INVENTORY MANAGEMENT AND PERFORMANCE OF UTILITY ORGANIZATIONS IN UGANDA: A CASE OF NATIONAL WATER AND SEWERAGE CORPORATION, KAMPALA.

JESSICA ACHEN

15/00/MBA/KLA/WKD/055

A DISSERTATION SUBMITTED TO THE SCHOOL OF MANAGEMENT SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE MASTER DEGREE IN BUSINESS ADMINISTRATION OF UGANDA MANAGEMENT INSTITUTE.

NOVEMBER 2017

DECLARATION

I, JESSICA ACHEN, registration 15/MBA/00/KLA/WKD/0055 declare that, this dissertation is my original work. This work has not been submitted to any University, College or School for the award of a degree, diploma or any other academic qualification.

Signature: ……. Date: ……

APPROVAL

This study was conducted under our supervision and approval as the nominated supervisors.

Signature: ……. Date: …….

SUPERVISOR'S NAME: Dr Edgar Mwesigye

Signature: ……. Date: ……

SUPERVISOR'S NAME: Dr Godfrey Mugurusi

DEDICATION

I would like to dedicate this dissertation to my family. I will always cherish their support for me.

ACKNOWLEDGEMENT

I thank God for the Will. I am grateful to Dr Edgar Mwesigye, and Dr Godfrey Mugurusi, my academic supervisors. I am indebted to my classmates for the vitality, and UMI for the academic rigor.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

E.O. Q	Economic Order Quantity
ELI	Empirical Leanness indicator
ERP	Enterprise Resource Planning
JIT	Just in Time
JITP	Just in Time Purchasing
MRP	Material Resource Planning
NWSC	National Water and Sewerage Corporation
R.O.P	Re order point
S.O.Q	Suggested order quantity
USD	United State Dollars
VRIN	Value Rare Imitable None substitutable

ABSTRACT

This study examined the relationship between inventory management and performance of utility organizations in Uganda a case of National Water and Sewerage Corporation Kampala City. The specific objectives of the study were: to examine the relationship between inventory planning and performance of utility organizations; to establish the relationship between inventory replenishment through procurement and performance of utility organizations; to determine the relationship between inventory control and performance of utility organizations. The study was based on the Resource Based Theory (RBT). The study adopted a cross sectional study design. Findings from regression analysis affirmed that inventory planning has a significant positive contribution to performance of utility organizations in Uganda. The study accepted the hypothesis that was stated that there is a significant relationship between inventory planning and performance of utility organizations. Findings from regression analysis that affirmed that inventory replenishment has a significant positive contribution towards performance of utility organizations in Uganda. The study accepted the hypothesis that was stated that there is a significant relationship between Inventory replenishment and performance of utility organizations. Findings from regression analysis that affirmed that inventory control has a significant positive contribution towards performance of utility organizations in Uganda. The study accepted the hypothesis that was stated that there is a significant relationship between Inventory control and performance of utility organizations. From the findings it was concluded that inventory planning, inventory replenishment through procurement and inventory control have moderate positive relationships with significant contributions towards performance of utility organizations in Uganda.

Recommendations: Utility organizations in Uganda should invest more money in ICT for inventory planning and hire experts on inventory planning to guide them on how to develop feasible inventory plans appropriate to the organization.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This study was aimed at investigating the relationship between inventory management and performance of utility organizations in Uganda a case of National Water and Sewerage Corporation Kampala City.

This chapter presents the background to the study, the statement of the problem, the general objective of the study, specific objectives, the research questions, the hypothesis, conceptual frame work, the significance of the study and justification of the study, scope of the study and operational definitions of terms and concepts.

1.2 Background of the study

1.2.1 Historical Background

Earlier studies than the twentieth century have linked Organization performance to inventory management. This is made possible through balance score card approach in which financial, customer, internal process and innovation can be combined in an organization to assist the management in decision making processes and problem solving. For instance, the manager in an organization can use the balance score card as a strategic management system to detect late deliveries of inventories which have a potential to result in poor performance at work place (Kaplan & Norton, 2007). Another evidence is by use of just in time purchasing (JITP) as studied by Ansari and Modarress (between 1987 to 1990), the study showed that companies which implemented just in time estimated an increase in projected product quality by 43% and increase in productivity by 21%.

Fullerton et al (2003) studied inventory management and performance relationship in a JIT context and documented a positive association between inventory turnover and organization

performance expressed as return on asset, return on sales and cash flow margin. Deloof (2003) in Belgian observed that lower inventory levels and higher performance are highly correlated.

Each of Solectron's big customers, which include Cisco, Ericsson and Lucent were expecting explosive growth for wireless phones and networking gear, when the bottom finally fell out, it was too late for Solectron to halt orders from all its 4000 suppliers as a result, Solectron then had $4.7 billion in inventory (March, 2001).

''When Palm formally reported its quarterly numbers in June, the damage was gruesome. Its loss totaled $392 million and a big chunk of which was attributed to writing excess inventory-piles of unsold devices,'' (The Industry Standard, June 16, 2001). Liz Claiborne said its unexpected earnings decline was the consequence of higher than anticipated excess inventories'' (WSJ, August1993).

At the firm level: Sales growth, right inventory at the right place at the right time. Cost reduction –less money tied up in inventory with proper inventory management where there was no overstocking of inventories. Another study by Balakrishnan et al (1996) was not able to detect a significant difference in return on assets between JIT and none JIT firms. Cannon (2008) revealed that inventory management and organizational performance had no significant relationship. Getting more evidence about this issue may help in understanding the dynamics of inventory management and organization performance relationship. The role of inventory in predicting organization performance is conflicting, Inventory is a critical asset in any organization though according to Barney (2008) inventory is looked at as a liability under the just in time inventory management system (JIT). Performance management according to Bates and Holton (1995) is a multidimensional construct and the measure of which varies depending on a variety of factors. Performance is the accomplishment of a given tusk measured against a preset known standard of accuracy, completeness, cost, speed etc. Barney (2001) in the

Resource Based View suggested redefining the criterion of value and pointed to different ways of describing competitive advantage as strategic advantage –above average industry profit.

The performance of an organization is evaluated by how it reduces cost and increases value in the most efficient, effective and responsive way. Efficiency implies minimizing cost, Responsiveness means the organization should be flexible to changing and diverse needs of customers while effectiveness means doing the right thing at the right time for the right purpose. Organizational performance can therefore be best measured through operational cost reduction and customer service levels .and control system.

Inventory management on the other hand is the process of efficiently overseeing the steady flow of components into and out of an existing inventory and to monitor how companies track and control the quantities of finished product for sales, the opportunities for improving a company's inventory management can significantly improve the bottom line business performance since inventories account for 30 % of a company's invested capital. According to Garry (1997) the scope of inventory management also concerns the fine lines between replenishment lead time , carrying costs of inventory ,asset management, inventory forecasting, inventory valuation, future inventory price forecasting ,available physical space for inventory and quality management The cardinal objective of inventory management is the maintenance of an optimum level of inventory necessary to support operation/ production system at any time at the least cost possible and the attainment of this objective entails taking decisions with respect to determination of an appropriate quantity, when to place the order, and how much inventory to carry per unit of time .In summary inventory management ensures correct placement of resources, quick inexpensive product ordering/ replenishment and the efficient product receiving, storage and issues for daily use Lau and Snell(2006) **.**Proper classification of inventories and its control improves the financial position of a business Jessop and Morrison (1994).The primary goals of inventory management are to increase organizational

effectiveness and efficiency to improve the ability of the organization to deliver goods and services Harrison (1999)

1.2.2 Theoretical Background

The theory that guided the study was Resource Based Theory (RBT) advanced by Penrose (1959). Significant contributions to the RBT were made by Wernerfelt (1984) as well as Barney (2001) because this is a theory that is based on the fact that an organization has a broader set of resources hence its growth involves the exploitation of existing resources and the development of new ones. The Resource Base Theory is an approach to achieving competitive advantage that emerged in the 1980s and 1990s after the major works published by Wernerfelt et al (1984). The Resource Base Theory is based on the idea that the effective and efficient application of all useful resources that the company can master can help determine its competitive advantage and the reciprocal interactions at multiple levels of analysis between the market environment and the firm's capabilities shape business strategy and performance, while interactions between strategy and performance intern shape both organization capabilities and competitive environment.

Resource Based Theory has been chosen because it emphasizes the firm's resources as the fundamental determinants of competitive advantage and performance. Resources are financial, physical, social or human, technological and organizational factors that allow an organization to create value for its customers. These resources are either tangible or intangible. Tangible resources are physical and include land, buildings, plant, equipment, inventory and money. While a subset of resources enables firms to achieve a competitive advantage and another subset leads to superior long term performance (Chigada, 2014). RBT assumes that organizations must be successful in obtaining and managing valued resources in order to be effective and bring about organizational performance.

The Resource Based Theory was used to guide the study to understand inventory management and organization performance of utility organization because it emphasizes inventory as one of the vital resources besides assets and capital in determining organization performance as observed by Boquist (2001) who stated that organization blander and fail because they had flawed inventory planning and control system which they apparently fail to recognize.

1.2.3 Conceptual Background

The study was based on two main concepts that is inventory management as the independent variable and organization performance as the dependent variable. According to Kenneth and Brian (2006)

Inventory management is a process which aims at providing both internal and external customers with required service levels in terms of quantity and quality, ascertain present and future requirement for all types of inventory to avoid overstocking while avoiding "bottleneck" in production. Inventory management also help in keeping costs to minimum by variety reduction, economic lot size during replenishment, analysis of costs incurred in obtaining and carrying inventory to provide upstream and downstream inventory visibility in the supply chain.

Inventory management basically looks at correct placement of resources/ budgeting, quick and inexpensive product reordering/replenishment and efficient receiving and storage of inventory. Controlling stock to make sure that the business always has sufficient stock to meet its own needs and those of its customers; however, there is need to keep the minimum amount of stock to avoid waste and to minimize cost of holding stock (Lysons, 2000). Stock refers to goods or inventory held, this may comprise of assets purchased for resale, consumable stores, raw materials and components purchased for incorporation into products for sale; product and services in intermediary stages of completion, long term contract balance and finished goods.

The essence of inventory management is to augment business operations so as to ensure effective flow of goods, products, and services (Chalotra, 2013). In this context, 'inventory' is the aggregate list of items; a quantity of goods in stock or stock of the product which an organization is producing for sale and the components that make the sale. 'Stock' consists of a wide range of goods or materials – stationery, office equipment, plant, machinery, consumables, etc. available for use or sale. The element of 'management' or 'control' is thought to be pivotal in this context because any 'control' is deemed a process by which events are made to conform to a set plan. The term 'control' has familiar synonyms such as management, overseeing, administering, conducting, planning, superintending, guiding, organizing, supervising and regulating; all performed so as to prevent "helplessness", "neglect", "weakness", or "mismanagement" in the system. Thus, inventory management is the supervision of supply, storage and accessibility of items in order to ensure an adequate supply without excessive oversupply. Stock Management is often associated with understanding the inventory mix of an organization and the different levels of demand on that inventory, depending on diverse external and internal factors that can exert demand for materials in a given period Adebayo et al, (2012)

According to Mwende (2012) organization's performance comprises of the actual output or results as compared to or against intended output. It's used to make adjustments to accomplish goals more efficiently and effectively. Organization performance is measured by organization profitability, quality of service, market share, and continuous improvement, quality of workforce, openness and action.

1.2.4 Contextual Background

Organizations in Uganda have witnessed growth in the recent years due to increase in infrastructure and utility organizations are not exceptional and this has resulted in increasing demands for utility services like water and electricity as a result of the development in many

areas in terms of schools and industries and many citizens adopting modern life styles of using treated water installed in their houses. National Water and Sewerage Corporation is a utility organization 100% owned by Government of Uganda, conceived under the government decree No 34 of February 1972. National Water and Sewerage Corporation became operational following the statutory instrument No 14 of February 1973 to serve only the major towns of Kampala, Jinja and Entebbe. Currently NWSC is a public entity established by the National Water and Sewerage Corporation Act 2000 and mandated to provide water and sewerage services on a commercial and viable basis to over 100 towns in Uganda. The World Bank in 1988 reported that after 10 years "these investments (over USD 100 million) have not been matched with the necessary commercial and financial management capacity that can ensure the delivery of sustainable services in the medium long term" (Muhairwe, 2009).

NWSC is expanding rapidly and the current number of towns being served by the corporation now stands at 170 towns as of December 2016.The rapid expansion implies increased demand for water and sewerage services, treatment chemicals, pipes and associated fittings and all the services and works related to the expansion program.

According to the NWSC Annual Report (2014), National Water and Sewerage Corporation was characterized by operational problems including frequent breakdowns in the water distribution networks, inadequate fittings to expand distribution lines to meet its own need and those of its customer's, poor customer care; this made tap water increasingly unreliable hence poor financial performance and the overall performance of the organization Muhairwe (2009**)** **,**any business needs to keep optimum stock that it can so as to avoid damage and waste and to minimize the cost of holding stock .The corporation periodically places order when the inventory level of a particular item has reached re-order level and they try at all cost to control the inventory levels to minimum which are kept on records so as to prevent the corporation incurring excessive purchasing and carrying cost on the one hand and stock out on the other

hand. However, for the last 10 years, besides all the efforts to control inventory level by instituting call off orders from prequalified suppliers the corporation has continued to experience stock levels below minimum with subsequent emergency purchases.

1.3 Statement of the problem

Optimum inventory management not only provide information on quantities of raw materials required for use in production or operation, but can also identify and account for raw materials that become scrap or waste during production or operation while at the same time ensuring stock outs have been avoided at any one time. Lack of optimization is a common design problem that made it difficult to accurately forecast future inventory needs. Proper inventory management should capture the right data at the right time to avoid mistakes that result in inaccurate inventory levels. Rapid expansion of utility organizations in Uganda due to increased development rate has subjected utility organizations to short falls in service delivery due to stock out problem of inventories to support efficient and effective service delivery to the public. National Water and Sewerage Corporation (NWSC) a utility organization which provide the service of supplying treated piped water and Sewerage Services is not an exceptional. The Corporation has contracted suppliers on call off orders to supply critical inventories like water meters, chemicals, pipes and associated water fittings which is a just in time (JIT) method of procurement to enable the suppliers deliver as and when requested to guard against stock outs of critical inventories besides stock control on all inventories through stock taking, variance checking and e requisition, but the problem of stock out of critical inventories has persisted resulting into poor service delivery and eventually on the overall performance of NWSC. The purpose of this study was to examine the relationship between inventory management and performance of utility organizations in Uganda a case of National Water and Sewerage Corporation Kampala City.

1.4 Purpose of the study

The purpose of this study was to examine the relationship between inventory management and performance of utility organization in Uganda a case of National Water and Sewerage Corporation Kampala city.

1.5 Research Objectives

i. To examine the relationship between inventory planning and performance of National Water and Sewerage Corporation Kampala City.

ii. To establish the relationship between inventory replenishment through procurement and performance of National Water and Sewerage Corporation Kampala City.

iii. To determine the relationship between inventory control and performance of National Water and Sewerage Corporation Kampala City.

1.6 Research Questions

i. What is the relationship between inventory planning and performance of National Water and Sewerage Corporation Kampala City?

ii. What is the relationship between inventory replenishment and performance of National Water and Sewerage Corporation Kampala City?

iii. What is the relationship between inventory control and performance of National water and Sewerage Corporation Kampala City?

