others (Specify)
4	Category of Respondent	7. Employee of NHCCL 8. Contractor 9. Client / Resident

QUESTIONAIRE: C

In this section answer the questionnaire, using the following scale to indicate the best option that reflects your opinion on each statement, for example, if you strongly agree with the statement circle or tick no.5 against that statement.

(5= Strongly Agree; 4 = Agree; 3 = Undecided; 2 = Disagree; 1 = Strongly Disagree)

	PROCUREMENT MANAGEMENT AND THE PERFORMANCE OF CONSTRUCTION PROJECTS IN NATIONAL HOUSING AND CONSTRUCTION COMPANY LTD	**SA**	**A**	**U**	**DA**	**SDA**
1	Contractors do the job right the first time	**5**	**4**	**3**	**2**	**1**
2	Contractors provide their resources and employees to do the job	**5**	**4**	**3**	**2**	**1**
3	Contractors complete work on time (avoid delays)	**5**	**4**	**3**	**2**	**1**
4	Shorter construction time leads to improved client satisfaction	**5**	**4**	**3**	**2**	**1**
5	To reduce construction time design variations need to be minimized	**5**	**4**	**3**	**2**	**1**
6	Contractors use high quality materials and supplies	**5**	**4**	**3**	**2**	**1**
7	Contractors subcontract part of their work	**5**	**4**	**3**	**2**	**1**
8	Contractors have the ability to correct defects in their work	**5**	**4**	**3**	**2**	**1**
9	Subcontracting increases risk on quality, time, cost	**5**	**4**	**3**	**2**	**1**
10	Subcontracting leads to poor quality	**5**	**4**	**3**	**2**	**1**
11	Quality is determined by the cost of items	**5**	**4**	**3**	**2**	**1**
12	Contractors quality and time of finishing are affected by the decrease in costs	**5**	**4**	**3**	**2**	**1**
13	Delays decrease construction cost and lead to quality products.	**5**	**4**	**3**	**2**	**1**
14	Contractors experience inconsistencies in the procurement documents resulting in contractual disputes	**5**	**4**	**3**	**2**	**1**

15	Contractors obtain products that cost less than actually specified.	**5**	**4**	**3**	**2**	**1**
16	All Procurements in NHCCL are done in adherence to the PPDA Regulations	**5**	**4**	**3**	**2**	**1**
17	The PPDA guidelines ensures transparency and competitive procurement	**5**	**4**	**3**	**2**	**1**
18	Contractors, service providers adhere to all specifications	**5**	**4**	**3**	**2**	**1**
19	Specifications are clearly understandable	**5**	**4**	**3**	**2**	**1**
20	Standard specifications are included in all bid documents	**5**	**4**	**3**	**2**	**1**
21	The procurement process is open and transparent	**5**	**4**	**3**	**2**	**1**
22	Contracts are awarded to the best evaluated responsive bidder	**5**	**4**	**3**	**2**	**1**
23	The contract describes the delivery terms and any penalties	**5**	**4**	**3**	**2**	**1**
24	Contracts are completed on schedule and within the originally approved contract price, cost and time	**5**	**4**	**3**	**2**	**1**
25	Payment to suppliers, contractors and service providers is done promptly	**5**	**4**	**3**	**2**	**1**
26	There is transparency in the procurement process in awarding of contracts	**5**	**4**	**3**	**2**	**1**
27	Contract implementation plan is clearly shown	**5**	**4**	**3**	**2**	**1**
28	Award of contracts is communicated to both successful and unsuccessful bidders	**5**	**4**	**3**	**2**	**1**
29	Contracts are signed on time	**5**	**4**	**3**	**2**	**1**
30	Contractors produce good quality work	**5**	**4**	**3**	**2**	**1**
31	There is inspection of the plant of prospective contractor of subcontractor	**5**	**4**	**3**	**2**	**1**
32	Auditing of records of contractor or subcontractor takes place	**5**	**4**	**3**	**2**	**1**
33	Contracts are monitored to ensure progress of the contract	**5**	**4**	**3**	**2**	**1**
34	Procedures exist for modifying and terminating contracts	**5**	**4**	**3**	**2**	**1**
35	The contracts protect the rights of buyer and seller	**5**	**4**	**3**	**2**	**1**
36	Increased construction speed leads to quality standards due to accelerated work	**5**	**4**	**3**	**2**	**1**

37	Materials are available on site	**5**	**4**	**3**	**2**	**1**
38	Good workmanship leads to an increase in construction cost	**5**	**4**	**3**	**2**	**1**
39	Equipment is available on site	**5**	**4**	**3**	**2**	**1**

Appendix 4: Interview Guide

1. In your opinion, how is the procurement planning at NHCCL?
2. How does this affect the performance of construction projects?
3. In your opinion, how is the supplier select at NHCCL?
4. How does this affect the performance of construction projects?
5. In your opinion, how is the contact administration at NHCCL?
6. How does this affect the performance of construction projects?
7. In your opinion, how is the procurement legal framework at NHCCL?
8. What is the effect the procurement legal framework on procurement management and performance of construction projects?

