

UPPER NILE UNIVERSITY**IMPACT OF LOGISTIC PROCESS, MATERIAL MANAGEMENT AND LOGISTIC PERFORMANCE IN SOUTH SUDAN**

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ABSTRACT

Logistics and supply chain management has been elevated to a strategic level whereby firms can simultaneously achieve differentiation and low cost for sustained competitive advantage. Empirical studies have often concentrated on logistics management in developed Western countries, displaying a bias towards the USA. This study applies the competency approach to explore logistics in Taiwan. A survey of 1,200 manufacturing firms was undertaken in order to examine the relationships between logistics competency, logistics performance, and financial performance, using exploratory factor analysis and the structural equation modeling technique. Four logistics competencies, namely, integration and knowledge competency, customer focused logistics process, measurement competency, and agility competency were identified. The research findings revealed that logistics competency was significantly related to logistics performance but not significantly associated with logistic performance and (2) logistics performance was positively associated with financial performance. These findings also implied that logistics competency has an indirect effect on financial performance through logistics performance.

CHAPTER ONE: INTRODUCTION

1.0 Introduction.

This chapter consist of, background to the study, statement of problem, purpose of the study, research objective, research question, significant of the study, study scope and conceptual framework.

1.1 Background of the study

Logistics is about getting the right product, to the right customer, in the right quantity, in the right condition, at the right place, at the right time, and at the right cost (the seven Rest of Logistics)" from Supply Chain Management. A Logistics Perspective by John J. Coyleta, I(2012). A logistician is a Professional logistics practitioner. Professional logisticians are often certified by professional associations. One can either work in a pure logistics company, such as a shipping line, airport, or freight forwarder, or within the logistics department of a company.

Logistics is one of the modern areas for the study of integrated management. Logistic processes are considered one of the vital topics that have increased in recent years in the scientific and applied fields in the field of business administration in terms of their concept, importance, components and their practice in contemporary organizations. Organizations with large variety of activities, and diverse product lines and markets, have increased their interest in logistics activities, which have become the backbone of these organizations, and aim to serve customers while achieving competitive advantage.

Idris (2009) mentions that the importance of logistics activities is reflected in the rapid response to customers in the market, through speed in providing goods and services that are consistent with the needs and desires of customers. In order to ensure the organization's success and continuity, it needs a high level of performance as compared to competitors in light of the effectiveness of its logistics management, through which it can achieve what customers need at low cost and effort and the greatest possible quality.

The logistic process enables the sale of products for the same purpose from different manufacturers and with different prices. The increased offer on the market has led to intensive competition and some of the companies are faced with the problem of survival. The development of information technology has led to increased flow of information around the world, which resulted in enhanced education of producers and consumers (Delfmann and Gehring 2003). The only way for companies to survive on the market is constant lowering the price of products and regular improvement of product characteristics. Hence, the continuous intensive development of the company is crucial to its survival on domestic and global markets.

Creating and sustaining a competitive advantage of the company is a complex and sustained process that largely depends on the flexibility and willingness of the company to carry out rapid changes in their processes and to make them faster than their rivals. The continuous adjustment and improvement of the processes is the basis for the company's functioning in the current conditions, while at the same time is one of the key success factors. In this context arises the need for application of modern management practices in all aspects of the operations of the company, especially in the supply chain management, which contributes to increasing competitiveness (Hassini 2008). One important element is the logistics which provides management with the total operations costs and increases the efficiency of the company's business activities. Collaboration among all the supply chain players coupled with a responsive approach can enhance organizational competitiveness through reduced lead-time facilitated by smooth flow of material from upstream towards the downstream end of supply chain. This approach will ensure end customers get value for their money and also reduce the level of uncertainty in the industry (Francis and Waiganjo 2014).

Council of Logistics Management (1991) defined logistics as part of the supply chain process that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements. Logistics system is made up of logistics services, information systems and infrastructure/resources. Logistics services is made up of activities such as warehousing and transportation that support the movement of materials and products from point of origin to point of consumption, and vice versa. Information systems include modeling and management of decision making, and more important issues are tracking and tracing. On the other hand, infrastructure comprises human resources, financial resources, packaging materials, warehouses, transport and communications (BTRE, 2001).

Logistics, previously viewed as a classical function, which involves adversarial relationships among suppliers, customers and transportation providers, is emerging as a key source of competitive advantage and a leading reason for strategic alliance relationship between companies and their logistics providers (Hai & Yirong, 2002). A logistical system is made up of a large number of stakeholders. They include the suppliers, manufacturers, wholesalers or distributors and retailers who have to be managed strategically in order to deliver final products in the right quantities at the desired time and quality at the right place and at a reasonable cost to the final consumers. Logistics strategy has three main objectives; cost reduction, capital reduction and service improvement. In the last two decades, product flow has been greatly improved due to better technology in communication and transportation. Increased variety of goods, globalization of marketing and seasonal variations are among the major challenges of logistics system which leads to the necessity of developing effective logistics strategies in the agricultural sector (Gebresenbet & Bosona, 2012). Fresh agricultural products logistics requires robust, fast, sensitive and reliable logistics management information network and market supply and demand information (Liu & Ke, 2012).

1.2 Statements of problem

Many of the problems and challenges faced by companies, such as quality and market share, as well as profits, start from the process of supply and storage due to weakness in the management of procurement and response speed, in addition to the satisfaction of senior management with a specialized management of logistics operations.

However, there were no professional logistician officials; goods and services needed by government were supplied by commissioners or commissaries, who received a commission on what they bought for the militia or other administrative units (Huston 2016; Thai 2001). In various developing economies, procurement – mostly public procurement – has not been viewed as having a strategic impact in the management of public resources. It has been mostly considered a process-oriented, ‘back-office’ support function often implemented by non-professional staff of buying agencies (Mehra & Inman 2004:710). There was less and inefficient effort made to ensure that the policies, rules and institutional framework governing the procurement system were maintained in a manner that ensured that especially public funds were used in the most inefficient and uneconomical way and that the system did not delivered the best value for money (Hunja 2003:1) more especially in less developed economies like south sudan.

