ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE

AN ASSESSEMNT OF LOGISTICS PERFORMANCE OF THE ETHIOPIAN ELECTRIC POWER (EEP)

A thesis proposal submitted to the School of Commerce of Addis Ababa University in partial fulfillment of the requirements for the Degree of Masters of Arts in Logistics and Supply Chain Management

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APPROVAL SHEET SCHOOL OF POST GRADUATE PROGRAM DIRECTORATE ADDIS ABABA UNIVERSITY

I hereby certify that I have read and evaluated this Thesis entitled "An Assessment of Logistics Performance of Ethiopian Electric Power" Under my guidance, by Debora Abreham. I recommend that to be submitted as fulfilling the thesis requirement.

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Declaration

I, Debora Abreham declare that, this paper prepared for the partial fulfillment of the requirements for the award of Master of Arts degree on Logistics and Supply Chain Management entitled “Assessment of Logistics performance in Ethiopia Electric Power” is prepared with my own effort. I have made it independently with the close advice and guidance of my advisor.

Debora Abreham

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Date ———————

Certification

This is to certify that Debora Abreham has carried out this research work on the topic entitled "Assessment of Logisticsperformance in Ethiopia Electric Power" under my supervision. This work is original in nature and it is sufficient for submission to the partial fulfillment for the award of masters of Arts degree in logistics and supply chain management.

TARIKU JEBENA (PHD)

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Date ———————————

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ABSTRACT

The purpose of this study is to assess logistics performance of the Ethiopian Electric Power Corporation. Logistic plays critical role to sustain company growth by reducing different operational cost and also essential for countries' economies growth. Ethiopian Electric Power is it happens to be the oldest and the largest government owned organization, is responsible for the generation, transmission, distribution and sales service of electric energy throughout Ethiopia it is very important to now there logistics performance level. Therefore, the aim of the study is to increase Ethiopian Electric Power Corporation understanding of their current logistics performance and by this making them aware of potential areas of improvement and understand how currently is measuring and following up their logistics performance compared to the literature in order to investigate if the company is covering the critical and most relevant aspects when managing their logistics performance and measuring the logistics five process with the logistics performance measurement index terms quality, productivity, cost and cycle time performance indicators.To address this study descriptive analysis method employed and also quantitative and qualitative approaches isused. In this study, nonprobability sampling method is used. Specifically, judgmental sampling technic is deployed as a sampling technique,they are 52 employees in EEP logistics and related departments, we used census and selected the hole and 49 were filled correctly and interviewed the management of the logistics and related department The evidence from this study shows the currentlogistics performance of EEP in five logistics process is very low and there no measurement system for their logistic performance. To be more effective in logistics performance, the study recommends the enterprise to identify their key performance indicators and measure it because what gets measured gets improved and see the five logistics performances and improve in terms of quality productivity finance and cycle time.

Keywords/phrases: *logistics performance, measurement index, logistic process*

Abbreviation/Acronyms

CEO: chief executive officer

CFO: chief financial officer

CSCMP: Supply Chain Management Professional

EEP: Ethiopian Electric Power

GOP: Generation operation

ITT: In transit time (ITT)

LP: Logistics Performance

OET: Order entry time

OPT: Order processing time

PCF: Performance Classification framework

PMO: project management office

POCT: Purchase order cycle time

TLCT: Logistics cycle time

TSC: transmission & substation consternation

TSO: transmission & substation operation

WOCT: Warehouse order cycle time

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CHAPTER ONE

INTRODUCTION

1.1Background of the Study

Logistics encompasses a complex set of activities which require a collection of metrics to adequately measure performance. The role of logistics in the last decades in business has increased both on scope and strategic importance. Initiatives such as supply chain integration, quick response, and just in time inventory management has revolutionized not only the companies manage their logistics activity, but also how they run their entire businesses. (Chris and Yossi, 1995; 6). The Council of Supply Chain Management Professional (CSCMP) states that logistics is a part of the supply chain that plans, controls and implements the movement of the inventory, i.e., the goods and services, from the point of production to the end consumer. Logistics has had its definite breakthrough as a strategically important business area. It is a significant factor in creating competitive and profitable companies (Aronsson 2004).

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).

Abrahamsson, Aldin and Stahre (2003) were able to show that logistics can be used to achieve a competitive edge, having noticed that the most successful companies with respect to growth and profitability are well integrated to their supply chains. Hijjar, Gervásio and Figueiredo (2005)analyze the World Class Logistics model, highlighting the fact that a good performance monitoring system is essential to managing logistics activities.

Logistics and supply chain management are areas that have gained recognition as key strategic factors for many companies. Much research is done on various aspects of these areas but little attention is paid specifically on performance evaluation of supply chains (Gunasekaran 2001).

To improve a company's logistics, as with any other area, it is important to be able to evaluate its performance. Many companies have realized that supply chains need to be assessed to become efficient and effective. Without measures and metrics it is highly difficult to form a clear direction for improvement so that an organization can achieve its goals. Effective performance measures and metrics are also necessary to test and evaluate different strategies (Gunasekaran, 2001)

Nevertheless, by any logistics indicator, the logistics performance of Ethiopia is believed to be poor. According to World Bank's Country Logistics Performance Index, Ethiopia is ranked 126 among 160 countries with a score of 2.38 in 2016. This depicts the fact that the logistics system of the country is performing poorly at national level and indeed under developed. What can be said for certain is that there was no improvement in the performance since the 2012 we ranked 141from 150 countries so we haven't seen any dramatic change in the last 4 years. Accordingly, the logistics system of the country should be transformed in such a way that enhances its trade competitiveness and logistics facilitation in a hyper competitive global market it should be urgently addressed.