Appendix 5: Calculation of Validity

The content validity ratio (CVR) was calculated using the following formula;:-

$$CVR = \frac{\text{Number of items rated by experts as relevant}}{\text{Total number of items rated by experts}}$$

Thus, the CVR for the questionnaire for employees was calculated as follows:

Raters	Relevant items	Not relevant items	Total
Expert 1	86	14	100
Expert 2	82	18	100
Total	168	32	200

CVR = 168/200 = 0.84

The CVR for the questionnaire for residents was calculated as follows:

Raters	Relevant items	Not relevant items	Total
Expert 1	9	2	11
Expert 2	10	1	11
Total	19	3	22

CVR = 19/22 = 0.86

The CVR for the questionnaire for contractors was calculated as follows:

Raters	Relevant items	Not relevant items	Total
Expert 1	33	6	39
Expert 2	35	4	39
Total	68	10	78

CVR = 68/78 = 0.87

Appendix 6: Calculations for Reliability

Reliability for Residents' questionnaire

		Mean	Std Dev	Cases
1.	BR1	3.8000	1.0563	20.0
2.	BR2	1.9000	.8522	20.0
3.	BR3	2.5500	.9445	20.0
4.	BR4	3.9500	.7592	20.0
5.	BR5	4.1500	.6708	20.0
6.	BR6	3.8000	1.2814	20.0
7.	BR7	2.7500	1.0195	20.0
8.	BR8	3.2500	.9665	20.0
9.	BR9	2.8000	.9515	20.0
10.	BR10	3.9000	.9679	20.0
11.	BR11	2.8500	.9333	20.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	35.7000	12.0105	3.4656	11

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
BR1	31.9777	8.4175	.4755	-.7744
BR2	33.8777	17.1684	.2753	.7887
BR3	33.1577	9.3974	.2972	.7236
BR4	31.7577	11.7763	-.7657	.2135
BR5	31.5577	17.2675	.3725	.7673
BR6	31.9777	12.6211	-.2474	.3674
BR7	32.9577	9.4184	.2481	.7435
BR8	32.4577	9.2779	.3185	.7764
BR9	32.9777	11.7789	-.1732	.2448
BR17	31.8777	11.4316	-.7547	.2215
BR11	32.8577	13.7132	-.3723	.3642

Reliability Coefficients

N of Cases = 20.0 N of Items = 11

Alpha = .7759

Reliability for Employees' questionnaire

		Mean	Std Dev	Cases
1.	BE1	4.5000	.5145	18.0
2.	BE2	4.4444	.5113	18.0
3.	BE3	4.5000	.5145	18.0
4.	BE4	4.1667	1.0981	18.0
5.	BE5	3.9444	1.1618	18.0
6.	BE6	4.1667	.7859	18.0
7.	BE7	3.7778	1.1144	18.0
8.	BE8	4.1667	.9235	18.0
9.	BE9	3.7222	1.4874	18.0
10.	BE10	4.3889	1.0369	18.0
11.	BE11	4.1111	1.1827	18.0
12.	BE12	4.0556	.7254	18.0
13.	BE13	3.9444	.8024	18.0
14.	BE14	3.8889	.9634	18.0
15.	BE15	4.2222	1.0603	18.0
16.	BE16	4.3889	.6077	18.0
17.	BE17	4.6111	.5016	18.0
18.	BE18	4.3333	.7670	18.0
19.	BE19	4.2222	1.0603	18.0
20.	BE20	4.6111	.5016	18.0
21.	BE21	4.1667	.9235	18.0
22.	BE22	4.3333	.4851	18.0
23.	BE23	4.5000	.6183	18.0
24.	BE24	4.5000	.5145	18.0
25.	BE25	3.9444	.8024	18.0
26.	BE26	4.1111	.7584	18.0
27.	BE27	3.8333	.7071	18.0
28.	BE28	4.3333	.5941	18.0
29.	BE29	4.1667	.7071	18.0
30.	BE30	4.5000	.5145	18.0
31.	BE31	4.1667	.7071	18.0
32.	BE32	4.1667	.8575	18.0
33.	BE33	4.1111	.4714	18.0
34.	BE34	4.2778	.8264	18.0
35.	BE35	3.8333	.8575	18.0
36.	BE36	4.0000	.9701	18.0
37.	BE37	4.3889	1.1950	18.0
38.	BE38	4.0000	1.0847	18.0
39.	BE39	3.7778	.9428	18.0
40.	BE40	3.7778	1.2154	18.0
41.	BE41	3.8333	1.1504	18.0
42.	BE42	4.1111	.7584	18.0
43.	BE43	4.2222	1.0033	18.0
44.	BE44	4.1667	.8575	18.0
45.	BE45	4.3333	.8402	18.0
46.	BE46	4.2222	1.1144	18.0
47.	BE47	4.4444	.5113	18.0
48.	BE48	4.5000	.5145	18.0
49.	BE49	4.2222	.5483	18.0
50.	BE50	4.5556	.5113	18.0
51.	BE51	4.5000	.5145	18.0
52.	BE52	4.3889	.5016	18.0
53.	BE53	4.2778	.7519	18.0
54.	BE54	4.3333	.6860	18.0
55.	BE55	4.2778	.6691	18.0
56.	BE56	4.6111	.5016	18.0
57.	BE57	3.8333	.6183	18.0