1.3 Purpose of study

To examine the relationship between the logistic process, material management and logistic performance in (SSUWC) South Sudan.

1.4 General objective

To examine the relationship between logistic process, material and logistic performance.

1.5 Specific objectives

- 1) To examine the relationship between logistic process and logistic performance.
- 2) To examine the relationship between material management and logistic performance.
- 3) To study the factor structure of logistic process, material management and logistic performance

1.6. Research Questions

1. What is the relationship between logistic process and logistic performance?
2. What is the relationship between logistic process, material management and logistic performance?
3. What are the factor structure of logistic process, material management and logistic performance?

1.7 Scope of study

1.7.1 Subject scope

The study investigates the relationship between three variables, with logistic process as the independent variable, and the material management and logistic performance as the intervening variables.

1.7.2 Geographical Scope

Although taking a national view, the study critically focuses on south Sudan urban water corporation(SSUWC) in juba South Sudan, one of the oldest local administrative units with a history of providing services to the local population in juba.

1.7.3 Time scope

The research study wasn't affect the logistics process, material management and logistic performance, the study were conducted in the mild manner and academically regard time bound four months: Jan-April 2018

1.8 Significance of research

The study was useful because it can provide up to date literatures for an academicians, researchers' readers and other interested users.

The study will be useful to other researchers, students and lecturers for further relevance references. The study will be significant because its emphasize on the researchers achievement or their partial fulfillment the requirement for the award of bachelor business administration in procurement and supply chain management. The study were useful indeed to finding the way of how the logistics management can be best tackled of the significant scenarios of managing the logistics growth in south Sudan and to encourage the poor logistic sand supplies to improve the effect of poor logistics development.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Literature review is the process of identifying, evaluating, synthesizing and presentation of all relevant information from other sources like scholarly journals, publications, magazines and internet. Literature review reveals what strategies, procedures and measuring instruments have been found useful in investigating the problem in question. This chapter therefore represents the review of theoretical literature, critical literature and the gaps to be filled by assessing the relationship between the variables and their attributes.

2.1 The relationship between logistic process and logistic performance.

2.1.1 Logistic process

There has been a change in the way business is conducted today. Due to the development in technology, the logistics process has evolved and gained greater significance in doing business. Logistics process is treated as a part of the supply chain management that deals with management of goods in an efficient way. It is the management process that integrates the movement of goods, services, information and capital, right from the sourcing of raw material, to the consumer (Springinkle and Wallenburg, 2012). The goal of the logistics process is to provide the right product with the right quality at the right time in the right place at the right price to the ultimate customer (Mentzer *et al.*, 2004). Logistics management has been defined as a high priority for contemporary organizations. The success of logistics process is determined through the combination of efficiency, effectiveness and differentiation (Fugate *et al.*, 2010). Eventually, supply chain management measures through procrastination affect price/cost, product's quality, innovation and marketing time (Mamad and Chahdi, 2013).

Previous researches have shown that excellence in performing logistics activities and capabilities is associated with superior organizational performance (Lynch *et al.*, 2000). Merriam-Webster defines efficiency as "effective operation as measured by a comparison of production with cost (as in energy, time, and money)," or as, "the ratio of the useful energy delivered by a dynamic system to the energy supplied to it." Efficiency pertains to getting the most out of a fixed set of resources. Fugate, Mentzer and Stank (2010) define efficiency as "the internal functioning of logistics and [as] generally [being] considered best represented through some ratio of the normal level of inputs to the real level of outputs." There is great importance of learning in today's hypercompetitive global supply chain environment especially through adopting learning principles in logistics (Esper *et al.*, 2007). Moreover, managers should be cautious to note the critical role of organizational contexts i.e., culture, affecting the relationship between supply chain integration and operational performance. Logistics managers are committed to check the quantity of products in stock daily, to check the minimum allowable amount of each product that is in stock at least once a week. In cases where the quantity of a product in inventory is below the minimum allowable value, they immediately place orders for that product. Besides the quantity, the basic information for every product that is in stock is its unit price and the total value of all products in stock should be as small as possible or within the optimum.

• Agility

An agility competency has replaced delivery speed (1990s), quality (1980s), or cost (1970s) to become the main competitive priority in the twenty-first century (Greis and Kasarda, 1997).

Creating agile supply chains has become a source of competitive advantage (Lau and Hurley, 2001). Most studies have viewed agility as a general management or a strongly manufacturing biased concept (Yusuf *et al.*, 1999; Gunasekaran, 1999; Zhang and Sharifi, 2000) and have not focused on the concept in the "supply chain as a whole" (Christopher, 2000).

• Measurement

As the adage says "if you cannot measure it, you cannot manage it," thus high-performance logistics 'requires mastering the discipline of measurement' (Keebler *et al.*, 1999: 2), especially in the environment of supply chain vs. supply chain (Fawcett and Cooper, 1998). Comprehensive performance measurement has been adopted by leading edge (Bowersox *et al.*, 1989), logistics excellence (Bowersox *et al.*, 1992; Byrne and Markham, 1991), best practice (Boyson *et al.*, 1999), and world-class firms (MSUGLRT, 1995) in the logistics and SCM field.

Measurement refers to a firm's performance measurement system (Novack *et al.*, 1994) which plays an important role in managing the business because 'it provides the information necessary for decision making and actions' (Holmberg, 2000: 848). Keebler *et al.* (1999) indicated that an excellent measurement system should produce three primary benefits namely reduced costs, improved service, and the generation of healthy growth. Fawcett and Cooper (1998) asserted that new information systems can facilitate measurement.