1.7 Research Hypothesis

i. There is a significant relationship between inventory planning and performance of utility organizations.in Uganda

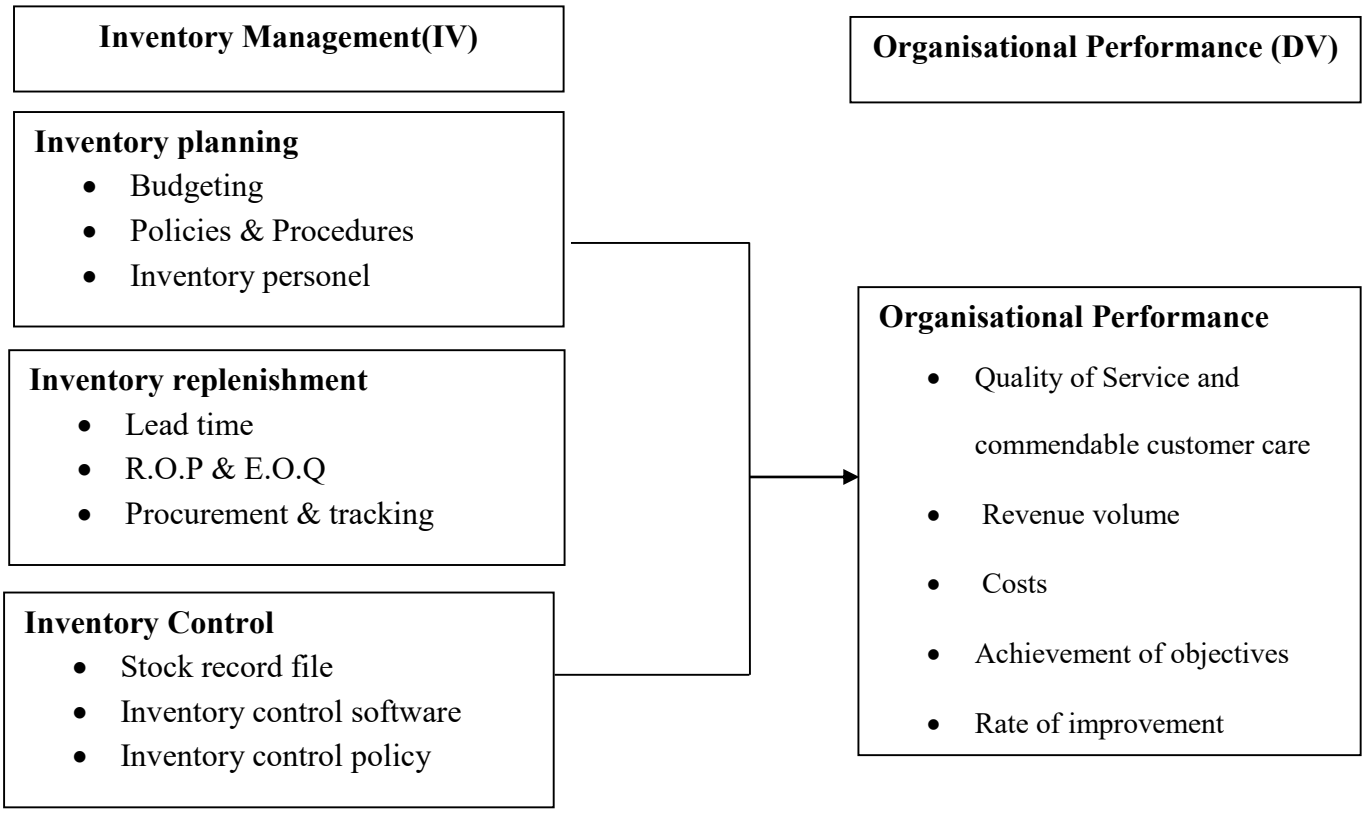
ii. There is a significant relationship between Inventory replenishment through procurement and performance of utility organizations in Uganda

iii. There is a significant relationship between Inventory control and performance of utility organizations in Uganda

1.8 Conceptual Framework

Introduction

The conceptual frame has inventory management as the independent variable (IV)) and organization performance as the dependent variable, (DV). The researcher considered inventory planning, inventory replenishment and inventory control under inventory management and under organization performance the researcher considered quality of service and commendable customer, revenue volume, costs, achievement of objectives and rate of improvements.



Source: *From Literature: Azimi (2016); Kinyau et al (2015) Chigada, (2015), modified by researche*r

Figure 1: Conceptual Frame work

1.9 Significance of the study

The institution (NWSC) may learn and get to know the best techniques of proper Inventory Management which will in turn culminate into excellent organizational performance.

The research report may help NWSC to realize the contribution of inventory management to the performance of the organization, this will be through the different purposive respondents who will give their views on how absence or late delivery of inventories affect their performance and any comments for way forward.

Research report may be a reference document to the human resource department to ensure only qualified staff are posted to inventory section to ensure proper management of stores, that means any staff to work in store must know how to calculate reorder point (R.O.P) and economic reorder (E.O.Q) quantity in order for the staff to present reasonable budget to procurement section.

The Research findings may improve the efficiency of the supply chain since the stores personnel will be able to give their views on the performance of suppliers and other practitioners to appreciate the role of different players in regard to inventory management and in enhancing visibility and cohesion as a catalyst factor in attaining effective cost management, quality, and overall delivery efficiency.

The Research report may benefit the management and the workers of NWSC to know the challenges in inventory management system and way forward to improve inventory management since the Research will be conducted within the organization itself with staff who have their experience with the management of inventory.

Other researchers may use this research as a source of literature review for future studies on how inventory management can contribute to organizational performance and improve service delivery and reduce costs.

1.10 Justification of the study

Based on the fact that the availability of assets, resources and capabilities in an organization present some kind of uniqueness that makes the organization attain competitive advantage that

lies in the application of valuable tangible and intangible resources at the firm's disposal this study is justified.

Given the high sensitivity of the product water which is needed in everyday life for both hygiene and consumption, the use of water in many industries without which the industries may not run example, firefighting and for use in schools and hospitals, any activity which interferes with the supply of water to the public like absence of inventories or materials to support water supply is treated as an emergency therefore the researcher got intrigued to carry out the research.

While previous authors have discussed inventory management in manufacturing situations, the researcher is going to emphasize on inventory management in an operational situation in a utility organization in National Water and Sewerage Corporation Kampala city.

1.11 Scope of the study

1.11.1 Geographical scope

The study focused on Headquarter Kampala and Kampala Water branches: City Centre, Nakawa, Ntinda, Seta, Kitintale, Luzira, Kyaliwajala, Kireka, Bweyogerere, Mukono, Bwaise, Kawempe, Kira, Nansana, Najjanakumbi, Ndejje, Makerere, Buna, Wakiso,, Kansanga, Nakulabye, Kyengera, Native Salaams and Luzira all within Kampala City . Kampala and Wakiso districts were chosen because 80% of people who consume piped water are within Kampala City and Wakiso Districts.

1.11.2 Time Scope

The study focused on the study period of two years between 2016 and 2017 because that was the time allocated for the research to be competed according to the academic program. It was expected that two years was long enough to capture the effects of inventory management on performance of utility organizations a case of NWSC in Kampala City while at the same time

short enough to allow respondents to recall what has been happening with respect to study variables. Data collection was done in one week following the approval of research instruments by the academic supervisors.

1.11.3 Content scope

The study specifically assessed the relationship between inventory management and performance of utility organizations and focused on relationship between inventory planning and performance, relationship between Inventory replenishment and performance and relationship between Inventory control and performance of utility organization in Uganda a case National Water and Sewerage Corporation Kampala City.

1.12 Operational Definitions

Inventory: Lysons et al (2003) defines inventory as an American accounting term for value or quantity of raw materials, components, assemblies, consumables, work in progress (W.I.P) and finished stock that are kept or stored for use as the need arises.

Inventory Management: Inventory management is the process of efficiently overseeing the steady flow of components into and out of existing inventory; it focuses on getting the right inventory to the right place and at the right time. Inventory management looks at correct resource placement, quick and inexpensive replenishment and efficient product receiving, storage and usage. Inventory management, strikes an equilibrium in the midst of deficit stock and surplus stock Gupta & Gupta (2012)

Organizational Performance: Organizational performance comprises the actual output measured against its intended output (or goals and objectives) An organization's performance includes multiple activities that help in establishing the goals and monitor the progress towards the target. Its use to make adjustments to accomplish goals more efficiently and effectively (Mwende 2012) .Within corporate organizations, there are three primary outcomes analyzed:

financial performance, market performance and shareholder value performance (in some cases, production capacity performance may be analyzed: Shahrukhalid; 2011).

Economic order quantity (E.O.Q) Economic order quantity is the optimum size for an order in a simple inventory control according to Waterman (2009). It is flexible and easy to use and gives good guide for a wide range of circumstances.

Inventory planning: Creating forecast to determine how much inventory should be on hand to meet customers demand at the right time and at the right quantity and quality.

Inventory replenishment:

Inventory replenishment: This is the recurring process flow from the time one order is placed to the time the next order must be placed to replenish depleted inventory, Fabrycky (1967).

Inventory control: This is the process of using inventory control policies and procedures to control the movement of inventories in and out of a firm during budgeting purchasing receiving, receipting, issues for use, disposal of obsolete inventories and then requisitioning for replenishment of depleted inventories.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Under this chapter the researcher brings out a critical review of the issues that have been explored and studied by previous scholars both theoretically and empirically; the chapter also discusses relationship between inventory planning and performance, the relationship between inventory replenishment and performance and the relationship between inventory control and performance.

2.2 Theoretical Review

2.2.1 Resource Based Theory (RBT)

Based on Penrose (1959), Wernerfelt (1984), and Barney (1991) on their prepositions to the Resource Based Theory (RBT), the RBV of the firm places focus on the inside of the firm, its resources and capabilities, to explain the profit and value of the firm. A number of scholars have supported and critiqued the theory. RBT assumes that organizations must be successful in obtaining and managing valued resources in order to be effective (Kinyau et al.., 2015). The availability of assets, resources and capabilities in an organization as advanced by Penrose (1959) presents some kind of uniqueness that makes the organization manages resources in a way that makes the organization attain completive advantage. The Resource Based View (RBV) as a basis of competitive advantage lies primarily in the application of valuable tangible or intangible resources at the firm's disposal Wernerfelt, (1984), Penrose (1959). To transform a short run competitive advantage into a sustainable competitive advantage (SCA) requires that these resources are heterogeneous in nature and not perfectly imitable Peteraf, (1993). Effectively this translates into valuable resources that are neither perfectly imitable nor substitutable without great effort, Barney, (1991), this is referred to as the VRIN (valuable, rare, imitable and non-substitutable) nature of the resource.

However, Resource Based Theory has been criticized by Priem and Butler (2005) as being tautological because its primary assertions are true by definitions and thus not subject to empirical test, and that RBV has no managerial implications or operational validity. It seems to tell mangers to develop and obtain VRIN resources and develop an appropriate organization, but it is silent on how this should be done, Conner (2002), Miller (2003).

Wernefelt (1984) point out the relationship between profitability and resources as well as proper management of organizational resources since resources experience diminishing returns.

This study is anchored to the RBT other than theories like Resource Dependence Theory (RDT) and Knowledge Based Theory (KBT) because RDT and KBT are just extensions of RBT; therefore RBT was chosen because it emphasizes the firm's resources as the fundamental determinants of competitive advantage and performance. Resources are financial, physical, social or human, technological and organizational factors that allow an organization to create value for its customers. These resources are either tangible or intangible. Tangible resources are physical and include land, buildings, plant, equipment, inventory and money and the intangible resources are things like knowledge and capabilities of the human resources. While a subset of resources enables firms to achieve a competitive advantage and another subset leads to superior long term performance (Chigada, 2014). RBT assumes that organizations must be successful in obtaining and managing valued resources in order to be effective and bring about organizational performance.

This theory is very appropriate in understanding organization performance of utility organizations because inventory is one of the vital tangible resources besides assets and capital in determining organization performance as observed by Boquist (2001) who stated that organization blander and fail because they had flawed inventory planning and control system which they apparently fail to recognize.

2.3 Conceptual Review

2.3.1 Inventory planning and performance

Zipkin (2000), indicates that inventory planning is closely related to inventory management. Business owners pay close attention to inventory as it usually represents the second largest

expense in their businesses. Inventory planning includes creating forecasts to determine how much inventory should be on hand to meet consumer demand. Organizations usually create internal policies and procedures for inventory planning. Managers and employees must follow these policies and procedures when handling the company's inventory. Policies and procedures outline who can order inventory, how inventory flows through the company, and accounting policies for valuing inventory and procedures to deal with obsolete stock. Inventory planning has several benefits for companies who derive the majority of their revenue sales from inventory. Inventory planning can help companies manage cash flow. Companies implement policies and procedures to limit the amount of money spent on inventory. Cash flow improvements also come from purchasing the lowest cost inventory available in the business environment. Not only does low-cost inventory save the company money, but it also allows companies to develop a cost advantage in the economic market (Vrat, 2011).

According to Starr and Miller (1975), companies can use inventory planning to generate higher profits. Purchasing the right type of inventory to meet consumer demand often leads to higher business profits. Inventory planning and control procedures can also limit the amount of obsolete inventory in the company. Obsolete inventory must be disposed and written off by the company. Writing off obsolete inventory creates a loss on the income statement. Inventory policies and procedures prevent employees abuse of inventory. Loose work environments can allow employees to steal inventory items for personal use. Stolen inventory results in a financial loss for the company. Employees can also use a company's inventory items in the workplace for personal reasons. Proper employee behavior is a significant factor relating to inventory cash flow and profitability

For a well profound inventory planning, Naddor (1966) notes that organizations should consider implementing business technology to help manage inventory. Business and accounting software provides business owners with electronic methods to order, receive,

manage and sell inventory. Technology usually helps business owners spend less time on inventory planning functions. Spending less time on these back office functions allows business owners to remain at the forefront of business sales in increasing their company's profitability.

Proper inventory planning strives to ensure markdowns due to overstock and lost sales due to stock outs are minimized. Proper inventory planning allows a planner to think about their inventory across time and is essential to effectively manage inventory levels. The goal of effective inventory management is to have enough inventory on hand at any given time to support planned sales or operational activities until the next delivery arrives. With explicit visibility to the amount of inventory required to meet sales or operational objectives and provides greater insight into how each product and/or category contributes to the overall inventory objectives.

2.3.2 Inventory replenishment and performance

According to Starr and Miller (1975), excelling at replenishment enables a retailer to implement the promotional, pricing and assortment strategies established. Not only does winning the replenishment game enable execution of these strategies, but additional profit can be gained by regulating inventory levels and reducing lost sales. Time is made available for analysis and special projects when fighting the fires of overstock and out of stocks is removed from the buyer's day. Replenishment is an area within operations where firms can find an edge to beat the competition and delight the customer.

Fabrycky (1967) argues that replenishment is the recurring process flow from the time one order is placed to the time the next order must be placed to replenish depleted inventory. The replenishment cycle may be triggered at any point of the production, distribution, or sales cycle depending on what works best for a specific industry. For example, a business may wish to have the replenishment cycle recur while there is still enough stock on hand to meet orders for

the next 30 days; or it may put off replenishment until a specific minimum order quantity is reached.

Demand forecasting estimates future sales for the item. Lead time forecasting estimates it will be seven days (accounting for sales of 23 pieces) until a purchase order will be received once placed (Anderson, 2004). The replenishment step brings together an item location's current inventory position along with the results of the previously mentioned replenishment components. The outcome of this step is a Suggested Order Quantity (SOQ) necessary to support future demand and service level requirements. There are several other attributes of the best replenishment solutions and processes. While orders may normally be placed once every seven days in the example, the best solutions will calculate an SOQ for every item location every day. This enables a solution to recognize sales spikes and inventory count updates as soon as possible and react with additional inventory if needed. While the processing time required for this can sometimes be long, the benefits are substantial. Because many slow selling item locations may not register a sale on a particular day, processing times can be minimized by only calculating an SOQ when sales or inventory activity is posted. Another complexity addressed by the best replenishment solutions and practices is the idea of vendor level ordering. While the examples used up to this point have been at the item location level, buyers place orders to vendors. Vendor level ordering acknowledges that while a single item may need additional product to preserve its service level, the other items carried by the vendor may not (Anderson, 2004). According to Kizza (2001), Replenishment processing enables an organization to maintain the inventory stocking levels, also known as on-hand quantity balances.