58.	BE58	4.1111	.8324	18.0
59.	BE59	4.5556	.5113	18.0
60.	BE60	4.5556	.5113	18.0
61.	BE61	4.5556	.5113	18.0
62.	BE62	4.1111	.7584	18.0
63.	BE63	3.8333	.7071	18.0
64.	BE64	4.3889	.5016	18.0
65.	BE65	4.0000	.5941	18.0
66.	BE66	4.5556	.5113	18.0
67.	BE67	3.9444	.5393	18.0
68.	BE68	4.5000	.6183	18.0
69.	BE69	4.2222	.8085	18.0
70.	BE70	3.6667	1.3284	18.0
71.	BE71	4.7778	.4278	18.0
72.	BE72	2.9444	1.4742	18.0
73.	BE73	4.0000	1.1376	18.0
74.	BE74	4.3333	.4851	18.0
75.	BE75	4.3889	.5016	18.0
76.	BE76	3.9444	1.0556	18.0
77.	BE77	4.4444	.6157	18.0
78.	BE78	4.1667	.7859	18.0
79.	BE79	4.8333	.3835	18.0
80.	BE80	4.4444	.5113	18.0
81.	BE81	4.6111	.6077	18.0
82.	BE82	4.2778	.4609	18.0
83.	BE83	4.4444	.6157	18.0
84.	BE84	4.3889	.5016	18.0
85.	BE85	4.3889	.8498	18.0
86.	BE86	4.7222	.4609	18.0
87.	BE87	4.9444	.2357	18.0
88.	BE88	4.0556	.8024	18.0
89.	BE89	4.1111	.7584	18.0
90.	BE90	4.6111	.5016	18.0
91.	BE91	4.8333	.3835	18.0
92.	BE92	3.7778	.8782	18.0
93.	BE93	4.3889	.5016	18.0
94.	BE94	4.5556	.5113	18.0
95.	BE95	4.1667	.9235	18.0
96.	BE96	3.8333	.7859	18.0
97.	BE97	4.1667	.6183	18.0
98.	BE98	2.3889	.7775	18.0
99.	BE99	2.0000	.9701	18.0
100.	BE100	4.0556	.8726	18.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	419.8889	162.3399	12.7413	100

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
BE1	415.3889	167.7810	-.4281	.6406
BE2	415.4444	162.7320	-.0501	.6291
BE3	415.3889	161.6634	.0315	.6266
BE4	415.7222	147.0359	.5294	.5949
BE5	415.9444	144.4085	.5939	.5884