Analyzing a company's logistics requires a special approach, looking at value adding processes and how changes affect total costs and customer value. Traditional performance measuring usually has a different focus, based on individual budget goals for a company's different functions and not the cross functional processes. (Aronsson 2004)

(Christopher, 2005) also said There are considerable difficulties in analyzing the quantifiable logistics data, such as costs. Traditionally cost accounting methods are based on a company's functions. Shared and indirect costs are often allocated in arbitrary ways. Since the focus is not flow oriented this can give a quite distorted view of the costs for different customers and markets. This lack of appropriate cost information can obstruct proper analysis of a company's logistics and supply chain management.

With an estimated population of over 94 million (2012), Ethiopia is the second populous sub-Saharan African country next to Nigeria. The rate of population growth is estimated at 2.73% per

year. About 17% of the population is urban and 83% rural, electricity power coverage stands at 53% and power demand is projected to increase by an average rate of 32% per year for the coming five years. As of 2015 the main national energy supply sources are hydropower 88%disel generators 11% and wind geothermal 1%. The Ethiopian electric power in past 10 years has constructed and completed 6 medium and large scale hydropower dams so it has been using many logistics activities in the process.

Therefore, the researchers intended to empirically test the framework identifying the relationships among logistics performance and logistic-related organizational performance of the Ethiopia Electric power Enterprise.

1.2 Statement of the Problem

According to Bhagwat and Sharma (2009), analysis of logistics performance is among the main challenges faced by today's companies. Other challenges include, for example, customer service, strategic partnerships, inventory management and logistics flow management, reducing cycle times and geographical coverage along with flexibility.The management of logistics activities has become a valuable way of securing competitive advantage and improving organizational performance (Li et al., 2006).

Historically, companies concentrated on financial indicators. Nowadays it is widely recognized that non-financial and even non-numerical indicators can give valuable information as well (Brewer et al, 2000, Ittner et al., 2003). Such indicators though are more difficult to measure and compare.

Selecting the right indicators for measuring however is rather complicated. A full set of indicators could result in a huge amount of data which would require a lot of efforts and high costs both in acquiring and analyzing. Another difficulty is that it is not uncommon that the selected indicators turn out to be conflicting-improving one may worsen another. Performance indicators are to a large extent domain specific. (Elfriede and Hans 2005) Our research focuses on the area of EEP logistic performance.

Unfortunately many performance measurement systems have neither kept up with the changing role and scope of logistics nor have they been systematically examined or evaluated. (Chris and Yossi, 1995; 6).

Ethiopian Electric power huge operation on the assistance of electric power in Ethiopia, Performance and service on the targeted end user is very important to tackle electric in need to the country.

In Ethiopia Electric Power failure to deliver products and damages of goods careless transportation lead users/customers dissatisfaction and have high logistics cost Most of these problems occur due to improper decisions related to logistics performance in the corporation.

1.3 Research Questions

Therefore in this research paper the researcher is answering the following question

1. What does it looks like the logistics performanceof Ethiopian Electric Power?
2. What are the major challenges of logistics performance of Ethiopian Electric power?
3. What kind of activity properly implemented in the company logistic performance?

1.4. Objectives of the study

1.4.1. General objectives of the study

The main objectives of the study wereto assessthe logistics performance of Ethiopian electric power.

1.4.2. Specific objectives of the study

The following are specific objectives of study

- To assess the logisticsperformance of Ethiopian Electric power
- To identify the major problem in the logistics practice
- To identify the activity that are properly implemented in the enterprise

1.5Significance of the study

These studies were beneficial for top manager, for employees, new researcher, for all benefiters of the EEP that are the ordinary people who use electric power.

It helps some important executive bodies (top manager, supervisors) to look at the subject matter seriously and take corrective action on the existing problems through gives formative techniques/mechanism for all logistics action and to identify bottlenecks, waste, problems and improvement opportunities in the logistic performance of the company.Because this study identifies the problematic area of logistics, performance measurements practice.

Moreover, this research provided recommendations on how to evaluate the performance of a certain logistics activities in accordance to logistics management performance. Based on recommendation, it helps to give training for all employees that help to develop their skill and knowledge, utilization of new and advance technologies and to provide other improvement on the performance measurement mechanism.

1.6Scope of the study

In terms of scope, the study focused on Ethiopian electric power Enterprise (EEP) as it happens to be the oldest and the largest government owned organization. The organization is vast to see all the regional logistic process so it mainly focused on Addis Ababa region logistics performance. The study is limited to five specific activities of logistic performance at EEP towards strategic supplier partnership, customer relationship, transportation, quality of inventory planning, warehouse, effective and efficient logistics in assessing and measure the logistic performance.

1.7Limitations of the Study

Analyzing a company's logistics requires a special approach, looking at value adding processes and how changes affect total costs and customer value. Traditional performance measuring usually has a different focus, based on individual budget goals for a company's different functions and not the cross functional processes. Today there are no internal instructions or guidelines when the consulting division performs the first analysis of a logistics processes. Having a standardized approach could make the analysis more efficient and enable proper comparisons between different organizations. It could also minimize variations in what conclusions are drawn from the analysis depending on how it is carried out.

1.8 Operational definition of terms and concepts

Logistics; defined 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. Council of Logistics Management (1991)

Logistics performance: defined logistics performance as effectiveness, efficiency and differentiation in performing logistics activities and adding value customer receives from logistics activities.