2.3.2.1 Ad hoc replenishment.

Create replenishment requests in response to specific demands for stock that you cannot fulfill. You can automate ad hoc replenishment by selecting the Create Ad Hoc Requisitions option

for all items in a business unit on the Setup Fulfillment page or for a specific item on the Setup Item Fulfillment page or the Define Business Unit Item-Inventory: Replenishment page. When this option is active, the Reserve Materials process (IN_FUL_RSV), Shortage Workbench, and Shipping/Issues component create ad hoc replenishment requests whenever insufficient available on-hand quantity results in the creation of a backorder. Ad hoc replenishment requests are created only for the first backorder line generated (Kizza (2001).

2.3.2.2 Reorder point replenishment

Specify stocking levels for each item in a business unit and then generate replenishment requests when the available on-hand quantity is less than or equal to the reorder point specified. You can have the Calculate Replenishment Parameters process (IN_RPL_PRM) calculate reorder points for each business unit-item combination or enter these values manually on the Setup Item Replenishment page. The Create Replenishment Requests process (IN_REPLEN_AE) compares the available on-hand quantity (plus any on-order quantity) with the replenishment point set for each item and generates a replenishment request for any item with quantity equal to or below the reorder point. PeopleSoft Inventory records both ad hoc and order point replenishment requests in the replenishment request table (REPLEN_RQST_INV). If the installation includes PeopleSoft Purchasing, the Requisition Loader process (PO_REQLOAD) moves the requests into the purchasing tables. You can view, cancel, or print these requests from the Manage Replenishment Requests page. If you use fixed picking locations, you can also take advantage of these options (Kizza (2001).

2.3.2.3 Fixed bin replenishment

Fixed bin replenishment, which works in conjunction with ad hoc or reorder point replenishment, generates an internal request to restock the fixed picking locations from the main warehouse or stockroom, using the optimal quantities defined on the Fixed Picking

Locations page. When the on-hand quantities in these storage locations fall below the optimal quantity, they create replenishment requests process which generates a restocking request. You can print a list of restocking requests using the Fixed Bin Replenishment Report page. You can also use the Fixed Bin Replenishment workflow to streamline transfers when you run the Replenishment multi -process job (Kizza (2001).

2.3.2.4 Fixed Pick workflow

If you select the Use of Fixed Pick Workflow option on the Setup Item Fulfillment page or the Setup Fulfillment-Order Release page, the Picking Plan report initiates the Fixed Pick workflow whenever there is insufficient quantity available in the sequence of fixed picking locations to fulfill an order. This occurs when there is no quantity available to allocate or, in environments that allow shipment of partial quantities, when the full quantity is not available and there is sufficient quantity outside of the fixed picking locations to fulfill the order. If the quantity does not exist in the business unit, the picking plan prints an error message Anderson, (2004).

The Fixed Pick workflow creates a work list entry to notify you that you must transfer stock to the fixed picking locations before picking can continue. When you open the work list entry, the workflow transfers you to the EZ Transfers page, where you can select storage locations from which to transfer stock. The work list entry recommends transferring enough stock to fill the highest priority fixed picking location to its optimal quantity; however, it also displays the order line quantity that triggers the workflow and indicates whether any partial quantity has been allocated to the order line, so you have the option to transfer only the minimum quantity required to fulfill the order.

On-Order Quantity. Inventory uses on-order quantity along with the reorder point to determine whether a replenishment request should be created. On-order quantity includes:

Quantities on open purchase requisitions (depending upon the business unit settings). Quantities on open purchase orders (POs) (minus any quantity that has already been received and put away). Anderson (2004)

Quantities on inter unit transfers for which the destination business unit is the current inventory business unit and the quantities have not yet been received and put away.

Ross et al (2004) notes that Inventory replenishment sometimes bases on forecasts, the forecast is first sent to Supply Network Planner where the system calculates what should be purchased or produced. The replenishment strategy is to use Material Requirements Planning (MRP) to control inventory. The system takes several aspects into account when calculating purchase or production requisitions. The following aspects are taken into account: inventory level, "open" production or purchase orders (meaning that the same article has been ordered but not received in the warehouse), forecast and safety stocks. The system then generates a production or purchase order, these orders are suggestions which are sent to production planners or purchasing who are analyzing the suggestions and refine them before the actual orders are created. Factors that are frequently taken into account are for example lead times, minimum Order Quantities (MOQ) and bundling. A MOQ in the production is set by the company and is the minimum quantity that is profitable to produce, other factors may influence the MOQ. A MOQ in purchasing is negotiated between the company and the supplier, which means that it is the smallest quantity the organization can order from a supplier (Ross et al., 2004).

2.3.3 Inventory control and performance

Bonny (2010) states that implementing an inventory control system allows businesses to keep a tighter lid on the products on their shelves. Once the inventory control system is in place, it is easy to determine how much of every product is on the shelf. This makes it easier for companies to manage their inventories and control their costs. Integrating the ordering system

with inventory control makes it easier for companies to get the products they need from the factory to the store shelves.

Stieglitz (2010), said that like any other control methods, budgets have the potential to help organizations and their members reach their goals. Budget control offers several advantages to managers such as improving resource allocation because all the requests are clarified and justified. Budgets also provide corrective tools through reallocation of resources.

A formal inventory control system can produce substantial savings for a company. These savings are realized in several different forms, depending on the particular situation of a company. Some common sources of such savings are lower purchase cost, lower interest expenses or an increase in the availability of internal funds, lower operating costs (clerical expediting, transportation, receiving and others, lower production cost per unit, dependable delivery of production and the better customer service in the supply of goods (Elwood, 1987).

According to Ablo (1994) inventory control ensures regular supply of materials so as to enable uninterrupted production; it minimizes investment of capital on purchase of materials. It also reduces damage and obsolesce, reduces inventory carrying costs, avoids duplication in ordering the materials, avoids theft or loss of material, simplifies accounting for materials and it makes use of modern technique such as standardization; value analysis: input substitution which cut down the material costs.

According to Dimitrios (2008) inventory management practices have come to be recognized as a vital problem area needing top priority.

Gary (1994) states that inventory control encourages reduction of production costs because of smooth flow of materials, efficient use of invested capital, that is balancing of the three preceding elements in the cost of capital encouraging good financial management of inventory,

optimal customer service that is quantity purchase (low production runs) assure optimal customer service and provide efficient scheduling of internal operations.

According to Luanne (2010) the sales department depends on accurate inventory numbers to plan their sales strategies. A salesman on a retail sales floor must be able to produce the item that they are selling to the customers. Production planning depends on an accurate inventory to schedule and plan the widgets that are produced by the manufacturing department each day. The planning department develops a schedule by consulting available inventory and resources to determine which orders are produced first and lastly ensures that the numbers are accurate for production planning.

Muehlemann (1992) states that inventory control encourages a stock item file, which consists of the basic information on all items with one record (or card in a manual system) for each item including basic information, ensure that stocks for a particular job are earmarked before actually issuing it to the job. Since some types of items go into quarantine on annual in stock only to be free for issue when some tests have been successfully completed and materials issued to a job back to a particular delivery can easily be traced and stocks of some items may be held at several locations.

Inventory control policy requires a set of rules for deciding how the numbers held in stores should be control so that the stores objective will be met, one of the most commonly used example is for moving parts and is based on the notion of a cost optimal reorder level (for any particular part, the stores holding which when reached will trigger the process of re-ordering) and cost optimal economic order quantity the quantity to be ordered at any one-time policy to control replenishment. Good inventory control system is essential to the success of a business, both for its own records and for records that will be reviewed by the IRS and other outside entities. Inventory control software aids management to easily track company investments and

see where improvements may be made. Montanye (2010) notes that inventory control software helps the inventory manager to save time by keeping calculations up-to-date giving the manager easy access to the numbers that are needed for reporting and restocking information. These figures can easily be accessed by Purchasing Department for fast, up-to-the-minute information on what will need to be bought.

According to Morgan (2010), with a proper inventory control system in place, it is easy to compare physical inventory counts to the numbers in the system. If there is a discrepancy, management will know about it immediately instead of the missing or excess items being overlooked for weeks or months. Kiza C (2010), tighter inventory control can allow for the implementation of a leaner inventory management process such as just in time (JIT) ordering. With this technique, the lead time required to order materials and merchandise decreases, resulting in a more efficient process. For this to be successful, however, tighter inventory control is necessary because the margin for error is also lower. Buyers and other purchasing personnel can gain a better handle on how much inventory is on hand, taking much of the guesswork out of their purchasing decisions.

Chay (2000) notes that with effective control and management over inventory stock, as well as accurate visibility and fast efficient fulfillments, comparative pricing can be given on a customer-to-customer basis. In addition to cutting down on operating costs, it will also bring satisfied customers back for more businesses in the near future.

Effective inventory control reduces expenses including cost of capital, storage and risks (including obsolescence, damage and theft) plus the appropriate taxable amounts because it reduces the total amount of inventory required to manage the business. Kenneth, (2010), points out that inventory control monitors the level of inventory and proactively manages obsolescence and deterioration by ordering in the appropriate quantities. Effective inventory

control also reduces storage costs, because it orders enough inventory Well-defined inventory control policies can reduce the labor costs associated with managing the inventory.

With an inventory control system in place you can easily track the movement of the inventories on daily basis, go down basis, date-wise, category-wise, item-wise, party-wise etc. This helps you to stock the materials in the required quantity and avoid overstocking. The inventory management system helps you to generate different kinds of reports on the available data which will help the management to take informed decisions. If this software is integrated with the POS system, then you will get data related to the daily sales or usage of an item. With this information you can chart out the demand for a particular product. This helps you to stock the inventory related to the product in demand. Thus this software helps you to meet the demand in the market and increase the profitability. Shankar, (1996), notes that inventory control encourages maintaining a constant availability of raw materials, purchased parts and supplies that are required for the manufacture of products. Functional responsibilities include the requisition of materials for the purchase in economic quantities at the proper time and their receipts, storage and protection, issuing of materials to production upon authorized request and the maintenance and verification of inventory records. To many business owners, inventory control impacts cash flow directly; a good automated system will help immensely in calculating inventory turnovers. Total inventory turnover is stated either in number of turnovers per year or number of days of inventory on hand (Broom, 1999).

2.4 Inventory Control Systems

2.4.1 Just in time

Waterman (2009), argues that JIT offers another approach which does not use rigid plans but gives a way of organizing all activities to occur exactly the time they are needed. They are not done too early which would leave materials around until they are actually needed and they are

not done too late which would give poor customer service. JIT looks for improvements to solve problems rather than accept current bad practice with stocks.

Drury (2008) states that JIT involves delivery of materials immediately they precede their use. By arranging with suppliers for more frequent deliveries; stocks can be cut to a minimum, considerable savings in material handling expenses can be obtained by requiring suppliers to inspect materials before their delivery and guaranteeing their quality. The companies have managed to have substantially reduce their investment in raw materials and work in progress stocks. Other advantages include a substantial saving in factory space, large quantity discounts, and savings in time from negotiating with few suppliers and a reduction in paperwork ensuring from issuing blanket long term orders to a few suppliers rather than individual purchase orders to many suppliers.

JIT is based on planned elimination of all waste and continuous improvement of inventory productivity. It encompasses the successful execution of all manufacturing activities required to produce a final product right away from design engineering to delivery including all stages of conversion from raw material on ward making provision of inventories to customers as needed in right quantities and at the right time (Lyson, 2006).

Baily (2005) urges that it requires production when and not before a customer requires something and the pursuit and elimination of waste in production and associated planning and purchasing. The basic idea is simple, if made in parts are produced in just the quantity required for the next stage in the process just in time for the next operation to be carried out, if bought out parts are delivered direct to the production line without delays in stores, inspection just on time for the needs of production and in just the quantity needed, then material stocks are largely eliminated too.

Burt et al, (2003), states that JIT involves specification of the minimal lead time in terms of days or weeks of material usage that the supplier will accept prior to supplying the modified material. Both parties should know what the suppliers planned inventory levels are so as the firm is not likely to be left with an unusable stock built to the buyer's specifications. This encourages responding quickly to demand changes because of their right scheduling and low inventory characteristics on the buyer's side.

JIT means that components and raw materials arrive at work centers exactly as they are needed. This feature greatly reduces queues of work in progress inventory. JIT is a mixture of high quality working environment, excellent industrial engineering practice and a healthy focused factory attitude that operations are strategically important. The order and discipline are achieved through management effort to develop streamlined plant configurations that remove variability (Fearon, 1997).

2.4.2 Material requirements planning

Ballou (2004) says MRP primarily is used for scheduling high valued custom made parts, materials and supplies whose demand is reasonably well known. The purpose of MRP from logistics point of view is to avoid as much as possible carrying these items in inventory. A new product is stocked in a field warehouse and is controlled using a reorder point inventory control procedure. The result of this policy is to send intermittent replenishment orders to the inventories at the plant. Because of the intermittent depletions of the component inventory, high inventory levels must be maintained when they are not needed. If the depletion rate of the inventory level can even roughly be anticipated, components may be ordered just ahead of the depletion with a result substantial saving in inventory carrying costs.

MRP is a computer based information system for scheduling production and purchases of dependent demand items. It uses information about end product demands, product structure

and component requirements, production and purchase lead times and current inventory levels to develop lost effective production and purchasing schedules. The system assumes that the end product is made up of hierarchy of assemblies, subassemblies, components or raw materials. A schedule of end products requirements based on demand forecasts or actual customer orders (Martinich, 1997).

Morrison (1996) states that MRP is an approach to stock and scheduling that is widely employed in situations where demand is dependent that is to say where demand can be planned or predicted on the basis of a known program of future activity. MRP begins with knowledge of how much end product is desired and when it's needed. This information is broken down into the timing and quantity details suited to a large manufacturing organization which produces some components in the organization, buys other components from suppliers and ultimately assembles them all into finished products.

MRP involves recognition of products to be maintained or assembled which is represented by a bill of material. Brown et al., (1996) notes that a bill of material describes the parental relationship between an assembly and its components parts or material. The bill of material may have an arbitrary number of levels and will typically have purchased items at the bottom level.

Zenz (1994), states that this system is derived from four central elements including; the bill of materials file, the inventory control status file, the master file and the production schedules and material planning packages. The bill of material file contains information of all end products, including its relationship to sub-assemblies and finished products. This is an essential logic of material requirement planning that is a fact that the demand for material parts and components depends on demand for an end product.

Elwood (1987) urges that MRP exploits the information about dependence on demand in managing inventories and controlling their production lot sizes of the numerous parts that go into the making of a final product. The managerial objective in using MRP is to avoid inventory stock outs so that production runs smoothly according to plans and to reduce investment in raw material and work on progress inventories. One input of MRP system is a bill of material constructed a way that recognize the dependence of certain components on subassemblies which are in turn dependent on the final product.

Shane (1984) urges that many manufacturers use a closed loop MRP system to schedule and control production, inventory levels and deliveries from outside suppliers. Supplier finished data can be used by the individuals controlling the firm's incoming materials schedules as they monitor the system reports. Daily or weekly status reports flow from the supplier to the scheduler who then inputs the data for the next MRP run.

2.4.3 ABC Analysis

Waterman (2009) has it that ABC puts items into categories that show the levels each category with more control on A items followed by B then least control on C items. This is a standard Pareto Analysis or rule of 80/20 which suggests that 20% of inventory items need 80% of the attention while the remaining 80% of items need only 20% of the attention. The categories are defined in terms of the value of annual demand, so ABC analysis starts by calculating the annual usage by value of each item. This means that it multiplies the number of units used in a year by the unit cost. Inevitably, a few expensive items account for a lot of use, while many cheap items account for little soliciting of the items in order of decreasing annual use by value, leaves A items at the top of the list, B items in the middle and C items at the bottom.

Martins (2005) urges that ABC can be used as a basis for classic inventory control whereby the highest level of service (as represented by safety stock) is provided for the "A" products slightly lower level for the "B" products and lower still for the "C" s.