BE6	415.7222	163.8595	-.1062	.6339
BE7	416.1111	169.6340	-.2941	.6504
BE8	415.7222	160.2124	.0545	.6268
BE9	416.1667	158.5000	.0435	.6314
BE10	415.5000	153.0882	.3187	.6105
BE11	415.7778	158.0654	.0967	.6251
BE12	415.8333	157.2059	.2533	.6174
BE13	415.9444	158.4085	.1628	.6211
BE14	416.0000	152.0000	.3962	.6066
BE15	415.6667	154.4706	.2559	.6144
BE16	415.5000	156.9706	.3284	.6158
BE17	415.2778	156.0948	.4782	.6128
BE18	415.5556	153.6732	.4248	.6088
BE19	415.6667	165.0588	-.1411	.6397
BE20	415.2778	164.5654	-.1925	.6333
BE21	415.7222	157.2712	.1820	.6197
BE22	415.5556	165.0850	-.2391	.6344
BE23	415.3889	165.1928	-.2035	.6355
BE24	415.3889	158.8399	.2495	.6198
BE25	415.9444	154.4085	.3655	.6111
BE26	415.7778	166.4183	-.2378	.6394
BE27	416.0556	154.4085	.4229	.6101
BE28	415.5556	156.7320	.3533	.6151
BE29	415.7222	158.3301	.1972	.6200
BE30	415.3889	157.5458	.3507	.6166
BE31	415.7222	153.7418	.4618	.6084
BE32	415.7222	163.7418	-.0974	.6344
BE33	415.7778	164.3007	-.1806	.6325
BE34	415.6111	166.9575	-.2482	.6413
BE35	416.0556	156.0556	.2590	.6159
BE36	415.8889	156.5752	.1987	.6185
BE37	415.5000	171.7941	-.3474	.6561
BE38	415.8889	162.4575	-.0468	.6341
BE39	416.1111	164.8105	-.1388	.6377
BE40	416.1111	155.2810	.1843	.6187
BE41	416.0556	146.4085	.5247	.5939
BE42	415.7778	162.0654	-.0156	.6295
BE43	415.6667	152.1176	.3724	.6075
BE44	415.7222	169.1536	-.3384	.6464
BE45	415.5556	171.4379	-.4456	.6511
BE46	415.6667	156.5882	.1617	.6205
BE47	415.4444	158.3791	.2874	.6186
BE48	415.3889	168.0163	-.4454	.6411
BE49	415.6667	158.2353	.2758	.6185
BE50	415.3333	158.4706	.2803	.6188
BE51	415.3889	165.8987	-.2885	.6364
BE52	415.5000	162.0294	.0046	.6274
BE53	415.6111	160.0163	.0924	.6245
BE54	415.5556	154.1438	.4535	.6092
BE55	415.6111	153.7810	.4888	.6081
BE56	415.2778	162.8007	-.0557	.6292
BE57	416.0556	162.6438	-.0435	.6296
BE58	415.7778	159.3595	.1089	.6238
BE59	415.3333	163.5294	-.1110	.6310
BE60	415.3333	166.4706	-.3329	.6377
BE61	415.3333	163.4118	-.1020	.6307
BE62	415.7778	158.1830	.1878	.6201
BE63	416.0556	159.9379	.1063	.6239
BE64	415.5000	157.6765	.3502	.6168
BE65	415.8889	160.6928	.0859	.6248
BE66	415.3333	160.0000	.1607	.6226

BE67	415.9444	155.5850	.4805	.6118
BE68	415.3889	160.6046	.0863	.6248
BE69	415.6667	161.5294	.0076	.6287
BE70	416.2222	143.2418	.5451	.5878
BE71	415.1111	166.9281	-.4316	.6382
BE72	416.9444	139.1144	.6054	.5783
BE73	415.8889	151.0458	.3576	.6065
BE74	415.5556	161.3203	.0637	.6256
BE75	415.5000	160.8529	.0971	.6246
BE76	415.9444	148.7614	.4840	.5991
BE77	415.4444	161.2026	.0485	.6262
BE78	415.7222	159.6242	.1056	.6239
BE79	415.0556	154.7614	.7789	.6087
BE80	415.4444	154.7320	.5775	.6094
BE81	415.2778	164.6830	-.1739	.6343
BE82	415.6111	161.4281	.0597	.6257

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
BE83	415.4444	165.9085	-.2489	.6371
BE84	415.5000	155.7941	.5026	.6121
BE85	415.5000	168.2647	-.3015	.6444
BE86	415.1667	168.1471	-.5036	.6411
BE87	414.9444	161.9379	.0577	.6259
BE88	415.8333	161.3235	.0183	.6282
BE89	415.7778	157.8301	.2065	.6193
BE90	415.2778	160.3301	.1384	.6233
BE91	415.0556	164.8791	-.2728	.6334
BE92	416.1111	171.5163	-.4325	.6516
BE93	415.5000	160.2647	.1436	.6232
BE94	415.3333	168.0000	-.4468	.6410
BE95	415.7222	167.0359	-.2324	.6425
BE96	416.0556	153.5850	.4177	.6087
BE97	415.7222	161.0359	.0587	.6258
BE98	417.5000	154.5000	.3743	.6110
BE99	417.8889	160.6928	.0287	.6285
BE100	415.8333	157.6765	.1781	.6201