Customer: employees of the Ethiopian electric power who are users of the logistics processes

1.9Organization of the Study

The study has been organized into five chapters. Chapter one of the study, focuses on the key issues and performances of the Ethiopian electric power Enterprise. In essence, the chapter presents a background to the study, statement of the problem that has necessitated. The chapter also presents significance of the study, the research questions and objectives, research scope and limitations of the study.

Chapter two of the research contains a review of relevant related literature that provided the theoretical framework and backbone for empirical studies. The chapter therefore, presents and discusses relevant terms and pertinent issues on the development trends of Ethiopian electric powerEnterprise, the regulatory and policy framework for the logistic performance in Ethiopia and a brief profile of Ethiopian electric power Enterprise. The chapter also discusses issues bordering on organization performance assessment to contribute to achieving the overall objectives of the study. The research methodology has been discussed in chapter three of the report. The chapter discusses the research approach, sampling procedure and techniques uses as well as the data collection and sources for the research. It also explains the techniques for data analysis and presentation of the research findings.

The chapter four presents on a brief profile of the study areas. In the chapter of this report, an analysis of field data collected for the purpose of this research has been presented. It analyses the field data to make meaningful deductions that also contributes to answering the research questions and meeting the objectives of the research.

Finally, the fifth and final chapter of the research report presents a summary of the majority findings of the research as well as recommendation based on the findings. It also contains the conclusion and section of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This part of the study address relevant conceptual issues, theoretical framework and empirical review related to the topic of the study. It includes definition and concept such as logistics management, and measuring logistics and organizational performance by focusing on previous research in this area and present reviewed literature relevant to this study.

2.2 Historical perspective of Logistics

The elements of distribute and logistics have of course, always been fundamental to manufacturing, storage and movement of goods and products. It is only relatively & recently, however, that distribution and logistics have come to be recognized as vital functions within the business and economic environment. The role of logistics has changed in that it now plays a major part in the success of many different pertains and organizations in essence, the underlying concepts and rationale for logistics are not new they have evolved through several stages of development, but still use the basic ideas such as trade-off analysis value chains and systems theory together with their associated techniques. There have been several distinct stages in the development of distribution &logistics (Alan, Phil and Peter,2003) In 1950s and early 1960s, in this period, distribution systems were unplanned and un formulated distribution was broadly represented by the haulage industry and manufacturers own account fleets. There was little positive control and no real liaison between the various distribution-related function. In the 1960s & 1970s the concept of physical distribution was developed with the gradual realization that the 'dark continent' was in dead a valid area for managerial involvement. 1970s, this was an important decade in the development of distribution concept. One major changes was the recognition by some companies of the need include distribution in the functional management structure of the recognition. 1980s,Fairly rapid cost increases and the clearer definition of the true costs of distribution contributed to a significant increase in professionalism with in distribution with this professionalism came a move towards longer-term planning and attempts to identify and pursue cost-saving measures. These measures include centralized distribution, severe reductions in stock-holding and use of computer to provide improved information and

control. The growth of third-party distribution service industry was also of major significance with these companies spearheading developments information and equipment technology. In the late 1980‟s and early 1990s, and linked very much to advances information technology organizations began to broaden their perspectives in terms of functions that could be integrated. In short, this covered the combining of materials management **(**the inbound side) with physical distribution (the out bound side). The term 'Logistics' was used to describe this concept. Once again this led to additional opportunities to improve customer service and reduced the associated costs. On major emphasis recognized during this period was the importance of the information aspects as well as the physical aspects of logistics In the 1990‟s the process was developed even further to encompass not only the key functions, within the organization's own boundaries but also those functions outside that also contribute to the provision of a product to a final customer. This is known as **'**supply chain management'**.** In 2000 & beyond, Business organization face many challenges as they endeavor to maintain or improve their position against their competitors, bring new products to market and increase the profitability of their operations this has led to the development of many new ideas for improvement, specifically recognized in the redefinition of business goals and the reengineering of entire systems **(**Andargachew 2014).

2.3 Defining logistics

The purpose of this thesis is to assess and measure a logistics system and evaluating its performance. To be able to fulfill the purpose it is important to have a clear definition of the meaning of logistics. According to Council of Supply Chain Management Professionals (CSCMP) logistics is defined as following.

"The process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. This definition includes inbound, outbound, internal, and external movements." (CSCMP Supply Chain and Logistics – Terms and Glossary, 2006)

Logistics is the process of strategically managing the procurement, movement and storage of materials, parts and finished inventory (and the related information flows) through the organization and its marketing channels in such a way that current and future profitability are maximized through the cost-effective fulfillment of orders(chiristopher1988).

In literature and articles the word logistics (management) and supply chain management are sometimes used interchangeably. This can cause confusion. Therefore how CSCMP (2006) defines supply chain management is mentioned below.

"Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. Supply Chain Management is an integrating function with primary responsibility for linking major business functions and business processes within and across companies into a cohesive and high-performing business model. It includes all of the logistics management activities noted above, as well as manufacturing operations, and it drives coordination of processes and activities with and across marketing, sales, product design, finance and information technology." (CSCMP Supply Chain and Logistics – Terms and Glossary, 2006).

From the definitions of logistics and supply chain management it is clear that the two concepts have much in common. Lambert & Stock (2001) argue that supply chain management can be seen as the logistics outside the firm, including customers and suppliers. This implies that logistics always has a supply chain orientation, including areas such as materials management and information flows across the supply chain.

2.4 Logistics Performance Assessment

A system for logistics performance assessment first requires a functional perspective. In addition to basic functional performance, improved methods for measurement of customer accommodation are receiving increased attention in many organizations. Measurement of integrated supply chain performance poses a major challenge for contemporary management

Research over a period of years suggests that functional measures of logistics performance can be classified into these categories: (1) cost, (2) customer service, (3) quality,(4) productivity, and (5) asset management (David 2002).