Baily (2005) states that Pareto Analysis often called ABC analysis was named after an Italian philosopher and economists Wilfred Pareto and it brings out a range of stock items split into three classes called AB&C. Typically 70% of the total demand for stock is due to only 10% of the items; class A. another 20% of the items account for a further 20% of demand; class B, and that leaves class C comprising 70% of the items or lines in stock but accounting for only 10% of the demand in monetary terms. Most of the money goes on A items so its economical to order frequently, control highly, calculate requirements as exactly as possible. Shortages are monitored by frequent checks and energetic chasing rather than buffer stocks. Very little money goes to C items and its economical to order infrequently, control loosely, estimate requirements roughly and prevent shortages by ample buffer stocks.

According to Ballou (2004) ABC is a common practice in aggregate inventory control to differentiate products into a limited number of categories and then to apply a separate inventory control policy to each category. This makes sense since not all products are of equal importance to a firm in terms of sales, profit margin, market share or competiveness. By selectively applying inventory policy to these different groups, inventory service goals can be achieved with lower inventory levels. This disproportionate relationship between the percent of items in inventory and percentage of sales has generally been referred to as the 80-20 principle. Ablo, 1998 urges that ABC analysis underlines a very important principle 'vital few-trivial many'. it's a technique of material control where items are classified into high value (class A), medium value (class B), low value (class C). depending upon the relative economic value, the materials are designated as ABC .in most of the companies about 10% of the items constitute 70% of the

total value of the materials, the next 20% accounts for about 20% of the total value of materials and the last 70% of items constitute about 10% of the material value.

Muehlemann et al, (1992) stated that ABC or Pareto analysis is a systematic structured approach to distinguish between 'vital' few and 'trivial' many. In many organizations undertaking large tasks, an ABC will often reveal that detailed control of a few orders will control the bulk of the organization's workload. Analysis of annual usage commonly shows a concentration of value in a comparatively small number of items so that if there are 10,000 items in stock at any one time, control of 20% of these will effect control of 80% of annual spending.

ABC is a system of giving attention to matters according to degree of their importance instead of giving equal attention to all matters**.** Nair (1990) states that items will be divided into three categories; A, B and C." A" items will be of high value," B" items will be of medium value and "C" items will be of low value. The objective of ABC technique here is to reduce both minimum stock and the working stock. The scope for this reduction lies mainly in A items. Therefore, minimum stock of A items should be kept as low as possible or even eliminated but this would involve a constant watch of the stock position of the items concerned and in ensuring that there is no delay in receiving supplies. Minimum stock of B items can be little higher and the c items fairly high so that no special effort will be necessary to avoid sock outs.

2.4.4 Economic order quantity

Waterman (2009) has it that EOQ is the optimal size for an order in a simple inventory control. This analysis was done early in the last century and it remains the best way of controlling many stocks with independent demand. Its flexible and easy to use and gives good guidelines for a wide range of circumstances.

Ballou (2004) shows that Ford Harns in his work at Westinghouse recognized the problem of balancing procurement costs against carrying costs by developing the model for finding the optimum order quantity known as basic EOQ formula which serves as the basis in practice. The basic EOQ formula is developed from a total cost equation involving procurement cost and inventory carrying cost

The Economic Order Quantity (EOQ) is the number of units that a company should add to inventory with each order to minimize the total costs of inventory—such as holding costs, order costs, and shortage costs. The EOQ is used as part of a continuous review inventory system, in which the level of inventory is monitored at all times, and a fixed quantity is ordered each time the inventory level reaches a specific reorder point. The EOQ provides a model for calculating the appropriate reorder point and the optimal reorder quantity to ensure the instantaneous replenishment of inventory with no shortages (Krupp, 1994).

Shane (1984) defines EOQ as the optimal order size (number of units) an organization buys every time it places an order. It assumes a known demand and uniform usage. It's the square root of twice annual demand and uniform usage of an order divided by the cost to carry a unit of inventory for a year. The quantity of inventory that should be purchase every time an order is placed, the actual timing of purchase should take into account these factors: average daily demand for the units of inventory, lead time to receive an order and desired level of safety stock.

EOQ involves weighing the costs of getting stock against the costs of keeping stock. Should establish how operating costs change and when order quantities are changed. The aim of EOQ is to find for each stock item the order quantity which gives the lowest cost allowing both for stock holding costs that increase when we make the order bigger because this leads to larger

stocks and for ordering costs that increase when we make the order smaller because this leads to more orders (Baily, 1994)

2.4.5 Inventory verification system

Thukaram (1990) notes that this is a system under which inventories physically present in the storeroom are checked with the store records to know whether all the inventories are intact. This process is also known as stock taking which help in accounting purposes. The physical verification of inventories with the stores records reveals the discrepancy and condition of materials. According to Morrison (1996) this involves the process of verifying of quantity balance of entire range of inventories held in stores and may be applied either regularly (continuous), or periodic. It encourages verifying of accuracy of inventory records, to support the value of inventory down in the balance sheet by physical verification.

Ballou (2004) urges that it requires constant monitoring of the inventory levels. Alternatively, under periodic review control, inventory levels for multiple items can be reviewed at the same time so that they may be ordered together, thus realizing production, transportation or purchasing economies. According to Waterman (2009) orders vary in amounts at regular intervals. The operating cost of this system is generally lower and its better suited to high regular demand of low value items. Supermarkets traditionally use periodic review and every night the tills pass message to suppliers to replenish products that were sold during the day. But the systems become more responsive and reduces stock levels, if it sends messages more frequently say two or three times a day, suppliers consolidate these orders and send deliveries as often as necessary. Ordering cycles can be varied by reviewing different classes of stock at different intervals. Baily (2005) for instance says class A items can be reviewed frequently, class B items less frequently and class C items once or twice a year. Elwood (1987) states that inventory status is reviewed on a periodic basis and an order is placed for an amount that will

replenish inventories to a planned maximum level. The reorder quantity therefore varies from one review period to the next. It makes operating efficiencies possible by reviewing the status of all items at the same time; it also provides the basis for adjustments to take account of demand changes. Nair (1990), this system involves ascertaining by internal auditors to ensure correct records of stock shown in the bin card or annual inventory sheets. The verification discloses irregularities and induces stores staff to maintain correct records. The verification process is divided into three namely spot check, continuous stock verification and annual stock verification or end of financial year stock check.

2.5 Summary of Literature Review

Literature is awash with positive relations and weak relations between the inventory management practices and performance of firms. Most of the literature seem to suggest that there is relationship between inventory management and performance while a few others have not consented. Reviewed literature earmarks the important role of inventory planning in an organization through creation of internal policies and procedures for inventory planning which must form part of budgeting and the flow of inventory in the company and accounting policies for valuing inventories and procurement of inventories, but they have not stated the challenges associated with lack of proper planning of inventories in a firm dealing in utility product water which is a necessity in life.

Inventory replenishment and performance. Previous researches have recognized the importance of inventory replenishment in regulating inventory levels and reducing lost sales due to stock out but they have not stated how poor replenishment impacts on the performance of staff in different departments of a firm.

Inventory control and performance. Previous researchers have emphasized the importance of implementing inventory control system to allow business to keep tighter lid on the product on their shelves, but they have not linked the control to operation and maintenance of materials like the ones used in utility firm like NWSC.

Nonetheless, this literature does not distinctly lay down the effects of inventory management on operational performance of utility organizations. This therefore forms the basis for this study.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter includes the following; research design, study population, determination of the sample size, sampling technique, data collection instrument, Data Quality control (validity and reliability), Procedure of data collection, Data analysis, Measurement of variables and ethical considerations.

3.2 The research design

The study adopted cross sectional study design by using both quantitative and qualitative approaches as its frame work to guide the process of data collection and processing on the assessment of inventory management on performance of utility organization in NWSC Kampala city. According to Kothari (2004), cross sectional survey design is the collection of data mainly using questionnaires and structured interview to capture quantitative or qualitative data at a single point in time. According to Carrie, (2007), cross sectional studies involves the researcher comparing two different two different groups within the same parameters. Although, there were other designs like longitudinal studies, observational studies, survey research method, cross sectional design survey was chosen because its time saving and also less costly since the researcher goes to the field once Frechtling, (2002). The quantitative approach was adopted to measure the magnitude of the various constructs and variables that are conceptualized in the study. This was done by testing hypothesis using Pearson correlation coefficient and multiple linear regression modelling (Barifaijo, et al). The qualitative approach through interview guide was adopted because it is the best way to bring out respondents' opinion and perceptions. Further, the approach is preferred because it is suitable for answering "what, why and how" socioeconomic questions Amin, (2005) A combination of both quantitative and qualitative approaches thus served as a strong basis for drawing compelling

conclusions and recommendations in line with the objectives of the study (Mugenda & Mugenda 2003)

3.3 Study population

According to Sekaran; (2003), the Population refers to the entire group of people, events or things of interest that the researcher wishes to investigate. NWSC has the actual population of all employees in the corporation standing at 3000 (three thousand workers) however; the target population was 150 staff and the accessible size was 108 staff selected from Head quarter and 15 branches of Kampala water but working in different departments. Majority of the respondents were staff dealing directly with inventories under different circumstances as detailed in the determination of the sample size in (table 1) attached. Headquarters and Kampala Water were chosen because they are representative of all other areas where NWSC is operating. According to Kothari (2005), a sample is a small group of the universe taken as the representative of a whole. A sample is also a subset of some pre-determined size from a population of interest Gott & Duggan, (2003) which when studied, the sample results may be fairly generalized back to the population from which they were chosen.

3.4 Sample size determination.

From the target population of 150 respondents from staff working in different departments both at Head Quarters and 15 branches of Kampala Water selected on purposive basis since they serve more customers than others., a sample of 108 respondents of both sexes were selected using Krejcie and Morgan (1970) sample size determination model (see appendix 1). These respondents included respondents from different sections under various departments but they deal directly with inventories under different circumstances as detailed in the table. All except for evaluation and monitoring staff were selected on purposive basis.

Table 1: Study Population, Sample Size and Sampling Techniques

Category/ Group	Study Population	Sample Size	Sampling Techniques	**Comments**
Engineers and Technicians	25	24	Purposive	One Engineer was on leave
Inventory officers	25	24	Purposive	One Engineer was on leave
Finance & cost accountants	25	10	purposive	Only ten accountants were directly handling inventories
Branch mangers	25	15	Purposive	15 out of 25 branches were selected based on number of customers served
Evaluation and Monitoring Staff, customer care officers	25	15	Simple random Selection sampling	Evaluation staff were chosen from any department
Procurement officers	25	20	Purposive sampling	Five procurement officers were on leave
Total	**150**	**108**		

Source: from personnel department National Water and Sewerage Corporation

3.5 Sampling techniques and procedure

Simple random sampling technique was used to select 15 out of 25 branches focusing Kampala region main branches from which 108 respondents from different departments as detailed in the table above were asked to fill questionnaire forms, while others were interviewed accordingly. This procedure is chosen because it is appropriate in the selection of sample size given the availability of sampling frame, and most importantly it minimizes sampling bias. (Mugenda & Mugenda 2003).

3.6 Data Collection Methods

Data collection methods are a number of interrelated activities aimed at gathering information to answer the research questions (Creswell, 2007). Suzanne (1998) as cited by Marshall and Rassman (1989), states that making a choice among the different data gathering techniques

involves considering their appropriateness and relative strengths and weaknesses. Data was collected from both primary and secondary sources Amin (2005) Quantitative and qualitative methods was used in the collection of primary data. Primary data was collected using self-administered questionnaires and interviews. While secondary data was obtained from review of documents such as journal articles, reports, academic theses and working papers among others. Frechtling, (2002). Primary data is used because it gives the most resent and accurate data about the study since respondents report on current events. Secondary data is also used because it gives history and past findings on the study variables which are key in predicting and setting the trend for current situation Barifaijo et al, (2010)

3.6.1 Questionnaire method

A questionnaire survey is a method of data collection in which a set of questions on a form are submitted to a number of people in order to collect statistical information Amin (2005). A questionnaire is a well-established tool within social science research for acquiring information on participant's social characteristics, present and past behavior, standards of behavior or attitudes and their beliefs and reasons for action with respect to the topic under investigation Bird, (2009) it's mainly made up of a list of questions with clear instructions and a space for answers or administrative details. The questionnaire to be used was closed and open ended which according to Patton (2002) yield in-depth responses. Kothari, (2004) argues that questionnaire is advantageous because it is free from bias of the interviewer since answers are in the respondents own words. The researcher used self-administered questionnaire as an instrument to collect data from NWSC staff from the different departments under study on inventory management and performance of utility organization.

3.6.2 In-depth Interview method

According to Bailey (1994), an interview is an instance of social interaction between two individuals, the interviewer and the respondent. The interviewer used an interview guide as

the instrument which allowed for an in-depth examination of the key informant on issues related to inventory management and performance of utility organizations. Interviews enabled the interviewer to establish good rapport with the respondents, allowing the interviewer to observe, discuss and listen as well as permitting complex questions to be asked. Respondents gave their views on the challenges they go through during inventory management and performance of utility organizations. Interviews are friendly fact finding conversation formulated in question form Barifaijo, et al (2010). According to Corrie (2007) key informant interviews are in- depth interviews with people who know what is going on in the organization and community as well. Interviews are key in any research study because they are enriched with information and tell what is happening at the time of narration, present, past and future time (Mugenda & Mugenda, 2003).

3.7 Data collection instruments

3.7.1 Questionnaire

A questionnaire was used to collect data from the National Water and Sewerage Corporation staff particularly branch managers, engineers, finance and cost accountants, inventory officers, procurement officers and evaluation and monitoring officers. The questionnaire (Appendix 1) was used in this case because it enabled collection a lot of information from a large number of individuals in quite a short period of time. The questionnaires are popular because the respondents filled them at their own convenience and appropriate for large samples Mugenda & Mugenda, (2003)

3.7.2 Key informant interview guide

The researcher prepared and used a semi structured interview guide (Appendix 11) to conduct interviews with selected management team members particularly branch managers, engineers, technicians operating in the field and customer care staff. Interviews are chosen because they provide in –depth information about a particular research issue or question. Still interview also

make it easy to fully understand someone's impression or experiences or learn more about their answers as compared to questionnaire. According to Mugenda & Mugenda, (2003), interviews are advantageous in that they provide in depth data which is not possible to get using questionnaires.

3.8 Data Quality Control

3.8.1 Data Validity

The validity of the research instrument refers to the degree to which an instrument measures what it is set out to measure**.** Keeves, (1988) as cited by Amin, (2005) argues that validity measure are essential to successful scientific activities because of its wide acceptability among science methodologies, theoreticians, researchers, and philosophers. To ensure validity, the researcher consulted experts, lecturers and colleagues in line with my academic field to review the tool instruments to ensure its consistency with the study objectives and the literature review. The expert rated each item as either relevant or irrelevant. Validity was determined using Content Validity Index (C.V.I). C.V.I = Items rated relevant by both judges divided by the total number of items in the questionnaire as shown below.

$$CVI = \frac{\text{No. of items rated relevant}}{\text{Total no. of items}} \qquad 40/42 = 0.95$$

3.8.2 Data Reliability

Mugenda and Mugenda, (2003) defines it as the measure of the degree to which a research instrument yields consistent results or data after repeated trials. Reliability in research is influenced by random error. As random error increases, reliability decreases. Random error is the deviation from a true measurement due to factors that have not effectively been addressed by the researcher. Errors may arise from inaccurate coding, ambiguous instructions to the subjects, interviewer's fatigue, interviewee's fatigue, interviewer bias, and others. Taking into perspective all this, the researcher ensured data is accurately coded, clear instructions devised

and ultimately pre-test, tests and retests was conducted before the study. The questionnaires and interview guides were tested first then in approximately two weeks the researcher went back and interview again the same number. Data was compared, and in this way, the researcher was able to examine the relationship between inventory management and performance of utility organizations a case of National Water and Sewerage Corporation Kampala city.