Measurement is not solely a logistics and supply chain problem, but is particularly critical in the logistics and SCM field because of cross-functional and inter-organizational requirement (Bowersox *et al.*, 1999; Gunasekaran, 2001; Holmberg, 2000). Recent research has identified performance measurement as one of the top three areas of logistics research needs (Bowersox and Closs, 1996).

• Control activities

According to the statement on auditing standards (SAS, 2002), control activities are policies and procedures that help ensure that management's directives are carried out. Crawford, (2000) asserts that it has been the historical component of internal control.

Control activities are categorized into: authorization, segregation of duties, safeguarding, record keeping and reconciliations and all depend on considered activity (Jago, 2005)

Controls and risks are analyzed in a risk control matrix presented by COSO's control framework. Some complete frame works include; systems assurance and control (SAC), total quality management (TQM), control objectives for information technology (COBIT), system development life cycle (SDLC).these will establish what should be done and how it should be.

2.1.2 Performance

Performance has been viewed in a great variety of ways by logistics researchers (Chow et al., 1994; 1995; Bowersox et al., 1999; PRTM consulting, 1994). The definition and measurement of performance is often a challenge for researchers because organizations have multiple and frequently conflicting goals (Chow et al., 1994; Rogers et al., 1996) Thus, the definition of the performance is 'ultimately up to the evaluator' (Haytko, 1994: 263).

Performance measures can be classified into outcome-based performance (the final outcomes of a set of behaviors) and behavior-based performance (the set of behaviors that precede the final outcome) (Haytko, 1994). In a channel of distribution, outcome-based performance measures focus on a channel member's results, that is, financial measures of performance or channel member satisfaction. In contrast, behavior-based performance focuses on the specific activities of a channel member such as stocking, warehousing, delivering, and promoting goods (Rogers et al., 1996; Maltz, A. and Maltz, E., 1998). Outcome-based measures are more frequently used in empirical studies but it has been argued that they measure only past success or failure, and do not explain why the one or the other occurred nor what can be done in the future (Haytko, 1994; Spriggs, 1994). However, behavior-based measures can provide supplemental information (Roger et al., 1996; Stank and Lackey, 1997). Therefore, in channel member performance measurement Haytko (1994) recommends a multiple indicators approach that includes both outcome-based and behavior-based performance. Performance per se can be measured in two ways: hard (objective) performance and soft (perceptual or responsiveness) performance (Dalton et al., 1980; Chow et al., 1994; Maltz, A. and Maltz, E., 1998). Hard performance measures include raw financial statistics, cost statistics, commissions, and services rendered, whereas soft performance indicators involve supervisor appraisals and self-perceptions. Additionally, performance can be classified as financial performance, which reflects 'the fulfillment of the economic goals of the firm', and operational performance, which reflects key operational success factors that might lead to financial performance (Venkatraman and Ramanujam, 1986: 803-804). Performance in this study is separated into financial performance and operational (i.e. logistics) performance. All performance indexes are measured according to soft or perceptual performance and outcome-based measurement is according to management's perceptions of a firm's performance compared to that of major competitors, because actual (hard) performance data related to an individual or strategic business unit's competitive position is not generally published in annual reports and is usually closely guarded and therefore very difficult to obtain (Fawcett et al. 1996).

• Production

According to Luthubua (2014) there are four purposes of stock production in organization which joins the accompanying. Firstly, it provides both internal and outside customers with the required organization's levels in regards to sum and demand rate fill Secondly it serves to ascertain present and future essentials for an extensive variety of stock to avoid over-stocking while keeping up a key separation from "bottlenecks" in progress. Lastly, the stock is important in keeping costs to a base by grouping diminish, calm bundle sizes and examination of costs created to assist in getting and conveying on inventories and to give upstream and downstream stock detectable quality in the stock system.

• Distribution

Distribution is a whole process that concern also materials and finished product, a physical (special) movement of goods from the manufacturers to intermediaries and finally to the ultimate consumer. Distribution accomplishes this by providing time and place utility, in other words, availability and its goals are like any other marketing goals: consumer's satisfaction and profit for the firms (Muhscina, 2008). There are various routes that products or services use after their production until they are purchased and used by end users. These channels are referred to as distribution channels or marketing channels. Therefore, distribution channels are all those organizations that a product has to go through between its production and consumption (Kotler et al, 2006). Distribution channel management is very critical for the firms when they decide to enter one or more markets. In accordance with Gattorna and Walters (1996), depict that distribution channel management follows a structured approach, using criteria which help to evaluate optional channel structures during which alignments, trade-offs and channel relationships are considered. Increasingly, the roles of logistics service firms are included in the decision process for distribution channel, especially when they are a dominant element within the supply chain.

• Sales

The sales profession moves faster than ever today to increase logistic marketing is an obvious way to increase sales is to boost your marketing quality doesn't necessarily mean quality, so careful planning test marketing and monitoring results maximizes sales. Conduct marketplace research to learn which messages speak to audience promoting in limited locations and check the results before spending your entire budget. Expand distribution channels changing where you sell product can significantly boost sales and revenue without requiring any changing to the marketing pricing perform a

careful study of effects of using online selling, direct mail, wholesalers, retailers, distributors and total profits. The logistic /procurement managers must develop relationships with more customers to promote product or service so that the businesses grow higher. Sales growth metrics measure the pace at which your organization sale revenue is increasing or decreasing. This is a metric for any logistics management to monitor since it is an essential part of growth projection and is instrumental in strategic decision making. At highest level, the sales growth metrics is used to provide executives and director with assessment of the sales organization to achieving the goal of business. Measuring sales growth and relative employment growth during a specific time period are the more common indicators used than other indicators (Lind 2005).