Measures also point to the need for single-point accountability for logistics performance in value, cost, productivity, quality, and time. As a result, the Logistics Scoreboard measurement system also begins to suggest the design for a unified logistics organization.

Because any logistics organization is in competition with their competitor's logistics organization and third-party logistics services, it is critical to hold the logistics organization accountable to business-like performance measures. Since businesses compete on the basis of financial performance ("Financial Measures of Logistics Performance"), productivity performance ("Productivity Measures or Logistics Performance"), quality performance ("Quality Measures of Logistics Performance"), and cycle time performance ("Cycle Time Measures of Logistics Performance") (Edward 2002). This research measures fall into those same four categories.

2.4.1 Financial measures of logistics performance

Logistics is playing an increasingly important role in value creation, revenue enhancement, capital consumption, and expense control. As a result, logistics financial performance is playing a bigger role in corporate financial performance. Measuring and improving logistics financial performance is increasingly important in measuring and improving corporate financial performance.

The most important principal to remember in developing and implementing logistics financial performance measures is that nearly every generally accepted corporate financial measure has a corresponding logisticsfinancial measure. Some key corporate financial measures and their corresponding logistics financial measures are described below

Logistics Expenses (LE)

Logistics expenses are dominated by labor expenses but also include telecommunications, inbound and outbound freight, fuel, fees to third parties, and leased or rented space.

Logistics Profit (LP _ R _ LE)

Logistics profit is computed simply as revenue minus logistics expenses. The computation of logistics profit per item, per category, or per location is helpful in determining the business viability of an item, category, or location.

Logistics Asset Value (LAV)

The *logistics asset value* is the sum total of the value of assets deployed in logistics including inventory, logistics facilities, transportation fleets, material handling systems, logistics information systems, and so on.

Return on Logistics Assets (ROLA _ P/LAV)

The *return on logistics assets* is computed simply as the ratio of corporate *profit* (P) to LAV. The ratio can demonstrate the difference between the return on logistics assets versus the return on overall corporate assets or the assets deployed in the other areas of the business.

Logistics Asset Turnover (LAT _ R/LAV)

Logistics asset turnover measures the overall utilization of logistics assets and is computed as the ratio of corporate revenue to the investment in logistics assets.

2.4.2 Productivity measures of logistics performance

A danger in focusing too much attention on logistics costs is that certain cost elements cannot be controlled by logistics managers and engineers. For example, logistics managers have limited control over some of the major cost factors, including wage rates, fuel costs, occupancy cost, inventory carrying rates, and systems capitalization rates. Instead, logistics managers have direct control over the amount of inventory in the system, the amount of working hours expended, the amount of occupied space, and the number of transportation miles traveled. Essentially, logistics managers and analysts have influence over the amount of logistics resources consumed in providing target customer service levels (Edward 2002).

A performance indicator includes measures of logistics resource utilization and productivity. Those measures are the focus of this section, which describes utilization and productivity measures for the logistics workforce, transportation capacity, logistics facilities, and inventory. The productivity of a specified resource(s) is generically measured as the ratio of the output of the resource(s) to the consumption of the resource(s):

$$\text{Productivity}_{\text{rate}} = \text{Output}_{\text{resource}} / \text{Consumption}_{\text{resource}}$$

Productivity is thus a basic concept. If a system has clearly measurable outputs and identifiable, measurable inputs that can be matched to the appropriate outputs, productivity measurement is

quite routine. However, it can be difficult and frustrating if (I) outputs are hard to measure and input utilization is difficult to match up for a given period of time; (2) input and output mix or type constantly changes; or (3) data are difficult to obtain or unavailable (David 2002).

2.4.3 Quality measures of logistic performance

How do you measure logistics quality? Unfortunately, no industry standard exists for doing so. In fact, so many different measures are available that many managers have given up trying. The issue is so complex that universities around the country have entire research projects devoted to identifying the right set of logistics accuracy indicators (Edward 2002).The most effective indicator of logistics accuracy or quality is the perfect order percentage (POP), which ties together the indices for logistics quality in each of the logistics activities. The perfect order percentage and its components are defined in the following section.

Perfect Order Percentage (POP)

According to the American Heritage Dictionary, accurate means deviating only slightly or within acceptable limits from a standard (accuracy is the quality or state of being accurate.)Logistics encompasses customer service, inventory planning, manufacturing and procurement, transportation, and warehousing. Defining the right measurement focus, defining the right standard, and defining the acceptable limits of deviation from the standard for an integrated setoff activity as broad as logistics are complex tasks. Let's consider each issue in turn. First, the right measurements focus; the link and common deliverable of customer service, inventory planning, manufacturing and procurement, transportation, and warehousing is an order. Logistics exists to fill orders. Second, the standard. The standard has to be perfection; otherwise, the pursuit of the standard will not yield the order of magnitude improvements needed in all areas of logistics (Matiwos 2015).

Performance relative to service reliability is generally reflected in an organization's measurement of **logistics quality.** Many of the quality metrics are designed to monitor the effectiveness of individual activities, while others are focused on the overall logistics function. Accuracy of work performance in such activities as order entry, warehouse picking, and document preparation is typically tracked by computing the ratio of the total number of times the activity is performed correctly to the total number of times it is performed. For example, picking

accuracy of99.5 percent indicates that 99.5 out of every 100 times, the correct item(s) were picked in the warehouse (David 2002).