Table 2: Reliability Analysis

Variable	No of incidents retained	Cronbach's Alpha Coefficient
Inventory planning	10	0.75
Inventory replenishment	10	0.78
Inventory control	10	0.84
Performance	10	0.72

Table 2 above shows a Cronbach alpha of 0.75 for inventory planning with 10 items, 0.78 for inventory replenishment with 10 items, 0.84 for inventory control with 10 items, and 0.72 for performance with 10 items. The tool therefore passed the test of reliability for each of the variables and for all the variables since they were all greater than 0.7, given that the level of Cronbach that is adequate is any value equal to or greater than 0.7 (Amin, 2005). The instruments were therefore suitable for data collection.

3.9 Data Collection Procedure

Upon approval of the proposal from Uganda Management Institute, the researcher was given a letter of introduction from UMI to NWSC's management. The researcher obtained approval from NWSC to carry out the research. The researcher afterwards presented a letter of consent to the respondents, after which, questionnaires was distributed. The respondents were given time within which they should return the fully filled questionnaires. Dates were set for the interviews with the key informants. After the questionnaires were filled, the researcher collected, sorted, and coded them accordingly.

3.10 Data Analysis

Field data was first cleaned to remove errors before data analysis process for both quantitative and qualitative data collected. Data cleaning is the process of detecting and correcting inaccurate record in a data set or a questionnaire, Amin, (2005)

3.10.1 Quantitative Data Analysis

Quantitative data analysis involved use of both descriptive and inferential statistics and three levels of analysis was performed, univariate, bivariate and multivariate analysis Statistical package for Social Scientist was used in the analysis. Descriptive statistics was performed to determine measures of central tendency such as mean, frequency distribution and percentages and the result was presented using frequency distribution table. Inferential statistics was performed using Pearson Correlation and multiple leaner regression analysis to test the hypothesis. According to Mugenda & Mugenda, (2003) the two analyses are the most appropriate to conduct the study in the natural environment of an organization with minimum interference and no manipulation.

3.10.2 Qualitative Data Analysis

Qualitative data analysis involved both thematic and content analysis based on the study objectives. Qualitative data was conducted through interviews and writing the summaries in a note book and later on analysis was done by categorizing common themes extracted from responses of interviewees. Thematic analysis was used to organize data into themes and coded and the results was reported in verbatim using quotation marks Golafshani, (2003)

3.11 Measurement of Variables

Nominal, ordinal and Likert scales was used to assess inventory management practices and performance of utility organization of NWSC in Kampala and Wakiso Districts. Likert scale was employed to indicate the extent to which NWSC staff agree or disagree on inventory planning, inventory replenishment, and inventory control and organization performance. A

Likert scale was anchored to measure the items in the questionnaires as follows: 1.SD=Strongly Disagree, 2. D=Disagree 3. NS=Not sure, 4 A=Agree, 5 SA=Strongly Agree.

3.12 Ethical Considerations

Ethics in research studies are emphasized because they involve interaction with people or sensitive documents hence it is important to mind about proper conduct during these interactions (Macmillan &Schumacher, 2010). To this end therefore, the researcher sought permission to interview respondents and also access relevant documents by presenting an introductory letter from Uganda Management Institute (UMI). Respondents were informed through a letter from the researcher and their consent was sought prior to involving them in the study. The researcher explained to the respondents that the study was for academic purposes only and the respondents were assured that the study would not cause any danger directly or in directly and that their participation was voluntary. Confidentiality was ensured during the data collection by safely keeping the information obtained from the respondents away from people who were not part of the study. Respondents were asked not to reveal their names in the research questionnaires administered to them for purposes of observing anonymity of the respondents. An effort was also made to report direct or quoted qualitative findings without revealing the names of the respondents'.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTEPRETATION OF FINDINGS

4.1 Introduction

This chapter of the study deals with data presentation, analysis and the interpretation of the results. The analysis is guided by the specific objectives and the hypotheses that were used in the study. The presentation of results was done in three sections. The first section presents the response rate, while the second section presents the demographic characteristics and the third section presents the analysis of the study findings in relation to specific objectives. The purpose of the study was to investigate the relationship between inventory management and organization performance of utility organizations a case of National Water and Sewerage Corporation Kampala city.

4.2 Response Rate

Table 3: Response rate

Population category	**Sample size**	**Actual no of responses**	**Response rate**
Engineers/Technicians	24	23	95.8%
Inventory officers	24	21	87.5%
Finance/cost accountants	10	10	100.0%
Brach mangers	15	14	93.3%
Evaluation/Monitoring Staff, customer-care officers	15	14	93.3%
Procurement officers	20	19	95%
Total	**108**	**101**	**93.5%**

Source: Primary data

A total of 108 questionnaires were distributed and 101 were fully and correctly filled and returned, while a total of 5 key informants were intended for interviews and only 4 were interviewed. The response rate for the questionnaires was therefore 93.5%, while that of interviews was 80.0%, giving an overall response rate of 86.7% as shown in the table below

Table 3 above shows a summary of the response rate for the study. This response rate indicates that data was collected from reasonable number of respondents; hence the collected data and the findings from it can be relied on. According to Mugenda and Mugenda (2009) a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and above is excellent.

4.3 Demographic characteristics of the sample

In this section the demographic characteristics of the respondents are presented for only the data collected using the questionnaires. The section presents gender, age, relationship, years of relationship, marital status and education level of respondents in the study.

Table 4: Distribution of respondents by gender

Gender	Frequency	Percentage
Male	60	59.4%
Female	41	40.6%
Total	101	100.0%

Source: Primary data

Table 4 shows that the majority of the respondents, 59.4% were males, as compared to 40.6% who were females. Majority of the respondents were males because the study population comprised more males than females. This was relevant to the study because the views and perceptions of the population of the study were well represented.

Table 5: Distribution of respondents by age

Age	Frequency	Percentage
Between 20 - 30 years	23	22.8%
Between 31 – 40 years	38	37.6%
Between 41 – 50 years	22	21.8%
51 years and above	18	17.8%
Total	101	100.0%

Source: Primary data

Table 5 above shows that the majority of the respondents, 37.6% were between the age 31 - 40 years, while 22.8% were between the age of 20 - 30 years, 21.8 between the age of 41-50

years and 17.8% were 51 years and above. The majority of the respondents were between the age of 31 – 40 years because this age category comprises most of the population and sample size. Therefore, the study collected data from the majority category of the population which means that the overall views of NWSC are well reflected in the study.

Table 6: Distribution of respondents by Departments.

Relationship	Frequency	Percentage
Engineers/Technicians	23	22.8%
Inventory officers	21	20.7%
Finance/cost accountants	10	9.9%
Branch mangers	14	13.9%
Evaluation/Monitoring Staff, customer-care staff	14	13.9%
Procurement officers	19	18.8%
Total	101	100.0%

Source: Primary data

Table 6 above shows that the majority of the respondents (22.8%) were engineers and technicians, while 20.7% were inventory officers, 9.9% were finance and cost accountants, 13.9% were branch managers, another 13.9% were evaluation/monitoring staff and customer care staff, and 18.8% were procurement officers. The majority of the respondents were engineers and technicians because this category comprises most of the population and sample size, and they are the ones mostly on the ground in the field. Therefore, the study collected data from the majority category of the population which means that the overall views of NWSC are well reflected in the study.

Table 7: Distribution of respondents by years in service

Years of service	Frequency	Percentage
0 - 1 year	7	6.9%
2 - 3 years	23	22.8%
4 - 5 years	38	37.6%
6 – 7 years	14	13.9%
8 – 9 years	9	8.9%
10 years and above	10	9.9%
Total	101	100.0%

Source: Primary data

Table 7 above shows that the majority of respondents (37.6%) have been at NWSC for 4 – 5 years, 22.8% for 2 - 3 years, 6.9% for 0 - 1 years, 13.9% for 6 – 7 years, 8.9% for 8 – 9 years, and 9.9% for 10 and above years. Since respondents from those who have been in NWSC for a short time to those who have worked there longest were all represented in the study, this means that the data gave a reliable representation of the population.

Table 8: Distribution of respondents by level of education

Education level	Frequency	Percentage
Diploma	10	9.9%
Bachelors	64	63.3%
Masters	27	26.8%
PhD	0	0.0%
Total	101	100%

Source: Primary data

Table 8 above shows that the majority of the respondents (63.3%) were university graduates, while 26.8% possessed masters, and only 9.9% had diplomas. This means that the study generated data from knowledgeable respondents whose perceptions contributed to the quality of findings.

4.4 Empirical findings on the relationship between inventory management and performance of NWSC Kampala city

The empirical findings of this study are presented using descriptive statistics of frequencies, mean and standard deviation, and inferential statistics of Pearson's correlation coefficient and regression analysis in relation to specific objectives. Frequencies are presented as both absolute numbers and percentages and strongly agree responses and agree responses are all presented as agree, while strongly disagree responses and disagree responses are all presented as disagree while interpreting the findings. A standard deviation approximately equal to zero means that the respondents did not vary in their opinions, while a standard deviation approximately equal

to 1 means that respondents moderately varied in their opinions and a standard deviation much larger than 1 means that the respondents highly varied in their opinions.

4.4.1 Findings on quality of service, reduced cost and increased revenue in NWSC Kampala city

Performance of utility organization a case of NWSC was measured on the questionnaire using nine statements, to which the respondents were required to show their level of agreement or disagreement. The quantitative findings from the respondents are presented in the table below.

Table 9: Views of respondents on quality of service, costs, revenue volume and rate of improvement

Statements measuring performance	SA	A	NS	D	SD	Mean	St'dD.
NWSC is one of the best performing organizations because of proper inventory management	37.9%	41.4%	6.9%	10.3%	3.4%	2.0	1.1
NWSC is providing quality services and commendable customer care due to proper inventory management	24.1%	44.8%	10.3%	20.7%	0.0%	2.3	1.1
NWSC has adequate inventories all the time and my performance is not affected due to lack of inventories	24.1%	44.8%	0.0%)	27.6%	3.4%	2.4	1.2
NWSC is quick to response to all customer demands like new connections, resolving customer complains etc. within stipulated time as result of adequate inventories	31.0%	51.7%	0.0%	13.8%	3.4%	2.1	1.1
NWSC ensures all departments have adequate inventories hence achievement of objectives is no big deal	65.5%	31.0%	0.0%	3.4%	0.0%	1.4	0.7
NWSC uses Balance score card to monitor the organization performance	37.9%	37.9%	3.4%	20.7%	0.0%	2.1	1.1
NWSC normally focuses on priority areas to be accomplished	3.4%	13.8%	6.9%	69.0%	6.9%	3.6	0.9
NWSC ensures cost reduction and revenue increase as a result of proper inventory management	6.9%	41.4%	6.9%	34.5%	10.3 %	3.0	1.2
NWSC record of continuous improvement due availability of all resources all the time	51.7%	37.9%	3.4%	6.9%	0.0%	1.7	0.8
NWSC has Monitoring and Evaluation section which evaluates performance	51.7%	37.9%	3.4%	6.9%	0.0%	1.7	0.8
Average						2.3	1.0

Key: SA – Strongly Agree, A – Agree, NS - Not Sure, D – Disagree, SD – Strongly Disagree

Source: Primary data

Table 9 shows that the majority of the respondents were in agreement on 9 statements, while they were in disagreement on one out of the ten statements used to measure quality of service, costs, volume of revenue and rate of improvements of utility organizations in Uganda a case of NWSC as elaborated below.

On whether NWSC organization is one of the best performing organizations because of proper inventory management, the majority, 79.3% agreed, while 13.7% disagreed and only 6.9% were not sure. And on the issue of whether NWSC is providing quality services and commendable customer care due to proper inventory management, the majority, 68.9% agreed, while 20.7% disagreed and 10.3% were not sure.

The majority of the respondents, 68.9% agreed that NWSC has adequate inventories all the time and my performance is not affected due to lack of inventories; while a substantial number 31.0% disagreed. Similarly, the majority, 82.7% agreed that NWSC is quick to response to all customer demands like new connections, resolving customer complains etc. within stipulated time as result of adequate inventories and 17.2% disagreed.

On the issue of whether NWSC ensures all departments have adequate inventories hence achievement of objectives is no big deal, the majority, 96.5% agreed and only 3.4% disagreed. And on whether NWSC uses Balance score card to monitor the organization performance, the majority, 75.8% agreed, while 20.7% disagreed and only 3.4% were not sure.

The majority of the respondents, 75.9% however disagreed that NWSC normally focuses on priority areas to be accomplished, while 17.2% agreed and only 6.9% were not sure. There were mixed reactions on whether NWSC ensures cost reduction and revenue increase as a result of proper inventory management, with 48.3% in agreement, while 44.8% were in disagreement and only 6.9% were not sure.

On whether NWSC record of continuous improvement was due to availability of all resources all the time, the majority, 89.6% agreed, while only 6.9% disagreed and only 3.4% were not

sure. The majority of respondents (89.6%) agreed that NWSC has Monitoring and Evaluation section which evaluates performance, 6.9% disagreed, while 3.4% were not sure.

The mean of 2.3 for performance of utility organizations in Uganda a case of NWSC is an indication that on average the respondents agreed on the statements used to measure performance with a standard deviation of 1.0 implying that their responses moderately varied from the mean. This implies that performance of utility organization in Uganda a case of NWSC is highly depended on inventory management.

4.4.2 Qualitative findings

It was found that when critical inventories like water meters and pipes for new connections were out of stock customers were not connected which resulted into reduced water sales and the volume of revenue reduced as a result impacting on revenue collection which is key to performance of utility organizations in Uganda.

4.5 To examine the relationship between inventory planning and performance of NWSC Kampala City

In order to understand the views of the respondents on inventory planning, so as to establish whether it contributes to performance of NWSC Kampala City, the study used a total of ten statements on the questionnaire to which the respondents were required to show their level of agreement or disagreement. The quantitative findings from the questionnaire are presented in the table below.

Table 10: Views of respondents on inventory planning

Statements measuring inventory planning	SA	A	NS	D	SD	Mean	St'd D.
NWSC has process for planning for inventory in place	62.1%	27.6%	0.0%	10.3%	0.0%	1.6	0.9
NWSC has over 30% of the master budget spent on inventories annually	13.7%	55.2%	3.4%	17.4%	10.3%	3.4	1.1
The personnel involved in planning for inventory always Know what to include in the budget	10.3%	58.6%	3.6%	24.1%	3.4%	2.5	1.1
NWSC has process for involving all the stakeholders in the inventory planning during budgeting	15.3%	39.9%	0.0%	37.9%	6.9%	2.8	1.3
NWSC has technology to improve inventory planning	62 %	20.8%	3.5%	3.5%	10.3%	3.7	0.9
NWSC has personnel who are trained in inventory management	17.2%	13.8%	3.5%	37.9%	27.6%	2.7	1.2
Inventory planning help my organization to improve cash flow	31%	44.8%	3.5%	10.3%	10.4%	3.0	1.1
Inventory planning help my organization to have critical materials like new connection fittings and maintenance available anytime I request for the materials	10.6%	37.6%	0.0%	24.1%	27.6%	4.0	1.0
NWSC has policies and procedures for inventory planning	41.4%	44.8 %	0.0%	13.8%	0.0%	2.8	1.3
NWSC performs well because of proper inventory planning	17.3%	3.4%	0.0%	72.4%	6.9%	3.7	0.8
Average						3.0	1.0

Key: SA – Strongly Agree, A – Agree, NS - Not Sure, D – Disagree, SD – Strongly Disagree
Source: Primary data

Table 10 shows that the majority of the respondents were in agreement on all statements used to measure inventory planning as elaborated below.