2.2 The relationship between material management and logistic performance

2.2.1 Material management

Material management refers to the activities involving storage of goods on a large-scale in a systematic and orderly manner and making them available conveniently when needed. Material management is one of the important auxiliaries to trade. It creates time utility by bridging the time gap between production and consumption of goods. According to Lambert et al. (1998) they contribute to a multitude of the company's missions, like; Achieving transportation economies (e.g. combine shipment, full-container load), achieving production economies (e.g. make-to-stock production policy), taking advantage of quality purchase discounts and forward buys, supporting the firm's customer service policies, meeting changing market conditions and uncertainties (e.g. seasonality, demand fluctuations, competition), overcoming the time and space differences that exist between producers and customers, providing temporary storage of material to be disposed or recycled (i.e. reverse logistics). Material management layout is also important in achieve greater efficiencies. Minimizing travel time between picking locations can greatly improve productivity. However, to achieve this increase in efficiency, companies must develop processes to regularly monitor picking travel times and storage locations. Warehouse layout is one important factor affecting the order picking process.

• Tangibility

According to Jayaraman, Shankar and Hor, (2010) tangibility refers to the physical aspects of a product or service. This refers to the physical attributes of the bank and its services, such as the logistic building, the aesthetics, and accessibility. Katwalo and Muhanji, (2014) argues that logistic facilities, equipment and fixtures all constitute tangibility. Additionally, Lymperopoulos and Chaniotakis (2008) argue that organizations' employees form part of organizational tangibles. In most cases customers tend to remember employees' interactions, experience, and appearance of buildings. In other instances, employees are dressed code becomes the reference point for professionalism. Equally, when organization employees are not professionally nor reflecting the ethics that is due to the services the organization is providing, they form memorable tangibles through which customers perceive the organization (Gupta &Dev, 2012).

• Standards of products

It is important to know standard of products standard as it impacts on organizational products because it is directly related to customer satisfaction, and hence customer loyalty (mohsin). Customers' judgments about the cause and effect attribution influence their subsequent emotions, attitudes, and behaviors based on the three dimensions of causal attributions: locus, controllability, and stability (Swanson and Kelley, 2001). Attribution theory has been applied for explaining customer responses to product and service failures (Folkes, Koletsky, & Graham, 1987). Researchers have emphasized the mediating roles of attribution influences (Folkes et al., 1987; Yi, 1990). In general, dissatisfied customers who consider the cause to have an external locus and to be stable and controllable are more likely to exit and to engage in negative word-of-mouth behavior than those who consider that the problem is unlikely to recur and is uncontrollable (Blodgett et al., 1993; Folkes, 1984). Customer satisfaction/dissatisfaction is defined as the difference between an individual's pre-purchase expectations and post purchase performance of the product or service (Patterson, Johnson, & Spreng, 1997). The confirmation/disconfirmation paradigm (Oliver, 1997; Oliver and Bearden, 1995) has provided the conceptual framework for many customer satisfaction/dissatisfaction studies. The paradigm consists of three basic elements: expectations, perceived performance, and whether performance meets expectations (Boshoff, 1997). Clow, Kurtz, and Ozment (1996) indicated that consumers develop expectations primarily through image, satisfaction with past service experience, word-of-mouth communications received from others, tangible cues, and price structures. Perceived performance is the customer's recognition of performance (Vavra, 1992).

• Reliability

According to Jenny & Pamela (2006), reliability principle is the concept of only recording those transports/distributes in the logistic system that can verify with objective evidence. The reliability principle is particularly difficult to meet when you are recording a reserve, such as an inventory obsolescence reserve, a sales returns reserve, or an allowance for doubtful accounts, since these reserves are essentially opinion-based. In these cases, it is particularly important to justify your actions with a detailed analysis of the reasons for the reserve. This is frequently based on verifiable historical experience with similar transactions, and which you expect to be repeated in the future (Gleiling, 2005). Reliability of information is enhanced by the use of following logistic concepts and principles Neutrality, Faithful Representation and Prudence (Semanda 2001).

Consuegra, Molina, and Esteban (2008) defines reliability as the degree of discrepancy between customers' normative expectations for availability of service when needed and the actual availability rates, when service is needed. This discrepancy is usually occasioned by the fact that organizations can promise customers given services, however, the delivery of those services may not be guaranteed. As such, Meyer *et al.*, (2006) notes that when services delivery is consistent and on time as promised to customers, the services is deemed as reliable, however when service delivery is not consistent and on times as promised to clients, the service is deemed as being unreliable

CHAPTER THREE RESEARCH METHODOLOGY

3.0 Introduction

The chapter covers research design, target population, sample and sampling techniques, data collection instruction, and data analysis techniques.

3.1 Research design.

The research design used in this study was descriptive quantitative and qualitative approaches. A descriptive quantitative and qualitative attempt to describe or defines a subject often by creating a group of people draw from the ministry of defend from different department. Quantitative approach was used to collect and analyze data on the relationships between procurement planning and service delivery at national level. Qualitative approach was used in order to examine the part played by effective procurement planning and ethics code of conduct at the ministry of defend, it strategy development in south Sudan. This design was used because it focuses and reveals the relationships among the three variables. Therefore, people or events through the collection of data and tabulation of the frequencies on research variable or their interrelation as indicated

3.2 Target population

The target population of this study consisted of 100 people, it comprises of Finance Department, Logistic & Procurement Department and Information technology department in the south Sudan urban water corporation.

Table 1 Show the study population

Category	Size
Finance and Account department	40
Information technology department	30
Procurement & Logistics department	30
Total	100

3.3 Sample Size and selection Method.

Sample size determination is the act of choosing the number of observations or replicates to include in a statistical sample. The sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample.

Sample size Table 2 Showing the category and size of respondents used for the study.

Target population	Number of the Population	Sample size	Percentage (%)
Account department	40	35	41.2
Information technology department	30	25	29.4
Procurement & Logistics department	30	25	29.4
Total	100	85	100

Source: Primary Data.