Overall quality performance can also be measured in a variety of ways. Typical measures include damage frequency, which is computed as the ratio of the number of damaged units to the total number of units. While damage frequency can be measured at several points in the logistics process, such as warehouse damage, loading damage, and transportation damage, it frequently is not detected until customers receive shipments or even some point in time after receipt. Therefore, many organizations also monitor the number of customer returns of damaged or defective goods. It is also common to measure customer claims for credit.

Other important indicators of quality performance relate to information. Many organizations specifically measure their ability to provide information by noting those instances when information is not available on request. It is also common to track instances when inaccurate information is discovered. For example, when physical counts of merchandise inventory differ from the inventory status as reported in the database, the information system must be updated to reflect actual operating status. Additionally, the occurrence of information inaccuracy should be recorded for future action (David 2002).

2.4.4 Cycle time measures of logistics performance

The total logistics cycle time (TLCT) includes order entry time (OET), order processing time (OPT), purchase order cycle time (POCT), if the product is not available from stock), warehouse order cycle time (WOCT), and in transit time (ITT) (Edward 2002).

OET is the elapsed time from order placement until completed order entry and capture for processing. For orders received by mail, the order entry time includes ITT, waiting time for order entry, and OET. For orders received by fax, the OET includes fax transmission time, waiting time for order entry, and the keying and/or scanning time for order entry. For orders received by phone, the OET includes the waiting time for the customer, the conversation time, and the keying time for the order entry specialist. For orders received electronically, the OET is reduced to the transmission time for the order.

The OPT clock starts when the order is entered in and captured by the order processing system and stops when the order is released to the warehouse(or factory) for picking. The OPT includes

the time to verify customer information, verify for credit clearance, batch for schedule for release, and dwell for release to the warehouse for assembly.

The POCT is simply the customer order cycle time you receive from your supplier. The POCT clock starts when you place your order with your supplier and stops when the order is received at your designated location.POCT is included in the TLCT when the product is not available from stock (Edward 2002).

2.5 Empirical literature on Logistics performance

According to Chow, Heaver, and Henriksson (1993), researchers always have difficulties to define LP due to the reason that firms normally have multiple and frequent conflicting goals. The most frequent definition cited from Mentzer and Konrad (1991) defines LP as effectiveness and efficiency in performing activities. This definition has also been further extended by Fugate, Mentzer, and Stank (2010) as multi-dimensional and is defined as the degree of efficiency, effectiveness, and differentiation associated with the accomplishment of logistics activities (Mohd and Harlina 2015).

In other words, LP does not only help firms but could also identify their performance as a benchmark study for the industries or national level to remain competitive in short and long-term periods (Mohd and Harlina 2015).According to Mentzer and Konrad (1991), efficiency in the context of performance measures how well the resources are utilized and the effectiveness in terms of how goals are accomplished. From the other dimension, Neely, Gregory, and Platts (2005) view from the marketing perspective that the term effectiveness refers to the extent to which customer requirements are met, whereas efficiency is how economically the firm resources are utilized when providing a given level of customer satisfaction. Besides, differentiation is defined as the ability of logistics to create value for the customer through the uniqueness and distinctiveness of logistics services (Langley & Holcomb, 1992).

While providing a brief narration on the historical evolution of an inquiry to logistics performance, Mansidão and Coelho, 2014:4 have highlighted the following:

At the logistical level, the importance of analyzing performance was first shown in the work of Bowersox and Closs (1996), who reported that measurement of logistics performance consisted of a methodology for analyzing resources of the logistic function, and its main objectives were monitoring and control of the logistics operations. After this initial step, analysis of logistics

performance has become an important issue in the area of management science research, but despite this attention from researchers, there is little convergence both in terms of methods and in terms of results for its validity. As Robb et al. (2008) mention, since logistics deal with physical, informational and cash flow management, it is generally recognized as a major determinant of business performance, but practices particularly in terms of performance analysis, are still at the stage of being studied by professionals and academics.

Given the lack of any universally-accepted definition for performance in the organizational performance literature, it should not be surprising that extant literature offers many ideas about the dimensions that ought to be incorporated into a conceptualization of "logistics performance" (Chow et. al,1994:23). (Chow et.al, 1994:23) have defined logistics performance as the extent to which goals such as sales growth, job security & working conditions, customer satisfaction, product availability, cost-efficiency, profitability, social responsibility, on-time delivery, keeping promises, low loss & damage, "fair" prices for inputs, and flexibility are achieved.

What is a good logistics performance is challenging for researches in any field of management to define, since organizations have multiple and frequent conflicting goals. Some organizations define goals in terms of profit while others define them as customer service or sales maximization (Heaver and Henriksson, 1994). The measures that are used for defining the logistics performance can according to Heaver and Henriksson (1994) be divided as "hard" measures that are the financial measures and cost accounting data such as net income and "soft" measures that are service measures such as customer satisfaction. Many organizations are using hard performance measures when evaluating their logistics performance since these measures are typically impersonal, accurate and inexpensive to collect. One disadvantage with using the hard measures is that the financial values are often considered confidential and many companies are therefore reluctant to release information to outsiders which makes it difficult to compare these values between organizations (Heaver and Henriksson, 1994). To develop a true picture of logistics efficiency, companies must measure both the hard and soft aspects of performance (Vitasek and Maylett, 2011). There are several dimensions of logistics performance such as customer satisfaction that hard measures cannot capture in a meaningful way and it is therefore important to use soft measures to cover the several dimensions (Heaver and Henriksson, 1994).