On whether NWSC has policies and procedures for planning for inventory in place, the majority, 89.7% agreed, while 10.3% disagreed. And on whether NWSC has over 30% of the

master budget spent on inventories annually, the majority, 68.9% agreed, while 27.7% disagreed and only 3.4% were not sure. Similarly, the majority, 68.9% agreed that the personnel involved in planning for inventory always know what to include in the budget, while 27.5% disagreed and 3.6% were not sure. On the issue of whether NWSC has process for involving all the stakeholders in the inventory planning during budgeting, the majority, 55.2% agreed, while a substantial number 44.8% disagreed. And on whether NWSC has technology to improve inventory planning, the majority, and 82.8% agreed, while 13.8% disagreed and only 3.4% were not sure.

The majority of the respondents (65.5%) however disagreed that NWSC has personnel who are trained in inventory management, while 31.0% agreed and only 3.5% were not sure. And on whether inventory planning help my organization to improve cash flow, the majority, 75.8% agreed, while 20.7% disagreed and only 3.5% were not sure. Similarly, the majority, 51.7% disagreed that inventory planning helps my organization to have critical materials like new connection fittings and maintenance available anytime request for the materials is made, while a substantial number 48.2% agreed.

On whether NWSC has policies and procedures for inventory planning, the majority, 86.2% agreed, while 13.8% disagreed. And on whether NWSC performs well because of proper inventory planning, the majority, 79.3% disagreed, while 20.7% agreed.

The average mean of 3.0 for inventory planning is an indication that on average the respondents were not sure on the statements measuring inventory planning with a standard deviation of 1.0 implying that their responses moderately varied from the mean. The implication of the above descriptive statistics is that while users appreciate NWSC efforts to offer high quality utility service, they are often strained. This might compel some users to start thinking about alternative sources.

4.5.1 Inventory planning and performance of NWSC Kampala City

The researcher proceeded to statistically establish whether there is a significant relationship between inventory planning and performance of National Water and Sewerage Corporation Kampala City.

This was guided by the following hypothesis:

Hypothesis*:* There is a significant relationship between inventory planning and performance of utility organizations in Uganda

The hypothesis was preliminarilyy tested at a 95% level of significance (two-tailed) using Pearson's product-moment correlation coefficient, which measured the degree and direction of relationship between inventory planning and performance of utility organizations in Uganda. The results are presented in the table below.

Table 11: Correlation matrix for inventory planning and performance of NWSC Kampala City

Study Variables		Inventory Planning	Performance
Inventory Planning	Pearson Correlation	1	.607*
	Sig. (2-tailed)		.000
	N	101	101
Performance	Pearson Correlation	.607*	1
	Sig. (2-tailed)	.000	
	N	101	101

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

Source: Generated by SPSS

Table 11 shows that there is a moderate positive relationship between inventory planning and performance of utility organizations in Uganda, (r=0.607 p=0.000 N=58). The relationship is statistically significant at 95% confidence level since p-value<0.050(=0.000). This implies that improved inventory planning shall lead to improved performance of utility organizations in

Uganda. Similarly, declined inventory planning shall lead to declined performance of utility organizations in Uganda.

Regression analysis was further used to establish the extent to which inventory planning contributes towards performance of utility organizations in Uganda. The coefficient of determination (R Square) was used and the results are presented in the table below.

Table 12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.607[a]	.369	.357	.49975

a. Predictors: (Constant), Inventory planning

Source: Generated by SPSS

Table 12 shows that the coefficient of determination (Adjusted R Square) is 0.357. This implies that inventory planning accounts for 35.7% of the variance in performance of utility organizations in Uganda. This means that there are factors outside the study variable – inventory planning that contribute to the greater percentage of performance of utility organizations in Uganda.

To assess the overall significance of the model, Analysis of Variance (ANOVA) was done and the results presented in the table below.

Table 13: Analysis of Variables (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.168	1	8.168	32.706	.000[b]
	Residual	13.986	56	.250		
	Total	22.154	57			

a. Dependent Variable: Performance

b. Predictors: (Constant), Inventory Planning

Source: Generated by SPSS

In determining whether a model is significant, the decision rule is that the calculated p-value (level of significance) must be less than or equal to 0.05. Since the calculated *p*-value of 0.000

is less than 0.05, the model was found to be statistically significant ($F=32.706$, $df = 1$, $p<0.05$ (=0.000)). This means that inventory planning has a significant contribution to performance of utility organizations in Uganda.

Basing on the research findings from correlation analysis that established that inventory planning has a moderate positive statistically significant relationship with performance of utility organizations in Uganda, and the findings from regression analysis that affirmed that inventory planning has a significant positive contribution to performance of utility organizations in Uganda. The study accepted the hypothesis that was stated as thus: there is a significant relationship between inventory planning and performance of utility organization in National Water and Sewerage Corporation Kampala City.

4.5.2 Qualitative findings on inventory panning and performance of NWSC Kampala City

The respondents gave their views on inventory planning and stated that inventory planning enables materials to be available in stores all the time hence performance would not be affected by lack of inventories.

4.6.1 To establish the relationship between inventory replenishment through procurement and performance of NWSC Kampala City

In order to understand the views of the respondents on inventory replenishment, so as to examine whether it contributes to performance of NWSC Kampala City, the researcher used a total of ten statements on the questionnaire to which the respondents were required to show their level of agreement or disagreement. The quantitative findings from the questionnaire are presented in the table below.

Table 14: Views of respondents on inventory replenishment

Statements measuring inventory replenishment	SA	A	NS	D	SD	Mean	St'd.D.
NWSC does not delay the procurement of inventory during replenishment	0.0%	51.7%	3.4%	10.3%	34.5%	4.1	1.0
NWSC has policy of replenishment based on lead time	58.7%	10.3%	0.0%	31%	0.0%	3.6	0.9
NWSC utilizes economic order quantity to place order for replenishment	6.9%	44.8%	3.4%	44.8%	0.0%	2.9	1.1
NWSC always has safe stock to cater for stock outs	0.0%	13.8%	0.0%	44.8%	41.4%	3.0	1.0
NWSC has inventory officers who know how to calculate economic order quantities and reorder point	0.0%	17.2%	3.4%	65.5%	13'8%	3.8	1.0
NWSC has ability to track inventories under procurement to ensure prompt delivery	0.0%	13.8%	3.4%	41.4%	41..3%	3.0	1.2
Replenishment enables the stock level to be maintained and I don't lack any stock anytime	6.9%	31.0%	3.4%	58.6%	0.0%	3.1	1.1
NWSC has procurement section which does not delay the procurement of inventories during replenishment	6.9%	6.9%	10.3%	58.6%	17.2%	3.7	1.1
NWSC uses automated order process to enable inventory to be procured and delivered in time	0.0%	6.9%	6.9%	79.3%	6.9%	3.9	0.6
NWSC has suppliers who deliver inventory in time	6.9%	.31%	3.4%	55.2%	3.4%	2.6	1.1
Average						3.1	1.0

Key: SA – Strongly Agree, A – Agree, NS - Not Sure, D – Disagree, SD – Strongly Disagree
Source: Primary data

Table 14 shows that the majority of the respondents were in agreement on all the statements used to measure inventory replenishment as elaborated below.

On whether NWSC does not delay the procurement of inventory during replenishment, the majority of the respondents, 51.7% agreed, while a substantial number 44.8% disagreed and only 3.4% were not sure. And on whether NWSC has policy of replenishment based on lead time, the majority, 69.0% agreed while 31.0% disagreed. Similarly, the majority, 51.7% agreed that NWSC utilizes economic order quantity to place order for replenishment, while a substantial number 44.8% disagreed and only 3.4% were not sure.

The majority, 86.2% however disagreed on whether NWSC always has safe stock to cater for stock outs, while 13.8% agreed. Similarly, the majority, 79.3% disagreed that NWSC has inventory officers who know how to calculate economic order quantities and reorder point, while 17.2% agreed and only 3.4% were not sure. And on whether NWSC has ability to track inventories under procurement to ensure prompt delivery, the majority, 82.7% disagreed, while 13.8% agreed and only 3.4% were not sure.

On whether replenishment enables the stock level to be maintained and don't lack any stock anytime, the majority, 58.6% disagreed, while a substantial number 37.9% agreed and only 3.4% were not sure. And on the issue of whether NWSC has procurement section which does not delay the procurement of inventories during replenishment, the majority, 75.8% disagreed, while 13.8% agreed and 10.3% were not sure. Similarly, the majority, 86.2% disagreed that NWSC uses automated order process to enable inventory to be procured and delivered in time, while 6.9% agreed and a similar number were not sure. Furthermore, the majority, 58.6% disagreed that NWSC has suppliers who deliver inventory in time, while a substantial number 37.9% agreed and only 3.4% were not sure.

The average mean of 3.1 for inventory replenishment is an indication that on average the respondents were not sure on the statements measuring inventory replenishment with a standard deviation of 1.0 implying that their responses moderately varied from the mean.

4.6 Inventory replenishment and Performance of NWSC Kampala City

The researcher proceeded to statistically examine whether inventory replenishment positively contribute to performance of NWSC Kampala City. This was guided by the following hypothesis:

Hypothesis*:* There is a significant relationship between Inventory replenishment and performance of utility organization in Uganda

The hypothesis was preliminarilyy tested at a 95% level of significance (two-tailed) using Pearson's product-moment correlation coefficient, which measured the degree and direction of relationship between inventory replenishment and performance of NWSC Kampala City. The results are presented in the table below.

Table 15: Correlation matrix for Inventory replenishment and performance of utility organizations in Uganda

Study variables		Inventory Replenishment	Performance
Inventory replenishment	Pearson Correlation	1	.725*
	Sig. (2-tailed)		.000
	N	101	101
Performance	Pearson Correlation	.725*	1
	Sig. (2-tailed)	.000	
	N	101	101

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

Source: Generated by SPSS

Table 15 shows that there is a strong positive relationship between inventory replenishment and performance of utility organizations in Uganda, (r=0.725 p=0.000 N=58). The relationship is statistically significant at 95% confidence level since p-value<0.050(=0.000). This implies that improved inventory replenishment shall lead to improved performance of utility organizations in Uganda. Similarly, declined inventory replenishment shall lead to declined performance of utility organizations in Uganda.

Regression analysis was further used to establish the extent to which inventory replenishment contribute towards performance of utility organizations in Uganda. The coefficient of determination (R Square) was used and the results are presented in the table below.

Table 16: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.725[a]	.525	.517	.43334

a. Predictors: (Constant), Inventory replenishment

Source: Generated by SPSS

Table 16 shows that the coefficient of determination (Adjusted R Square) is 0.517. This implies that inventory replenishment accounts for 51.7% of the variance in performance of utility organizations in Uganda. This means that there are factors outside the study variable – inventory replenishment that contribute to the greater percentage of performance of utility organizations in Uganda.

To assess the overall significance of the model, Analysis of Variance (ANOVA) was done and the results presented in the table below.

Table 17: Analysis of Variables (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11.638	1	11.638	61.977	.000[b]
	Residual	10.516	56	.188		
	Total	22.154	57			

a. Dependent Variable: Performance

b. Predictors: (Constant), inventory replenishment

Source: Generated by SPSS

In determining whether a model is significant, the decision rule is that the calculated p-value (level of significance) must be less than or equal to 0.05. Since the calculated *p*-value of 0.000 is less than 0.05, the model was found to be statistically significant ($F=61.977$, $df = 1$, $p<0.05$

(=0.000)). This means that inventory replenishment has a significant contribution towards performance of utility organizations in Uganda.

Basing on the research findings from correlation analysis that established that inventory replenishment have a strong positive statistically significant relationship with the performance of utility organizations in Uganda, and findings from regression analysis that affirmed that inventory replenishment has a significant positive contribution towards performance of utility organizations in Uganda. The researcher accepted the hypothesis that was stated as thus: there is a significant relationship between Inventory replenishment and performance of utility organizations in Uganda.

4.6.1 Qualitative findings on the relationship between inventory replenishment through procurement and performance of NWSC Kampala City

Respondents interviewed were of the opinion that prompt replenishments through procurement guaranteed optimum stock levels all the time and the problem of stock outs of inventories would be avoided

4.7 To determine the relationship between inventory control and performance of NWSC Kampala City

In order to understand the views of the respondents on inventory control, so as to assess whether inventory control contribute towards performance of NWSC Kampala City, the researcher used a total of ten statements on the questionnaire to which the respondents were required to show their level of agreement or disagreement. The quantitative findings from the questionnaire are presented in the table below.

Table 18: Views of respondents on inventory control

Statements measuring inventory control	SA	A	NS	D	SD	Mean	St'd D.
NWSC has effective inventory control policy in place	50%	15.5%	6.9%	10.4%	17.2%	3.9	1.0
NWSC has stock files to record inventory receipts and usage	13.8%	48.3%	6.9%	31%	0.0%	3.0	1.2
NWSC has inventory control software to monitor receipts and issues	22.1%	45.4%	3.4%	25.6%	3.5%	2.3	1.1
NWSC has inventory control procedure which enables identification of obsolete inventory for disposal	34.5%	41.4%	3.6%	20.5%	0.0%	2.5	1.1
NWSC has inventory control procedure which ensures no stock out therefore my performance is not affected by stock out	13.8%	48.2%	3.4%	34.6%	0.0%	2.8	1.1
NWSC utilizes inventory control to mitigate the risk of theft, damage, deterioration etc.	0.0%	10.3%	3.4%	48.2%	38.%	2.1	1.1
NWSC has facility to track inventory movement on a daily basis	21.1%	20.3%	6.9%	34.5%	17.2%	2.5	1.2
NWSC utilizes inventory control as a means to hedge against future changes in price and demand change	6.9%	24.1%	3.4%	65.5%	0.0%	3.3	1.1
NWSC uses Just in time (JIT) as means of controlling inventory	48.3%	37.9%	3.4%	10.3%	0.0%	2.5	1.2
NWSC has computers for all inventory officers to facilitate effective record keeping	6.9%	24.1%	3.4%	65.5%	0.0%	3.3	1.1

Key: SA – Strongly Agree, A – Agree, NS - Not Sure, D – Disagree, SD – Strongly Disagree
Source: Primary data

Table 18 shows that the majority of the respondents were in agreement on all the statements used to measure inventory control as elaborated below.

On NWSC has effective inventory control policy in place, the majority, 65.5% agreed, while 27.6% disagreed and only 6.9% were not sure. And on whether NWSC has stock files to record inventory receipts and usage, the majority, 62.1% agreed, while a substantial number 31.0% disagreed and only 6.9% were not sure. Similarly, the majority, 67.5% agreed that NWSC has inventory control software to monitor receipts and issues, while 29.1% disagreed and only 3.4% were not sure.

On the issue of whether NWSC has inventory control procedure which enables identification of obsolete inventory for disposal, majority, 75.9% agreed, while 20.5% disagreed and only 3.6% were not sure. Similarly, the majority, 62.0% agreed that NWSC has inventory control procedure which ensures no stock out therefore my performance is not affected by stock out, while a substantial number 34.6% disagreed and only 3.4% were not sure.

The majority, 86.2% however disagreed on whether NWSC utilizes inventory control to mitigate the risk of theft, damage, deterioration etc., while 10.3% agreed and only 3.4% were not sure. Similarly, the majority, 51.7% disagreed that NWSC has facility to track inventory movement on a daily basis, while a substantial number 41.4% agreed and only 6.9% were not sure. Furthermore, the majority, 65.5% disagreed that NWSC utilizes inventory control as a means to hedge against future changes in price and demand change, while a substantial number 31.0% agreed and only 3.4% were not sure.

On whether NWSC uses Just-in-time (JIT) as means of controlling inventory, the majority (86.2%) agreed, while 10.3% disagreed, while 3.4% were not sure, and concerning whether NWSC has computers for all inventory officers to facilitate effective record keeping, the majority (65.5%) disagreed, 31.0% agreed, and 3.4% were not sure.

The average mean of 2.8 for inventory control is an indication that on average the respondents were not sure on the statements measuring inventory control with a standard deviation of 1.1 implying that their responses moderately varied from the mean.