3.4 Source of Data

3.4.1 Primary source of data

A primary source is a piece of information about a historical event or period in which the creator of the source was an actual participant in or a contemporary of a historical moment. The purpose of primary sources is to capture the words, the thoughts and the intentions of the past. Primary sources help you to interpret what happened and why it happened. Examples of primary sources include documents, artifacts, historic sites, songs, or other written and tangible items created during the historical period you are studying.

3.4.2 Secondary Sources of data

A secondary source is a source that was not created first-hand by someone who participated in the historical era. Secondary sources are usually created by historians, but based on the historian's reading of primary sources. Secondary sources are usually written decades, if not centuries after the event occurred by people who did not live through or participate in the event or issue.

The purpose of a secondary source is to help build the story of your research from multiple perspectives to give your research historical context. An example of a secondary source is Battle Cry of Freedom: The Civil War (Era by James M. McPherson published in 2008). They are a great starting point in helping you see the big picture. Understanding the context of your topic will help you make sense of the primary sources that you find

3.5 Data collection Tools / Methods.

The data was collected and analyzed using both quantitative and qualitative data analysis methods. Quantitative method involved both descriptive and inferential analysis. Descriptive analysis such as frequencies and percentages was used to present quantitative data in form of tables and graphs. Data from questionnaire were then coded and logged in the computer using Statistical Package for Social Science (SPSS V 20.0). This involved coding both open and closed ended items in order to run simple descriptive analyses to get reports on data status. Since a case study is the most strategy that

shall be used, most of the data was collected using a structured questionnaires and interviews. These comprise of question on the areas of Procurement planning, Ethic code of conducts and service delivery in the Ministry of defends Bilpam General Head quarter.

3.6 Questionnaires.

The researcher shall be structured questionnaires as the main data collection method. This instruction was administered to the respondents to solicit for information from and within the Organization

3.7 Interviews.

Direct interviews will also be used to elicit response from some members of the staff. This helped the researcher to get first-hand information which could be used to draw conclusion on the topic under study.

3.8 Observation

The term may also refer to any data collected during the scientific activities. Observation can be qualitative that is only the absence or presence of a property is noted or quantitative is a numerical value is attached to the observed phenomenon by counting or measuring the phenomenon studied.

3.9 Validity and reliability

Validity is refers as the relationship of the data obtained in various sections studied. According to smith(2003), a validity measure the degree to which the research is achieves what it sets out to do. Validity of the instrument established the supervisor judgment. It's scientifically determined by using content validity index formula. This instrument is use for accepting supervisor comments, where suggestions were accepted and judgments made on the content validity of the instrument.

3.10 Reliability

Reliability refers to the degree of consistency of and precision in which the measuring of instrument is demonstrated(Min,2005). According to Smith (2003), reliability established the consistency of the research instrument that resulted to achieved similar case studied and the same research respondents should use the same instrumentthat generate the same results under identical conditions. The statistical package for social science was used to determine the reliability of the instrument before collecting the data. A protest of the questionnaires to prove the reliability was carried out in other company which is not part of the study and 10 questionnaires were administered to generate the reliability coefficient of administration.

3.10.1 Data analysis

After a successful data collection exercise, the researcher sorted, coded and did data entry, tabulated, and interpreted the research finding. For quantitative data, the computer package used to analyze and interpreted the data collected. Frequency was used to signify the number of response,objective were analyzed using descriptive statistic where mean and standard deviation were used while the objective was analyzed by using Pearson correlation.

3.10.2 Ethical consideration

This study was conducted in an official manner where an official letter was written and sent from the research office introducing the researcher and the purpose of the study, the researcher submitted the letter in person to the training department of the ministry and upon the authorization the researcher was introduced to the staffs. The researcher made an appointment when he would visit the establishment to collect the data.

After this the researcher started administering the questionnaires. The researcher kept the information given by the respondents for academic use only with a maximum concealment.

3.11 Limitation and solution of the study

In the course of carrying out this study, the researcher encounter several constrains which in one way or the other limit the findings of the research, they included among others, the finding of the research were limited by the fact that situation in juba is not favorable to the academic purpose due to fear of political issues and most of the of the workers in the ministry were soldiers and the commonly used Arabic this may not bring out the true reflection of the study. Despite of the above mentioned challenges the researcher conducted the research and was convened that the view of few represented the whole population study.

CHAPTER FOUR DATA PRESENTATION AND INTERPRETATION

4.0 Introduction

This chapter provide and present an analysis of data collected from the field of procurement planning, ethics code of conduct and service delivery, the analysis was done by analyze the questionnaires collected from the south Sudan urban water corporation in South Sudan, a total of 50 questionnaires were distributed and were collected having been filled completely. This constitute of 90 percent which according to Mugenda Mugenda (2003) a response rate of more than 80 percent is sufficient for study. Data collected from the field was sorted and later analyze by using statistical package for social science (SPSS) software. The result are presented in the table and figure to highlight the major findings followed by research objectives to determine the application of logistic process planning and material management that has been implemented with the aim of Improving service delivery and to examined the relationship between procurement planning, ethics code of conduct and service delivery.

4.1 Bio data of respondents.

The response rate was 85 respondents

4.2 Age bracket of respondents

This area of study, the researcher sought to know the age category of the respondent. This was expected to guide the researcher on understanding the most active age group in regards to logistic process, material management and logistic performance in the south Sudan urban water corporation.

Table 1 show age Distribution of respondents.

Age	Frequency	Percentage (%)	Accumulative frequency
18-25	10	11.8	12.5
26-33	20	23.5	35
34-41	25	29.4	62.5
42 above	30	35.3	100
Total	85	100	

Source: Primary Data

It is evident from table 1 that majority respondents belong to the age group of 42 years and above which have the highest of 35.3% because of the employment policies in the south Sudan urban water corporation which require people with experience of at least 5 years above This implies that they have encountered with the knowledge of logistic planning process.