Many logistics managers are struggling with conflicting objectives when driving logistics improvements. The conflicting objectives they are facing are the tough choices of either strive

for efficiency or for effectiveness (Griffis et al., 2004). While efficiency is about doing the thing right, effectiveness is about doing the right thing (Chaffey, 2014). According to Griffis et al., (2004) these two performance objectives are mutually exclusive since if only efficiency is measured and used for judging the performance it will likely cause the effectiveness to decrease (Andersson, Aronsson and Storhagen, 1989). To overcome this "measurement gap" between internal efficiency which is the traditional financial measurement such as company's cost and revenues and external effectiveness which is the engineered measurement of physical quantities such as customer service levels, Andersson, Aronsson and Storhagen (1989) are recommending companies to use the internal vs external measurement approach. This approach will help organizations to choose which groups of metricsthat are of greatest importance when measuring overall logistics performance. The internal performances are measured within different units in the company such as materials management, production and distribution. The external performances are measured in different levels; between the different units in the company, for the entire company towards the customers and supplier performance towards the company. (Linnea and Gentiana 2015)

2.6 Conceptual Framework

Based on overall review of related literature, and particularly the work of Edward Frazelle (2002), Donald J. Bowersox, David J. Closs and M. Bixby Coope and MatiwosEnsermu (2013), the following conceptual model is derived from those auteur.

Figure 1 – Conceptual Model of the Study

Source: Conceptual Framework adopted from Edward (2002) and modified by the researcher

CHAPTER THREE

METHODOLOGY

3.1 Introduction

These chapters were focuses on the approach adopted for the study which describes the method and techniques that were adopted to collect data for the analysis of field data. As a result, the research design, data requirement and sources, sampling frame and techniques, the data collection tools and techniques, the data analysis and presentation methods have been discussed.

According to Yin, 2003, a research methodology defines what the activity of research is, how to proceed, how to measure progress, and what constitutes success. Kumekpor (2002) also defines it as the methods, procedures and techniques used in an attempt to discover what we want to know.

3.2. Study Area

This study focusedon Ethiopian Electric powerEnterprise and Evaluate logisticsperformance.The Ethiopian Electric Power Corporation (EEPCo) was named in 1997- after serving previously in the name of the Ethiopian Electric Light and Power Authority, which was established in 1956. EEPCo is a government owned utility responsible for the generation, transmission, distribution and sales service of electric energy throughout Ethiopia. The government in Ethiopia split into two the Ethiopian electric power corporation (EEPCo) one of the state owned giant public utilities and renamed it the Ethiopian electric power office and Ethiopian electric service. The two are tasked to undertake what industry analysts say is an over ambition plan of becoming an international company. The government says it decided to split EEPCo after three years long study and consolation with an international consultant. It has to be modernized by the process classification framework (PCF) because it could not carry out all the various responsibility unless it is restructured in a way it up grades its service.Sothis study focuses on only on EEP logistics performance.

The other reason of this study on logistics performance in the company is that the core activities of the company depend on logistics activities their mission is To provide adequate and quality electricity generation, transmission, distribution, and sales services, through

continuousimprovement of utility management practices, and responsive to the socio-economic development and environmental protection needs of the public so to do that there must be effective and efficient logistic performance.

3.3 Research Approach

The three methods that are commonly implemented in a research are quantitative, qualitative and mixed, where one of them is not better than the others, all of this depends on how the researcher want to do a research of study(Creswell, 2005). This study used the mixed approach because for variable that cannot assume numeric values we used qualitative variable and for variable that can assume numeric value we used Quantitative variables.

3.4 Research Design

According to Emory (1985), a research design represents a plan, structure, and strategy of investigation conceived so as to obtain answers to research questions and to control variance. In order to achieve the primary objective of the study, which is to evaluate the logistics performance of the Ethiopian Electric power Enterprise, the questioner were employed for the study. Hence, Addis Ababa region areas were selected as the areas for the study.

The research designs of the study were descriptive. Since, its importance in describing a phenomenon or situation of interest resembles with a nature of this study, which focuses on the logistics performance. Since its importance in explaining a phenomenon of interest resembles with the other nature of this study in assessing the logistics performance in EEP.

3.5. Population of the study

The target population of the study in this research is employees of logistics department, warehouse department sections and sub units, those involved in inspecting, repacking and transporting of company's products as they are involved in logistics activities. This is selected using non probability, judgmental sampling technique. From these departments and sections the total numbers of employees are 52. As the study covers all the employees in the stated department and census were used to conduct the research. The reason for the researcher to select those department is because they are the first hand for the operating logistics activity and they are directly linked to the performance of logistics and they can affect the whole operation.

3.6 Data Type and Source of Data

The researcher usedprimary data and secondary data for the entire analysis of this study. The information gathered through questionnaire from the selected sample of respondents/ employees of EEP and EEP logistics and warehouse management annual performance report. The data collected from the respondents through questionnaires were used as primary data. According to Biggam (2008), primary data is the information that the researcher finds out by him/herself regarding a specific topic. The main advantage with this type of data is that it is collected with the research's purpose in mind. It implies that the information resulting from it is more consistent with the research questions and objectives.

3.7. Data collection methods

The major data collection instruments used questionnaires and interview guides. Questionnaires were used in instances where a respondent could easily read and understand without assistance, the questionnaire were prepared based on the research objective. whiles interviews were conducted for respondents whose response required follow-ups and did not have the time to go through the questionnaires and provide the needed responses and to get in depth understanding of the issue from these concerned managers supervisors who have direct relationship with the activity and have the knowledge and expertise in their area of field who wereexpected to answer the interview questions briefly.