Reliability Coefficients

N of Cases = 18.0 N of Items =100

Alpha = .6265

Reliability for Contractors' questionnaire

		Mean	Std Dev	Cases
1.	CC1	3.7778	.4278	18.0
2.	CC2	3.2778	1.0741	18.0
3.	CC3	3.7778	1.3086	18.0
4.	CC4	4.6111	.5016	18.0
5.	CC5	4.4444	1.2935	18.0
6.	CC6	4.3889	.9164	18.0
7.	CC7	4.0000	1.0290	18.0
8.	CC8	3.5556	.8556	18.0
9.	CC9	3.7222	1.0741	18.0
10.	CC10	2.6667	1.4142	18.0
11.	CC11	3.7778	.9428	18.0
12.	CC12	3.7778	.5483	18.0
13.	CC13	1.7222	1.1275	18.0
14.	CC14	3.0556	1.0556	18.0
15.	CC15	2.6667	1.1882	18.0
16.	CC16	4.2222	.7321	18.0
17.	CC17	4.6667	.5941	18.0
18.	CC18	4.3333	.6860	18.0
19.	CC19	4.1111	1.0226	18.0
20.	CC20	4.2778	.6691	18.0
21.	CC21	4.0000	.4851	18.0
22.	CC22	3.3333	1.1376	18.0
23.	CC23	3.3889	1.0369	18.0
24.	CC24	2.8333	1.0981	18.0
25.	CC25	4.2778	.9583	18.0
26.	CC26	4.1667	.9235	18.0
27.	CC27	4.2222	.4278	18.0
28.	CC28	3.6667	.9701	18.0
29.	CC29	3.9444	.7254	18.0
30.	CC30	3.8333	1.2948	18.0
31.	CC31	3.7778	.7321	18.0
32.	CC32	4.2222	.5483	18.0
33.	CC33	4.5000	.5145	18.0
34.	CC34	4.1667	.3835	18.0
35.	CC35	4.0000	.7670	18.0
36.	CC36	3.1667	1.0432	18.0
37.	CC37	4.0556	.4162	18.0
38.	CC38	2.5000	1.4653	18.0
39.	CC39	4.1667	.6183	18.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	147.0556	214.7614	14.6547	39

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
CC1	143.2778	211.6242	.2374	.8671
CC2	143.7778	202.7712	.3543	.8650
CC3	143.2778	194.9183	.4962	.8615
CC4	142.4444	207.5556	.4811	.8643
CC5	142.6111	188.1340	.7032	.8553
CC6	142.6667	194.7059	.7513	.8567
CC7	143.0556	209.9379	.1263	.8701
CC8	143.5000	205.6765	.3404	.8652
CC9	143.3333	194.5882	.6347	.8582
CC10	144.3889	210.9575	.0439	.8755
CC11	143.2778	197.6242	.6130	.8595
CC12	143.2778	208.4477	.3798	.8653
CC13	145.3333	205.4118	.2500	.8677
CC14	144.0000	206.1176	.2484	.8675
CC15	144.3889	221.5458	-.2317	.8800
CC16	142.8333	200.8529	.6444	.8603
CC17	142.3889	202.8399	.6836	.8610
CC18	142.7222	200.9183	.6876	.8601
CC19	142.9444	194.8791	.6597	.8579
CC20	142.7778	201.9477	.6503	.8608
CC21	143.0556	205.3497	.6601	.8625
CC22	143.7222	196.9183	.5183	.8610
CC23	143.6667	224.5882	-.3508	.8804
CC24	144.2222	201.5948	.3836	.8644
CC25	142.7778	193.9477	.7454	.8564
CC26	142.8889	196.4575	.6741	.8583
CC27	142.8333	210.3824	.3381	.8662
CC28	143.3889	193.5458	.7511	.8562
CC29	143.1111	202.4575	.5706	.8616
CC30	143.2222	199.1242	.3820	.8648
CC31	143.2778	211.2712	.1388	.8686
CC32	142.8333	210.2647	.2639	.8667
CC33	142.5556	210.3791	.2759	.8666
CC34	142.8889	209.6340	.4485	.8654
CC35	143.0556	207.5850	.2981	.8660
CC36	143.8889	219.0458	-.1740	.8768
CC37	143.0000	210.2353	.3607	.8660
CC38	144.5556	205.6732	.1652	.8723
CC39	142.8889	209.3987	.2783	.8664

Reliability Coefficients

N of Cases = 18.0 N of Items = 39

Alpha = .8680