4.3 Gender of respondents

The respondents were asked to state their gender status, this was expected to guide the researcher on the conclusions regarding the degree of congruence of responses with the gender characteristics on logistic process planning, and material management and logistic performance in the ministry of defends. The results of the study are presented in the table, and figure below.

The results in table indicates that 58% males and 42% were females

4.4 Level of education attained

This section indicates the results of the respondents' level of education. This was to help the researcher to understand the level of education of the top executive managers, middle management and lower management in the South Sudan urban water corporation.

4.4.1 Table show the level of Education

Education	Frequency	Percentage (%)	Cumulative frequency
Certificate	10	11.8	13.5
Diploma	25	29.4	35
Degree	35	41.2	75
Masters	15	17.6	100
Total	85	100	

Source: Primary Data.

It evident from table 4.4.1 that the Majority of the respondents are Degree holders because majority of the task to be done require people who are Degree holders hence taking the highest percentage (41.2%). This implies that data for the study was obtained from learned respondents who have easily got adopted to use computer based system hence reliability of data and ease procurement planning (Carol 2002)

4.5 Duration in Employment

The respondents were asked to indicate the number of years they had worked in the ministry of defend. This was expected to help the researcher know the kind of experience the directors and the managers had and how effective they would be able to give information about the establishment as shown in the table and figure below.

Table 4 .5.1 Duration of Employment.

Duration	Frequency	Percentage (%)
Less than 2 years	20	23.5
3- 4 years	25	29.4
5 years above	40	47.1
Total	85	100

Source: Primary data.

The result from table 4.5 1 show that Majority of the respondents have worked for more than 5 years is 47.1% because the employment policy which requires employing experienced people to minimize training cost. This indicate that data was obtained from the respondents who have got experience how to plan logistic process in order to delivery and hence citizens satisfaction.

4.6 Marital status of the respondents

The table 4.6.1 presents the marital status of the respondents.

Marital status	Frequency	Percentage (%)
Married	50	58.82
Single	15	17.6
Divorced	5	5.9
Separated	15	17.6
Total	85	100

Primary Source Data.

It evident from table 4.6.1 that the Majority of the respondents are married because majority of the task to be done require people who are married hence taking the highest percentage (58.82%). This implies that data for the study was obtained from learned respondents who adapted to responsibilities of managing ministry fund allocation with reasonable service to be delivering (Carol 2002).

4.1.5 Position held by the respondents

The table below 4.1.5 presents the position of the respondents

Position of the respondents	Frequency	Percentage (%)
Director general (DG)	1	0.67
Directors	3	2
Human resources manager	1	0.67
Finance	2	1.33
Clerks	5	3.33
Work force /staff	73	92
Total	85	100

Source: Primary data computed

The results in table 4.1.5 above indicate that, 0.67% was hold by the director general, 2 % position was hold by directors, 0.67% were hold by the human resource manager, 1.33% were , hold by the finance, 92% were hold work force /staff and 3.33% were hold by the clerks

4.7 Relationship between study variables

Spearman correlation coefficient was used to determine the degree of the relationship between the study variables as showed in the table 4.7 below.

- Logistic process (1)
- Material management (2)
- Logistic performance (3)

	1	2	3	4
Logistic process(1)	1.000			
Material management (2)	.529**	1.000		
Logistic performance (3)	.725**	.689**	1.000	

** Correlation is significant at the .01 level (2-tailed)

Source: primary data computed

4.7.1 The relationship between logistic process and logistic performance

The results in table 4.7.above indicates a positive relationship between logistic process and logistic performance (r=0.589, p- value ≤ 0.01) which implies that good logistic performance can occur when proper material management are used in the SSUWC.

4.8 Regression analysis

Regression analysis was used to examine the logistic process, material management and logistic performance in the SSUWC.

Table 4.8 below shows the regression model for logistic process, material management and logistic performance in the SSUWC.

Model	Un-standardized coefficient		Standardized coefficient		
	βeta	Standard Error	βeta	T	Sig
Constant	13.159	13.608		.967	.388
Logistic process	.602	.160	.594	-3.138	.035
Material management	.388	.160	.265	1.792	.148

R- Square=0.463, Adjusted R-Square= 0.235, F=34.792, Sig= 0.003

Source: Primary data computed

The results in table 4.3.1 above show a positive relationship between logistic process, material management and logistic performance in the SSUWC (F=34.792, Sig=0.0003) logistic process (βeta=1.009) explained more to logistic performance followed by material management (βeta= 0.265). However, all the factors showed a positive relationship in influencing the level of logistic performance. The tests used in the illustration above are reliable for giving satisfactory results that can be used for final conclusions and recommendations.

4.9 The factor loadings of logistic process, material management and logistic performance.

4.9.1 Factor loading of logistic process

Table: 4.9.1 Factor loading of logistic process

	Variables	Agility	Measurement	Control activities
1	The institution has good logistic management processes regarding the institution activities/procurement	.675		
2	The institution has quick and effective identification of the problems regarding the logistic issues	.730		
3	The institution has capabilities to respond and procures its products or it contract other companies to procure on its behave	.520		
1	The management good policy assessment on the measurement		.674	
2	The logistic process makes assessment visits up- the stores centers often times as the measurement analysis is concerned		.764	
3	The measurement performs their duties with a greater degree of autonomy and independence from management		.348	
1	The logistic use the control activities technique of Inventory to order and when to do so.			.530
2	The staffs trained to implement the logistic process and material management system			.759
3	The controls activities systems in place to exclude incurring expenditure in excess allocated logistic and procure products			.842
	Eigen value	3.2910	1.597	1.551
	Variance %	36.610	18.860	17.230
	Cumulative variance %	36.610	55.471	72.700

Source primary data 2017

The results in table 4.9.1 above shows how the factor loadings do confirm that logistic process is measured by agility, with 36%, measurement with 18% and control activities with 17% as hypothesized of the variance of logistic process.