4.7.1 Inventory control and performance of NWSC Kampala City

The researcher proceeded to statistically assess whether inventory control positively contribute towards performance of utility organizations in Uganda. This was guided by the following hypothesis:

Hypothesis*:* there is a significant relationship between Inventory control and performance of utility organization in Uganda.

The hypothesis was preliminary tested at a 95% level of significance (two-tailed) using Pearson's product-moment correlation coefficient, which measured the degree and direction of relationship between inventory control and performance of utility organizations in Uganda. The results are presented in the table below.

Table 19: Correlation matrix for inventory control

and performance of utility organizations in Uganda

Study Variables		Inventory control	Performance
Inventory control	Pearson Correlation	1	.422*
	Sig. (2-tailed)		.000
	N	101	101
Performance	Pearson Correlation	.422*	1
	Sig. (2-tailed)	.000	
	N	101	101

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

Source: Generated by SPSS

Table 19 shows that there is a moderate positive relationship between inventory control and performance of utility organizations in Uganda, (r=0.422 p=0.000 N=58). The relationship is statistically significant at 95% confidence level since p-value<0.050(=0.001). This implies that

improved inventory control shall lead to improved performance of utility organizations in Uganda. Similarly, declined inventory control shall lead to declined performance of utility organizations in Uganda.

Regression analysis was further used to establish the extent to which inventory control contributes towards performance of utility organizations in Uganda. The coefficient of determination (R Square) was used and the results are presented in the table below.

Table 20: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.422[a]	.178	.163	.57035

a. Predictors: (Constant), inventory control

Source: Generated by SPSS

Table 20 shows that the coefficient of determination (Adjusted R Square) is 0.163. This implies that inventory control account for 16.3% of the variance in performance of utility organizations in Uganda. This means that there are factors outside the study variable – inventory control that contribute to the greater percentage of performance of utility organizations in Uganda.

To assess the overall significance of the model, Analysis of Variance (ANOVA) was done and the results presented in the table below.

Table 21: Analysis of Variables (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.937	1	3.937	12.104	.001[b]
	Residual	18.217	56	.325		
	Total	22.154	57			

a. Dependent Variable: Performance

b. Predictors: (Constant), Inventory control

Source: Generated by SPSS

In determining whether a model is significant, the decision rule is that the calculated p-value (level of significance) must be less than or equal to 0.05. Since the calculated *p*-value of 0.001

is less than 0.05, the model was found to be statistically significant (F=12.104, df = 1, p<0.05 (=0.001)). This means that inventory control has a significant contribution towards performance of utility organizations in Uganda.

Basing on the research findings from correlation analysis that established that inventory control have a moderate positive statistically significant relationship with performance of utility organizations in Uganda, and the findings from regression analysis that affirmed that inventory control has a significant positive contribution towards performance of utility organizations in Uganda. The researcher accepted the hypothesis that was stated as thus: there is a significant relationship between Inventory control and performance of utility organization in Uganda.

4.7.2 Multiple Regression Analysis

The hypotheses were further tested using multiple linear regression analysis. The justifications for using multiple linear regression analysis were that this was a prediction study with many variables and multiple linear regression analysis provides net effects and explanatory power in form of Adjusted R square. The level of significance was set at less than or equal to 0.05. Using the Enter method, a statistically significant model emerged. The model summary is presented in table 22.

Table 22: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.766[a]	.586	.564	.41188

a. Predictors: (Constant), Inventory planning, Inventory replenishment, Inventory control

Source: Primary data from the field.

The model summary in table 22 above shows that the coefficient of determination (Adjusted R Square) is 0.564. This implies that this model accounts for 56.4% of the variance in performance of utility organizations in Uganda. This could be attributed to the fact that only three of the several factors affecting performance of utility organizations were studied. To

assess the overall significance of the model, analysis of variables (ANOVA) was done and the result presented in table 23.

Table 23: Analysis of Variables (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.993	3	4.331	25.530	.000[b]
	Residual	9.161	54	.170		
	Total	22.154	57			

a. Dependent Variable: Performance

b. Predictors: (Constant), Inventory planning, Inventory replenishment, Inventory control

Source: Primary data from the field.

In determining whether a model is significant, the decision rule is that the calculated p-value (level of significance) must be less than or equal to 0.05. Since the calculated p-value of 0.000 is less than 0.05, the model was statistically significant (df=3, F=25.530, p<0.05(=0.000)). A statistically significant model means that at least one of the predictor variables is significant. To determine which of the predictor variables were significant; the researcher examined the standardized beta coefficients (which measure the contribution of each variable to the model), the t values and significance values which give rough indication of the impact of each predictor variable. These are presented in table 24 below.

Table 24: Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.633	.453		-3.603	.001
	Inventory planning	.408	.146	.311	2.787	.007
	Inventory replenishment	.850	.165	.579	5.158	.000
	Inventory control	.336	.135	.272	2.654	.009

a. Dependent Variable: Performance

Source: Primary data from the field.

The decision rule is that the t value must not be close to 0 and the p-value must be less than or equal to 0.05. The table shows that inventory planning was statistically significant predictor of

performance of utility organizations in Uganda (β=0.311, t=2.787, p<0.05(0.007)). The table further shows that inventory replenishment was statistically significant predictor of performance of utility organizations in Uganda (β=0.579, t=5.158, p<0.05) and inventory control were statistically significant predictor of performance of utility organizations in Uganda (β=0.272, t=2.654, p<0.05(0.009)

4.7.3 Qualitative findings on inventory control and performance of NWSC Kampala City

The respondents gave their views that inventory control improves organizational performance since materials would be properly accounted for and obsolescence of inventories would also be minimized, all these would result in improved performance of the organization.

This study investigated the extent to which organization performance was dependent on Inventory planning, Inventory replenishment and Inventory control of utility organizations in Uganda a case of National Water and Sewerage Corporation Kampala City.

This study established inventory planning to have a moderate positive relationship with organization performance and statistically significant determinant of performance of utility organizations in Uganda. Furthermore, the study established inventory replenishment to have moderate positive relationship with organization performance and statistically significant determinant of performance of utility organizations in Uganda. Similarly inventory control was established to have moderate positive relationship with organization performance and statistically significant determinants of performance of utility organizations in Uganda.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The purpose of this study was to examine the relationship between inventory management and performance of utility organization a case of National Water and Sewerage Corporation Kampala city. There were three independent variables, namely; inventory planning, inventory replenishment, inventory control, while performance was the dependent variable. Data was analysed by use of frequencies, Pearson's product moment correlation coefficient and regression analysis and findings from the study; this chapter presents the summary, discussions, conclusions and recommendations got from the research findings guided by the research general objective and specific objectives. The specific objectives were as follows: to examine the relationship between inventory planning and performance of utility organizations in Uganda a case of National Water and Sewerage Corporation Kampala City; to establish the relationship between inventory replenishment through procurement and performance of utility organizations in Uganda a case of National Water and Sewerage Corporation Kampala City; to determine the relationship between inventory control and performance of utility organizations in Uganda a case of National Water and Sewerage Corporation Kampala City.

5.2 Summary of the findings

5.2.1 Inventory planning and performance of utility organizations in Uganda

The findings indicated that there was a moderate positive relationship between inventory planning and performance of utility organizations in Uganda. The p-value for inventory planning and performance was less than 0.050 (=0.000), given r=0.607, the researcher therefore accepted the relationship as statistically significant. Further findings from regression analysis revealed that inventory planning has a significant contribution towards performance

of utility organizations in Uganda (F=32.706, df = 1, p<0.05 (=0.000)). This implies that improved inventory planning shall contribute to improved performance of utility organizations in Uganda.

5.2.2 Inventory replenishment and performance of utility organizations in Uganda

The findings indicated that there was a moderate positive relationship between inventory replenishment and performance of utility organizations in Uganda. The p-value for inventory replenishment and performance was less than 0.050 (=0.000), given r=0.725, the researcher therefore accepted the relationship as statistically significant. Further findings from regression analysis revealed that inventory replenishment have a significant contribution towards performance of utility organizations in Uganda (F=61.977, df = 1, p<0.05 (=0.000)). This implies that improved inventory replenishment shall contribute to improved performance in utility organizations in Uganda.

5.2.3 Inventory control and performance of utility organizations in Uganda

The findings indicated that there was a moderate positive relationship between inventory control and performance of utility organizations in Uganda. The p-value for inventory control and performance was less than 0.050 (=0.000), given r=0.422, the researcher therefore accepted the relationship as statistically significant. Further findings from regression analysis revealed that inventory control has a significant contribution towards performance of utility organizations in Uganda (F=12.104, df = 1, p<0.05 (=0.001)). This implies that improved inventory control shall contribute to improved performance of utility organizations in Uganda.

5.3 Discussion of the findings

In this section the researcher discussed the findings of the study according to the study objectives

5.3.1 Inventory planning and performance of utility organizations in Uganda

Under objective one, the study sought to examine the relationship between inventory planning and performance of utility organization in Uganda a case of National Water and Sewerage Corporation Kampala City. According to the conceptual framework in Chapter 1, inventory planning was conceptualized mainly into three dimensions namely, budgeting, policies/procedures, and inventory personnel. The findings of the study revealed that inventory planning has a moderate positive relationship with performance of utility organizations in Uganda. The findings further indicated that inventory planning has a significant contribution towards performance of utility organizations in Uganda.

Various authors concurred with the findings of the study that inventory planning has a significant contribution towards performance of utility organizations, especially Starr and Miller (1975) who noted that companies can use inventory planning to generate higher profits. Purchasing the right type of inventory to meet consumer demand often leads to higher business profits. Inventory planning and control procedures can also limit the amount of obsolete inventory in the company. Obsolete inventory must be disposed and written off by the company. Writing off obsolete inventory creates a loss on the income statement. Inventory policies and procedures prevent employees' abuse of inventory.

Still in agreement with findings of the study, Naddar (1996) noted that for a well profound inventory planning, organizations should consider implementing business technology to help manage inventory. Business and accounting software provides business owners with electronic methods to order, receive, manage and sell inventory. The author adds that technology usually help business owners spend less time on inventory planning functions. Spending less time on these back office functions allows business owners to remain at the forefront of business sales in increasing their company's profitability.

5.3.2 Inventory replenishment and performance of utility organizations in Uganda

Under objective two, the study sought to establish the relationship between inventory replenishment through procurement and performance of utility organization in National Water and Sewerage Corporation Kampala City. According to the conceptual framework in Chapter 1, inventory replenishment was conceptualized mainly into three dimensions namely, lead time, R.O.P and E.O.Q, and procurement and tracking. The findings of the study revealed that inventory replenishment has a moderate positive relationship with performance of utility organizations in Uganda. The findings further indicated that inventory replenishment has a significant contribution towards performance of utility organizations in Uganda.

In line with the study findings that inventory replenishment has a significant contribution towards performance of utility organizations in Uganda, Starr and Miller (1975), emphasized that excelling at replenishment enables a retailer to implement the promotional, pricing and assortment strategies established. Not only does winning the replenishment game enable execution of these strategies, but additional profit can be gained by regulating inventory levels and reducing lost sales. Time is made available for analysis and special projects when fighting the fires of overstock and out of stocks is removed from the buyer's day. Replenishment is an area within operations where firms can find an edge to beat the competition and delight the customer.

5.3.3 Inventory control and performance of utility organizations in Uganda

Under objective three the study sought to determine the relationship between inventory control and performance of utility organization in National Water and Sewerage Corporation Kampala City. According to the conceptual framework in Chapter 1, inventory control was conceptualized mainly into three dimensions namely, stock record file, inventory control software, and inventory control policy. The findings of the study revealed that inventory control has a significant relationship with performance of utility organizations in Uganda. The findings

further indicated that inventory control has a significant contribution towards performance of utility organization in Uganda.

In agreement with the findings of the study that inventory control has a significant contribution towards performance of utility organization in Uganda; a formal inventory control system can produce substantial savings for a company. These savings are realized in several different forms, depending on the particular situation of a company. Some common sources of such savings are lower purchase cost, lower interest expenses or an increase in the availability of internal funds, lower operating costs (clerical expediting, transportation, receiving and others, lower production cost per unit, dependable delivery of production and the better customer service in the supply of goods (Elwood, 1987).

Similarly, Ablo (1994) arguments concur with the study findings indicating that inventory control ensures regular supply of materials so as to enable uninterrupted production; it minimizes investment of capital on purchase of materials. It also reduces damage and obsolesce, reduces inventory carrying costs, avoids duplication in ordering the materials, avoids theft or loss of material, simplifies accounting for materials and it makes use of modern technique such as standardization; value analysis: input substitution which cut down the material costs.

5.4 Conclusions

The conclusions are presented objective by objective on findings of each of the dimensions under the independent variable.

5.4.1 Inventory planning and performance of utility organizations in Uganda

From the findings it was concluded that inventory planning has a moderate positive relationship with performance and significant contribution towards performance of utility organization in Uganda. This means that improvements in inventory planning such as proper records keeping

shall have a significant positive contribution towards performance of utility organizations in Uganda. Management of National Water and Sewerage Corporation should therefore be encouraged to improve on records keeping so as to contribute towards performance of the Corporation.

5.4.2 Inventory replenishment and performance of utility organizations in Uganda

From the findings it was concluded that inventory replenishment has a significant contribution towards performance of utility organizations in Uganda. This means that improvements in inventory replenishment shall have a significant positive contribution towards performance of National Water and Sewerage Corporation which should therefore be encouraged to improve on budgeting so as to contribute towards performance of the Corporation.

5.4.3 Inventory control and performance of utility organizations in Uganda

From the findings it was concluded that inventory control has a moderate positive relationship with organization performance and a significant contribution towards performance of utility organizations in Uganda. This means that improvements in inventory control shall have a significant positive contribution towards performance of National Water and Sewerage Corporation. Management of National Water and Sewerage Corporation should therefore be encouraged to improve on stock levels so as to contribute towards performance of the Corporation.

5.5 Contribution of the study

The study has added to the knowledge about performance of utility organizations in Uganda especially in terms of inventory management. The study findings particularly fill the gap of knowledge that existed in the area of inventory management in utility organizations in Uganda, particularly NWSC.

5.6 Recommendations

The conclusions drawn in the previous sector of this study provided a basis upon which recommendations are being made according to the study objectives basing on the significant factors that were established.

5.6.1 Inventory planning and performance of utility organizations in Uganda

Utility organizations in Uganda, particularly NWSC should invest more money in ICT for inventory planning in order to enable easy, effective and efficient planning which will ensure inventory stock outs are minimized and adequate stock maintained all the time.

Utility organizations should hire experts on inventory planning to best guide them on how to develop feasible inventory plans which will ensure adequate stock throughout the year.

5.6.2 Inventory replenishment and performance of utility organizations in Uganda

Managers in utility organizations such as NWSC should introduce automated systems to detect need for inventory replenishment. This will ensure timely procurement of the required inventory to avoid stock out which impacts on performance.

5.6.3 Inventory control and performance of utility organizations in Uganda

Utility organizations should introduce tighter security for inventory control so that theft, obsolesce, and vandalising of inventories by staff is eliminated. This will ensure reduced cost on expenditure on inventories.

5.7 Limitations

The researcher limited the study to NWSC. Therefore, results can be generalized cautiously to other utility organizations since every organization is unique. Future research should be conducted over a cross section of utility organizations in order to come up with a more generalized conclusion on how inventory influences performance.

The research was carried out in a limited time scope covering a period of only two years. Therefore, findings in the study may not apply to a context of, for instance, ten years ago.

5.8 Areas for further research

Further research is recommended in the following areas;

A similar study on inventory management through ICT and its effect on performance of utility organizations in Uganda

REFERENCES

Ablo E (1998) Do Budgets really matter? Evidence from public spending on Education and health in Uganda. World Bank Policy Research Paper No 1926.