Table 3.1: Data Collection Tools

Unit of Enquiry	**Data Collection Methods/Tools Used**
Managers of EEP	Interview
Employees of EEP	Questionnaires

Source: Author's Construct, 2011

3.8 Data Analysis

The raw data obtained from a research is useless unless it is transformed into information for the purpose of decision making (Emery and Couper, 2003).For the quantitative data analysis and interpretation statistical tools like mean, table, standard deviation and frequency were applied using SPSS version20 software. A questionnaire were organized and categorized based on the

responses at the same time coding was done. The qualitative information/data from questionnaire, the interviewee participants were analyzed by relating to the quantitative result.

3.9 Validity and Reliability

3.9.1 Assessing Reliability

According to Bryman and Bell (2007), reliability analysis is concerned with the internal consistency of the research instrument. As multiple items in all constructs were used, the internal consistency/reliabilities of logistics performance measurement were assessed with Cronbach's Alpha and the reliability values for all constructs are confirmed. Yin (2003) adds that the goal of reliability is to minimize the errors and biases in a study.

3.9.2 Analysis of Validity

Validity of an instrument is how accurate the instrument is in obtaining the data it intends to collect (Mugenda 2003). Validity indicates the degree to which the instrument measures what it is supposed to measure (Kothari, 2004). Malhotra (2010) mentioned about three types of validity in his study: content validity, predictive validity, and construct validity. This study addressed content validity through the review of literature and adapting instruments used in previous research. Discussions were held with peers and professional experts in logistics department, who went through the instruments to evaluate if it contained representative sample.

3.10 Ethical consideration

In undertaking any research, there is an ethical responsibility to do the work honestly and with integrity (Adams et al, 2007:35). According to Saunders, Lewis and & Thrombi (2001, p.130) "Ethics refers to the appropriateness of your behavior in relation to the rights of those who become the subject of your work, or are affected by it'' All participants of questionnaire, interview responded after getting their willingness, they were not required to write their name on questionnaire, they were told to kept their response confidential and used for only academic purpose. The response that the participants gave is analyzed without any change by the researcher. In addition to the above the reference works of other researchers and authors are cited appropriately

CHAPTER FOUR

Data Analysis and Interpretation

4.1 Introduction

Under this chapter the analysis and interpretation were carried out based on the data collected through questionnaire from logistics and related department employees and Besides three interview were conducted with top level managers of logistics to strength the result that were knowledgeable and concerned on the issue under study.

The researcher targeted on logistics performance in Ethiopian Electric Power enterprise. The survey was conducted during three weeks' time. From the total 52 questionnaire distributed all were returned from which 3 were not correctly filled. Therefore 49 were effectively used for analysis that shows response rate of 94.23%. This is a good response rate based on Fowler (2002) a 75% response rate is considered adequate.

Table4.1 below depicts overall response rate

Population	Number	Percent
Numbers of questionnaire distributed	52	100%
Incomplete questionnaires	3	5.77%
Total Usable questionnaires	49	94.23%

Source: Survey Finding

The following table shows the reliability measurement results of each category of the questionnaire.

Table 4.2:-The reliability test result of the instrument (Cronbach's Alpha)

No	Factors	Cronbach's Alpha Reliability Test Result
1	Inventory planning and management	.796
2	Customer response	.655
3	Supply	.690
4	Transport	.758
5	Warehousing	.699
	Total	.846

Source: survey result (2017)

Cronbach's alpha is a function of numbers of items in test, the average covariance between item-pairs and the variance of the total score.

Table4.2: Demographic Profile of Respondents

education qualification		Frequency	Percent
Valid	grade 10 completed	5	10.2
	grade 12 completed	7	14.3
	college diploma	13	26.5
	first degree	21	42.9
	second degree and above	3	6.1
	Total	49	100.0
Job title		Frequency	Percent
Valid	Manager	9	18.4
	Supervisor	15	30.6
	Others	25	51.0
	Total	49	100.0
Years stayed at the organization		Frequency	Percent
Valid	less than 2 years	1	2.0
	2-5 years	5	10.2
	6-10 years	8	16.3
	over 10 years	35	71.4
	Total	49	100.0

Source: survey result (2017)

The issues under logistics performance: Firstly, customer response practices with emphasis on logistics performance measures in terms of quality, productivity, cycle time and finance. Secondly, the inventory planning and management practice on the company logistics practice and problem was explored. Thirdly, how the supply could be affect the overall logistics operation of EEP is also at the heart of this analysis. Fourthly, the transportation management practice, finally the warehouse management practice is explored on the analysis part of this study.

4.2 The customer response management practice

The keyword that holds the answer to all of these questions is customers. Successful companies that grow quickly and sustain this growth follow a logistics process that has been specifically designed to meet all of their customers.

Table 4.3 Analysis of customer response in Ethiopian electric power

customer response		Very Poor 1	poor 2	Good 3	Very good 4	Excellent 5
1	The order entry is exactly as customer requirement	1(2.0%)	17(34%)	25(51.0%)	5(10.2%)	1(2.0%)
2	The employees who serve the customer has enough knowledge.	2(4.1%)	11(22.4%)	25(51%)	11(22.4%)	0%
3	Time to solve customer complaints is short.	4(8.2%)	26(53.1%)	17(34.7%)	2(4.1%)	0%
4	Customer order processing time is short.	10(20.4%)	22(44.9%)	12(24.5%)	5(10.2%)	0%

Source: survey result (2017)

On Item 1, respondents were asked their level of agreement on the current practice or system is the order entry is exactly as customer required, the principal indicator of quality in customer response isOrder entry accuracy it is present of Orders entered exactly as specified by the customer. From the respondents majority of the respondents 51.0% replied there is good order entry in the enterprise but 34.7% of the respondents don't agree with the others repliers they replied there is poor order entry in the enterprise. We can conclude from the respondent there is fair performance in the order entry.