The factor analysis results of logistic process under agility were explained that, the institution has good logistic management processes regarding the institution activities/procurement was 67% that, the institution has quick and effective identification of the problems regarding the logistic issues was 73% and that the institution has capabilities to respond and procures its products or it contract other companies to procure on its behalf was 52% and; under measurement attribute, they were explained that, the management good policy assessment on the measurement was 67%, that the logistic process makes assessment visits up- the stores centers often times as the measurement analysis is concerned was 76% and that the measurement performs their duties with a greater degree of autonomy and independence from management was 34%.

With control activities attribute, the results were explained that; the logistic use the control activities technique of Inventory to order and when to do so. was 53%, that the staffs trained to implement the logistic process and material management system was 75% and that the controls activities systems in place to exclude incurring expenditure in excess allocated logistic and procure products was 84%.

4.9.2 Factor loading for material management

Table 4.9.2 material management

	Tangibility	Standard products	Reliability
The institution transport often tangible material in higher commercial property values	.790		
The product characteristics are even, next they look at cost, distance/site location, impact material management	.839		
The institution improved on the transport of intangible materials	.837		
The institution have strict policies on keeping products sealed, processes in place to ensure that quality is maintained and product is secure		.641	
The location attracts the customers and will increase commercial property values of the products		.875	
The products security items are low value, don't require much.		.697	
The better transport network reliable and accessible on regards to material management			.833
Reliability have capacity to examine transportation cost of the products			.878
The direct accessibility/reliability of the products positively affects material management values of the logistics			.855
Eigen value	2.519	2.162	1.540

Variance %	27.993	24.025	17.106
Cumulative variance %	27.993	52.017	69.124

Source primary data 2017

The results in the above table shows the factor loadings of material management is measured tangibility, with 27.9 % ,standard products with 24% and reliability with 17% hypothesized of the material management variance.

The factor analysis of material management under tangibility attribute were explained that, the institution transport often tangible material in higher commercial property values was 79 %, the product characteristics are even, next they look at cost, distance/site location, impact material management was 83% and that, the institution improved on the transport of intangible materials was 83%.

Under standard products attribute explained that; the institution have strict policies on keeping products sealed, processes in place to ensure that quality is maintained and product is secure was 64%, that, the location attracts the customers and will increase commercial property values of the products was 87%, and that the products security items are low value, don't require much was 64%.

With reliability attribute, the results explained that, the better transport network reliable and accessible on regards to material management was 83%, the reliability have capacity to examine transportation cost of the products was 87% and that, the direct accessibility/reliability of the products positively affects material management values of the logistics was 85%.

4.9.3 Factor loading for logistic performance

Table 4.9.3 logistic performance

	Production	Distribution	Sales
The institution has the viable skills to compare its products/commodities with other institution in the market	.796		
The institution is flexible with SWOT/PESTLE	.885		
The institution have qualified staff with the institution skills and innovative skills to enhance the production	.767		
There is a formal distribution in the SSUWC investments		.861	
There is lack of distribution causes delays due to rework and overall capability levels among workers		.898	
. The management often times obscures progress on a project. Good management is required for profitability and success when proper distribution is made.		.778	
The institution generate sales revenue by procuring new products			.874
The institution always increases sales on the daily basis in regards to production			.726
The supply chain stock have increased in the institution			.60.6
Eigen value	2.203	2.004	1.777
Variance %	24.477	22.271	19.739
Cumulative variance %	24.477	46.747	66.486

Source primary data 2017

The results above shows factor loadings of logistic performance was measured by, production, with 24%, distributionwith 22% and saleswith 19% as hypothesized of the logistic performance.

The factor analysis of logistic performance under production attribute were explained that, the institution has the viable skills to compare its products/commodities with other institution in the market was 76 %, the institution is flexible with SWOT/PESTLEwas 88% and that, theinstitution have qualified staff with the institution skills and innovative skills to enhance the productionwas 76%.

Under distributionattribute explained that; there is a formal distribution in the SSUWC investmentswas 86%, that, there is lack of distribution causes delays due to rework and overall capability levels among workerswas 89%, and that the management often times obscures progress on a project. Good management is required for profitability and success when proper distribution is made was 77%.

With sales attribute, the results explained that, the institution generate sales revenue by procuring new products was 87%, the institution always increases sales on the daily basis in regards to production was 72% and that, the supply chain stock have increased in the institutionwas 60%.

CHAPTER FIVE SUMMARY AND DISCUSSION OF FINDING

5.0 Introduction

This chapter presents an interpretation of the findings in the study as presented in the previous chapter.

5.1 Summary

This part presents the summarized results and interpretation (findings) based on the study objective as established at the beginning of the study.

5.1.1 Bio Data

5.1.2 Gender of the respondents

The respondents were asked to state their gender status, this was expected to guide the researcher on the conclusions regarding the degree of congruence of responses with the gender characteristics on procurement planning, ethics code of conduct and service delivery in the ministry of defends. The results indicate that 58% males and 42% were females

5.1.3 Age group of the respondents

It is evident that majority respondents belong to the age group of 42 years and above which have the highest of 35.3% because of the employment policies in the south Sudan urban water corporation which require people with experience of at least 5 years. This implies that they have encountered with the knowledge of procurement planning process

5.1.4 Marital status of the respondents

It evident that the Majority of the respondents are married because majority of the task to be done require people who are married hence taking the highest percentage (58.82%). This implies that data for the study was obtained from learned respondents who adapted to responsibilities of managing ministry fund allocation with reasonable service to be delivering (Carol 2002).

5.1.5 Level of education of the respondents

It evident that the Majority of the respondents are Degree holders because majority of the task to be done require people who are Degree holders hence taking the highest percentage (41.2%). This implies that data for the study was obtained from learned respondents who have easily got adopted to use computer based system hence reliability of data and ease logistic and procurement planning (Carol 2002)

5.1.6 Position of respondents

The results indicate that, 0.67% was hold by the director general, 2 % position was hold by directors, 0.67% were hold by the human resource manager, 1.33% were , hold by the finance, 92% were hold work force /staff and 3.33% were hold by the clerks.