Adebayo, Agbejule, and Ashley Perceived environmental uncertainty in supply chain purchasing Strategy-Management auditing journal vol 22, issue 9 pp 913-927

Alan Muehlemann, (1992), *production and operations management, 6th* edition, pitman publishing

Amin M E (2005) *Social science research: Conception methodology and analysis Miserere University printery Kampala*

Ansari and Modarress B between 1987 to 1990 *The potential benefits of JIT purchasing US manufacturing production and inventory management.*

Bates R.A and Holton E. F (1995), *Computerized performance monitoring Human Resource Review*

Balakrishan (1996), *Financial benefits from JIT adoption: Effects of customer concentration and cost structure, Accounting Review, 71(2) pp 183-205*

Barifaijo K, Basheka B, & Oonyu J (2010) *How to write a good dissertation/thesis-A guide to graduate students, Kampla Uganda: New Vision Printing and Publishing Company Ltd*

Brown K. A. and Mitchell T.R (1996), *A comparison of JIT and Batch manufacturing-Academy of management Journal 34, pp 906-917*

Barney J (1991,2001,2008) *Firm Resources and Sustained Competitive Advantage, Journal of management 17(1) 99-120.*

Bird D K (2009), *The use of questionnaires for acquiring information on public perception of natural hazards and Earth systems sciences 9,1307-1325*

Bonnie Conrad, eHow contributor, July 06, 2010 Journal

Boquist (2001,*) Structure and Agency in management Accounting-Organization and society vol.21 No 8 pp 657-690*

Burt D. N, (2003*), managing supplies up to speed. Harvard Business Review world class supply chain, 7th edition*

Cannon (2008), *Business supply management Journal*

Chalotra (2013), *Production and operations management 6th edition, pitman publishing*

Chigada J (2014), *The role of Knowledge management in enhancing organization performance. Journal of management.*

Creswell (2007), *world class supply chain 7th edition*

Corner (2002), *Supply chain management and introduction to logistics 7th edition*

Corrie W (2007), *Research methods, Journal of Business & Economic Research 5 (3) 65-72*

Curtis (1991), *supply chain management and introduction to logistics 8nd edition*

David M. Anderson, (2004), "Build-to-Order &*Mass Customization, the Ultimate Supply Chain.*

Deloof M (2003), *Journal of Business and Accounting vol,30 No 3 & 4pp 573-587*

Dimitrios P (2008), *The effect of inventory management on firm performance- international journal of production and performance management*

Donald waters, (,2009), *supply chain management an introduction to logistics, 2nd edition, Palgrave Macmillan*

Drury (2008), *Management and cost Accounting-London international Housan Business press*

Elwood S. Buffa et al, (1987),8th edition, *modern production/operations, john Wiley and sons*

Fabrycky WJ, Banks J (1967), *Procurement and inventory systems: theory and analysis. Reinhold*

Frechtling J (2002), *An overview of quantitative and qualitative data collection methods in the 2002 User friendly and handbook for project Evaluation (pp43-62)*

Fullerton R, C MCwatters, C Fawson (2003), *Journal of operations management*

Gary J Zenz (1997) Purchasing and the management of materials of materials Florida State University 7th edition USA

Graves, S. C., Rinnooy Kan, A. H. G., and Zipkin, P. H., eds. (1993), *Handbooks in Operations Research and Management Science, 4: Logistics of Production and Inventory, Netherlands: North-Holland. Hill.*

Golashani N (2003), *Understanding reliability and validity in qualitative research –qualitative report 8(4) 597-607. http:// doi.org/10.3367/UFNr.0180.201012c.1305*

Gott and Duggan (2003) Understanding evidence in Science-International Journal of science education.

Gupta S and Gupta S (2012), Effective inventory visibility, its impact on profitability. *International indexed & Referred Research Journal*

Hatry H.P (1999), *Performance Measurement, Getting results – The urban Institute press Washington D.C*

Hollier RH, Vrat, P. (1978), *A proposal for classification of inventory systems. Omega 6(3):277–279*

Harrison A and Voss (1999), Issues in setting JIT supply International Journal of Operation and production management 10 (2) 84-93

Hessam Azimi (2006), *Supply chain production scheduling August 2016 to November 2016 Journal*

Jessop D. and Morrison (1994), *Storage and supply of materials 6th edition Pearson* Education Ltd England

Jordan H.H (2001*), How to plan and control inventories, Conference proceedings of American Production and inventory control Society Washington DC*

Kaplan R.S and Norton D.P. (1992), The balance score card – measures that that drive performance. Harvard Business Review

Keeves J. (1988), *Education Research Methodology and Measurement, An international hand book, Pergamum Press Oxford New York*

Kizza C. P. (2001), *"Inventory management policy and the performance of world food programme", procurementnews.co.uk*

Lysons K. (2006), *Purchasing and supply chain management, 7thedition, Pearson International*

Kinyua G.M., Muathe, S. & Kilika J. (2015), *Knowledge management and Performance: International Journal of education and Research 3(10) 431-444*

Kothari C. (2004), *Research Methodology and Strategies chapter 4 (pp 1-51)*

Krejcie, & Morgan. (1970), *Determining Sample Size for Research Activities. Educational and Psychological Measurement,pp 607-61.*

Lau M Chong and Snell (2001***),*** *The interactive effects of emphasis on tight Budget Targets and cost control on Budgetary performance; Pacific Accounting Review vol 13, pp 59-84*

Lenders F. (1997), *purchasing and supply chain management,11th edition, mc grew hill companies*

Liz Clayborn (WSJ), August 1993)

Luanne kelchner, (2010), *EHow contributor (managing plant material inventory),* Texas A&M University.

Lyons K *(2000), Purchasing and Supply Chain Management 7th Edition*

Lysons K and Farmington B (2010) Purchasing and supply chain management 11th Edition

Malcolm S (1998) Strategic Purchasing and Supply chain management 2nd Edition

March, (2001)

Martin Christopher, (2005), logistics and supply chain management,3rd edition, prentice hall

Marshall & Rassman (1989)

Macmillan J.H and Schumacher S (2010), *Research in education: Evidence based inquiry New Jersey: Pearson education Inc*

Monezeka Trent Hadfield (2009), *Purchasing and supply chain management 5th Edition Pearson Education Ltd*

Mugenda, O.M. & Mugenda, A.G. (2003), Research Methods, quantitative and qualitative approaches Nairobi: African Centre for Technology studies. Kenya: ACTS Press

Muhairwe, (2009) World Bank report

Mwende *C. M (2012) inventory Management and Performance*

Naddor E (1966) Inventory systems. Wiley, New York

Patton and George S (2002), *hand book on enabling solutions for carrier, enterprises and industries.*

Penrose E. T (1959), *The theory of the growth of the firm New York United states of America John Wiley*

Pfeffer J and Salancik The external control of organization. (1993), *A resource dependence perspective New York*

Priem and Butler D, N (2005), *Managing supplies up to speed. Harvard Business Review 67 (4) 127-135*

Ronald H.B (1999), *Business Logistics and Management 4th Edition Prentice Hall International*

Robin L. M. (2010), *eHow contributor, updated July 05*

Ross A and Miller S. (2004), *Understanding the Resource Based View – International Journal of Operation and production management vol 23 No 9 pp 62-83*

*S*hane S (1998), *A general theory of entrepreneurship 8th edition*

Shankar Ravi (1996), *Operations management 8th edition)*

Shankaran G. Shankaran S. and Klerk D. *International Technology Management.*

Stieglitz (2010) *International Journal of Productivity and performance*

Ske Chay of http://www.trade-opportunities.comProviding some comprehensive information on inventory management at http://www.inventoryanalytics.com

Starr MK, Miller JW (1975,) *Inventory control: theory and practice. Prentice Hall of India, New Dehli*

Suzanne Miller Friedman (1998), *The development of inventory counter transference behavior Journal vol 56 pp 1221-1235*

Vastag and Whybark *(2005) International Journal of production economies 93 pp 129-138*

Vrat P (2011), *Inventory models and human body food supply chain: some managerial insights. Ind Eng. J II (27):8–16*

Waterman R and Peter J (2005), *Managing Budget emphasis through the explicit design of conditional Budgetary slack" Accounting for organization and Society vol.30 pp 587-608*

Wernerfelt, B. (1984), *A resource Based View of the firm Strategic Management Journal ,5 (2) pp 171-180*

Zipkin, P. H. (2000), *Foundations of Inventory Management, New York: McGraw-*

APPENDICES

Appendix I: Table for Determining Sample Size from a given Population

Note: "N" is population size

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

"S" is sample size

Appendix II: Research Questionnaire

A questionnaire to assess the impact of inventory management on organization performance of utility organizations a case of NWSC in Kampala City.

Dear respondents

This is an academic research intended to assess the **impact of inventory management on organization performance of utility organization in National Water and Sewerage Corporation Kampala City.** The purpose of this study and its findings is purely academics. I kindly request for your assistance by sparing some of your precious time to answer the following questions. The study will take about 30 minutes only. I would appreciate your honest opinions. Be assured that your responses will be completely anonymous and therefore any information you provide in here will be treated with strict confidentiality.

Thank you.

This questionnaire is meant to collect data on the impact of inventory management on organization performance.

I kindly request your cooperation to answer the following questions by ticking the most appropriate box or boxes.

Section A Institutional information		
01	Name of NWSC branch in Kampala	
02	Location of the branch in Kampala	
03	Number of employees:	Males…… Females…… Total…….

Section B: Personal profile of the respondent			
04	Gender of respondent	Male ……1 Female…….2	Enter the correct code ☐
05	Current Job Title		**…….**
06	Years spent in the organization	0-1 years…….1 2-3 years ……2 4-5 years ……3 6-9 years ……4 10 years and above……5	Enter the correct code ☐
07	Age of respondent in complete years	20-30 years……1 31-40 years ……...2 41-50 years …….....3 51 and above……..4	☐
08	Level of Education	Diploma……....1 Bachelor ……. 2 Master level ……. 3 Others specify ……. 4	Enter the correct code ☐

For the following questions, please tick the number of your choice as indicated in the Key Scale

Strongly Agree (SA)	Agree (A)	Not sure (NS)	Disagree (DA)	Strongly Disagree (SD)

INDEPENDENT VARIABLES						
Section C: Inventory Planning and organization performance		**SD**	**D**	**NS**	**A**	**SA**
1.	My organization has process for planning for inventory in place	1	2	3	4	5
2.	My organization has over 30% of the master budget spent on inventories annually.	1	2	3	4	5
3.	The personnel involved in planning for inventory always Know what to include in the budget.	1	2	3	4	5
4.	My organization has process for involving all the stakeholders in the inventory planning during budgeting.	1	2	3	4	5
5.	My organization has technology to improve inventory planning	1	2	3	4	5
6.	My organization has personnel who are trained in inventory management	1	2	3	4	5
7.	Inventory planning help my organization to improve cash flow	1	2	3	4	5
8.	Inventory planning help my organization to have critical materials like new connection fittings and maintenance available anytime I request for the materials.	1	2	3	5	5
9.	My organization has policies and procedures for inventory planning	1	2	3	4	5
10.	My organization performs well because of proper inventory planning	1	2	3	4	5

	Section D inventory replenishment and organization performance	**SD**	**D**	**NS**	**A**	**SA**
11	My organization does not delay the procurement of inventory during replenishment	1	2	3	4	5
12	My organization has policy of replenishment based on lead time	1	2	3	4	5
13	My organization utilizes economic order quantity to place order for replenishment	1	2	3	4	5
14	My organization always has safe stock to cater for stock outs	1	2	3	4	5
15	My organization has inventory officers who know how to calculate economic order quantities and reorder point.	1	2	3	4	5
16	My organization has ability to track inventories under procurement to ensure prompt delivery.	1	2	3	4	5
17	Replenishment enables the stock level to be maintained and I don't lack any stock anytime	1	2	3	4	5
18	My organization has procurement section which does not delay the procurement of inventories during replenishment	1	2	3	4	5
19	My organization uses automated order process to enable inventory to be procured and delivered in time.	1	2	3	4	5
20	My organization has suppliers who deliver inventory in time.	1	2	3	4	5

	Section E Inventory control and organization performance	**SD**	**D**	**NS**	**A**	**SA**
21	My organization has effective inventory control policy in place	1	2	3	4	5
22	My organization has stock files to record inventory receipts and usage	1	2	3	4	5
23	My organization has inventory control software to monitor receipts and issues	1	2	3	4	5
24	My organization has inventory control procedure which enables identification of obsolete inventory for disposal	1	2	3	4	5
25	My organization has inventory control procedure which ensures no stock out therefore my performance is not affected by stock out	1	2	3	4	5
26	My organization utilizes inventory control to mitigate the risk of theft, damage, deterioration etc.	1	2	3	4	**5**
27	My organization has facility to track inventory movement on a daily basis.	1	2	3	4	**5**
28	My organization utilizes inventory control as a means to hedge against future changes in price and demand change	1	2	3	4	**5**
29	My organization uses Just in time (JIT) as means of controlling inventory	1	2	3	4	**5**
30	My organization has computers for all inventory officers to facilitate effective record keeping.	1	2	3	4	**5**

	DEPENDENT VARIABLE	SD	D	NS	A	SA
	Section F: Organization performance					
31	My organization is one of the best performing organizations because of proper inventory management.	1	2	3	4	5
32	My organization is providing quality services and commendable customer care due to proper inventory management	1	2	3	4	5
33	My organization has adequate inventories all the time and my performance is not affected due to lack of inventories.	1	2	3	4	5
34	My organization is quick to response to all customer demands like new connections, resolving customer complains etc. within stipulated time as result of adequate inventories	1	2	3	4	5
35	My organization ensures all departments have adequate inventories hence achievement of objectives is no big deal	1	2	3	4	5
36	My organization uses Balance score card to monitor the organization performance	1	2	3	4	5
37	My organization normally focuses on priority areas to be accomplished	1	2	3	4	5
38	My organization ensures cost reduction and revenue increase as a result of proper inventory mangement	1	2	3	4	5
39	My organization record of continuous improvement due availability of all resources all the time.	1	2	3	4	5
40	My organization has Monitoring and Evaluation section which evaluates performance .	1	2	3	4	5

Appendix III: Interview Schedule

Dear respondent,

My name is Jessica Achen a student of Uganda Management Institute. Am conducting an academic research intended to assess the effect of inventory management on organizational performance of NWSC Kampala. The purpose of this study and its findings is purely for academic. I kindly request for your assistance by sparing some of your precious time to response to a number of questions pertaining to the study. The study will take about 30 minutes only. All information provided will be handled and treated with utmost confidentiality.

Thank you.

Key Questions

1. What is the name of your branch and the type of inventories normally used in your branch and how you get it?
   ……
   ……
   ……
   ……
2. Tell me about inventory management practices adopted in your branch.?.....
   .....
3. Tell me your experience of how inventory affect your performance and which ones?.....
   .....
   .....

4. What is the relationship between inventory planning and organization performance? (Elaborate with examples)
   ……
   …….....
5. What is the relationship between inventory replenishment and organization performance? (Elaborate with examples)
   ……
   ……
   ……....
6. What challenges do you experience as a result of untimely replenishment in your areas and which inventories are not being replenishing in time……
   ……
   ……
   …….

7. What is the relationship between inventory control and organization performance?
   ……
   ……
8. Do you have control of inventory in your branch and what type of control?.....
   .....
9. Have you had any experience with inventory which affected your performance?.....
   .....
   .....
10. How do you want inventory to be manage in order to improve organization performance in your area? Any other information you would like to provide?.....

Thank you.

Appendix 1V: Work Plan

Activity	August 2017	September 2017	October 2017	November 2017
Proposal writing				
Proposal presentation				
Data collection				
Data Analysis				
Report writing				
Editing of report				
Final copy				

Appendix V: Budget

SN	ITEMS	UNIT	UNIT COST (UG.SHS)	TOTAL COST UG SHS
1	Field work cost	1	800,000	800,000
2	Research assistants	4	100,000	400,000
3	Stationery	1	100,000	100,000
4	Communications(airtime)	1	100,000	100,000
5	Printing & binding cost	6	35000	210,000
6	Miscellaneous	1	390,000	390,000
	Total			**2,000,000**