5.2 Relationship between material management and performance.

From the finding of the study presented, its interpretation was analyze from chapter four in order to reach the finding, the researcher drew a conclusion that effective material management is an important route towards securing the right service to be delivered to the public, and also maximizing the level of service provision which can be achieved with in the local supporting people. Procurement and logistics plan helps procuring entities to achieved maximum value for expenditures on service to be delivered and enables the entities to identify and address all relevant issues pertaining to a particular procurement before the public's of goods, work, and services.

5.2.2 Relationship between logistic process and performance.

Logistic process do follows the rule of law that governs specific profession. In the act of Victoria government relevant legislation included the local government (Act 1989) and other legislation such as the public health and wellbeing (2008) and the equal opportunity Act (2010). Good ethic is responsive; government should always try to serves the needs of the entire community with the ethic of integrity.

Since Northcote Trevelyan laid down the foundations of the modern civil services in the mid-nineteenth century a concern with establishing the ground rules for public servants and ensuring that the conform to a core set of standards in their everyday behavior has been perennial theme in public administration (Pratihett, 1999). As observed by Sakr Ashour (2004), A consensus has developed world wide over the important of reforming logistics sector strengthen ethics, integrity , accountability, transparency, and professionalism in order to prevent and combat corruption of public resources.

Such reforms are crucial to protecting public resources enhancing public sectors performance and strengthening the government role in coordinating development and providing business service, indeed there is a greater awareness of the needs for ethics, integrity, accountability, transparency and professionalism in public life today in order to execute service delivery.

5.3 Discussions.

The study centered on the logistic process, material management and logistic performance as a case from the south Sudan urban water corporation. The finding indicate that 27% of the respondents of the employees in the ministry were of 51-61 years old followed by the age of 29-39 years old with 22 %, those in between 40-50 were 20 %, age of 60 and above at 18 %, and lastly age of 18- 28 were 13 %. This finding indicate that the most active age group are between 51- 61 years were 27% percent.

From table (2) above it is clearly shown that the south Sudan urban water corporation employed both male and female employees in which the majority were male that represented by 89% and lower percentage of 11% represented female employees in the ministry of defend. This indicates that the majority of the employees in the ministry were male.

In the figure indicate that 9 % of the employees were senior 4 deliver, 33 % were diploma graduates, bachelor degree were of 44 %, and master graduates were 13 %, therefore, from the finding it concluded that the ministry employed a great number who attained bachelor degree with 44 percent.

From the graph shown above it indicate that the workers who worked for less than a year were 9%, those who had worked for 2 years were 16%, those who worked for 3 years were 31%, and 5 years and above experience workers were 44 percent. This concludes that south Sudan urban water corporation employed experience and skilled workers who can give rightful information about logistic process, material management and logistic performance.

Based on the above data it indicate that 49% of respondents agree that logistic process planning activities compliance with it performance whereas 51% of respondents were not sure of whether the logistic planning is performed in it best expectation

In the table and pie-chart above it indicate 73% of respondents were strongly disagree with the professional standard of dealing logistic activities in the south Sudan urban water corporation whereas 27% of respondents agree on the performance of procurement. This mean that in this finding the higher numbers of percent strongly disagree.

From table, and pie-chart indicate that 67 percent of the respondents in total strongly disagree on the measures of distributing service delivery to the beneficiaries and 33 percent agree the channel of distributing service delivery in the south Sudan urban water corporation. In this finding it indicate that a high percent of 67% strongly disagree with the channel of delivery service.

6.1 Conclusions

The conclusions reached as well as the recommendations made by the researcher, the conclusion and the recommendations are based on the findings of study.

In conclusion the logistic process, material management and logistic performance in the South Sudan urban water corporation has been affected by management issues like corruption, poor infrastructure, investment climate, government policies, challenges of limited skilled personnel to meet the rising needs of nationals and challenge to get the right service provider with the equipment to do the work in the professional manners.

Logistics Process, in line with material management and logistic performance is in regards of today to day activities of the south Sudan urban water corporation, purchasing functions through which the ministry obtain products and services from external supplier and obligatory decision by elected officials to serve or deliver goods and services to the national.

For improved logistic process, material management and logistic performance there will be needs of proper communication with stake holders in the ministry to deliver service, facilitating an efficient and effective service delivery, the ministry should encourage employees to keep records of quality measurement and effective procedures to control wasteful spending and un professional feeling of self-interest when procuring goods and service in the ministry of defend.

6.2 Recommendations

Basing on the findings of the study the researcher went on to give some recommendations of the following views, these recommendations are mainly to south Sudan government. South Sudan needs to develop procurement planning system in order to deliver service to the needy through the ministry of defend and others corporation in the republic of South Sudan, integrating the bulk of the country's population to provide profitable supply chains that satisfy these demands, and ensuring consumers of growing supply of horticultural produce with falling real prices and improving quality will require investment in areas of technical production, public market, infrastructure, and legal and regulatory environment in order to governed the professional among logistic/procurement personnel.

There is needs to address the procurement planning, ethic code of conduct and service delivery critical constraints that require the government to adopt an overarching vision of partnering with private sector and donors to expand demands and value added within the SSUWC and facilitate greater public participation in that growth.

Government mush sees its role as a facilitator but not a controller of economic activity. The government needs to develop effective logistic planning system in the SSUWC by providing political and social economic changes and effort to give priority to the public for the south Sudan urban water corporation to be effective. There is needs for initiative to taken for us to create a sustained and stable working and living environment for the public to be able to adjust to foreign procurement system needed in provision of service delivery.

6.3 Suggestions for further studies.

Finally, the further studies should focus on:

- The challenges and constraints of procurement, planning activities and logistic performance in south Sudan.

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