In the item 2 the respondents were asked about the employees who serve the customer has enough knowledge, in the customer response primary indicator of the productivity is the number of customer orders processed per person-hour so to increase the customer response productivity the employees who serve the customer should have enough knowledge. Half respondents replied 51.0% replied the employees of the EEP have good knowledge but equal respondents replied 22.4% employees have very good knowledge and 22.4% replied employees has poor knowledge serving the customer. This indicates the employees have good knowledge about what they serve and the products.

In the item 3 here the respondents were asked about Time to solve customer complaints is short.53.1% of the respondents replied it is poor it takes long time to solve the customer complaints and 34.7% of the respondents Saied it is good. This show that it takes long time to response to customer complaints this will increase the complaints and also the operation will be extended and another cost will be incurred.

In the item 4 the respondents asked aboutcustomer order processing time is short, order processing time is clock starts when the order is entered in and captured by the order processing system and stops when the order is released to the warehouse for picking. From the respondents the highest present 44.9% said poor performance in terms of order processing and from the rest 20.4% replied very poor performance in processing orders but only the 24.5% said it has good performance in order processing.

Therefore from this we can say that the customer response of EEP in terms of quality, productivity, cycle time and finance it has inefficient performance. Their average mean and standard deviation is respectively 2.57 and 0.78.

From the interview how do you measure your logistics performance for this question top management replied there no specific measurement for the logistic performance they measure the whole project that are been done it is if the hole project is failed or take long time general conclusion will be made logistic practice don't have many attention and also the purchasing manager also agreed they don't measure the specific logistics performance the only concern about the demerge they pay in the dry port if it is cleared quickly they conclude the practice done but it caused them a lot cost.

4.3 The inventory planning and management

Inventory planning and management is one part of logistics process, an inventory is a list of things held in stock it very essential for any enterprise in this section will see how the EEP is performing in inventory planning and managing.

Table 4.4 Analysis of inventory planning in Ethiopian electric power

	inventory planning and management	Very Poor 1	Poor 2	Good 3	Very good 4	Excellent 5
1	The inventory model used target to minimize overall total inventory costs like holding, ordering, and stock out	10(20.4%)	15(30.6%)	20(40.8)	3(6.1%)	1(2.0%)
2	The inventory model determine the quantity ordered based on real demand analysis	4(8.2%)	20(40.8%)	23(46.9%)	1(2.0%)	1(2.0%)
3	The availability of the inventory to satisfy the demand of the customer	9(18.4%)	18(36.7%)	18(36.7%)	4(8.2%)	4(8.2%)
4	Effective use of assets in inventory management	13(26.5%)	21(42.9%)	11(22.4%)	3(6.1%)	1(2.0%)

Source: survey result (2017)

In the first item the respondents were asked about the inventory model used target to minimize overall total inventory costs like holding means something especially stocks and bound.

From the total respondents 40.8% of the respondents replied good performance in minimizing the inventory cost, 30.6% poor inventory model in minimizing the cost also 20.4% of the respondents replied very poor in minimizing the inventory cost.

In item 2 here the respondents were asked about the inventory model determine the quality ordered based on real demand analysis. The most important indicator of inventory management quality is forecast accuracy so to increase the accuracy of forecast EEP has to now the real demand. From the respondents equal present of respondents replied 36.7 poor in determining the demand 36.7 good in determining the demand but 18.4 very poor in determining the real demand.

In item 3 respondents were asked the availability of the inventory to satisfy the demand of the customer.The most important indicators of inventory management is inventory availability (typically referred to as fill rate) Inventory availability performance is typically expressed as the demand fill rate. Fill rate can be expressed as the line, order, and/or unit fill rate. In each case, the fill rate measures the ratio of satisfied to total demand. From all the respondents 36.7 replied that poor inventory availability to satisfy the demand and 36.7 replied good inventory availability to satisfy the customer, but 18.4% also replied very poor inventory availability.

In item 4 asked about effective use of assets in inventory management from all the respondents 42.9% replied that there is no effective use of asset in the enterprise also 26.5% replied that very poor in effective use of the asset but 22.4% replied that there is good use of asset in the inventory.

Generally questions rose about inventory planning and management in EEP shows there is no significant or satisfactory practice in any of the logistics performance indictors in the company with the mean of 2.34 and a standard deviation of 0.89.

4.4 Supply management system

Finding good suppliers, working closely with them and developing beneficial relationships buying the right materials and making sure that they have acceptable quality, arrive at the time and place needed, and meet any other requirements is aim of procurement to guarantee that an organization has a reliable supply of materials, in this section will see the performance of EEP.

Table 4.5 Analysis of supply in Ethiopian electric power

	Supply	Very Poor 1	Poor 2	Good 3	Very good 4	Excellent 5
1	The supply management system designed in the corporation target to minimize acquisition cost and logistics cost	9(18.4%)	9(18.4%)	27(55.1%)	4(8.2%)	0%
2	We offer high quality products to our customer	7(14.3%)	19(38.8%)	20(40.8%)	2(4.1%)	1(2.0%)
3	The time it takes between you place your order with your supplier and order is received at your designated location.	7(14.3%)	17(34.7%)	19(38.8%)	6(12.2%)	0%
4	The product entry is exactly what the customer wants and exact quality	6(12.2%)	18(36.7%)	18(36.7%)	7(14.3%)	0%

Source: survey result (2017)

In the first item asked about the supply management system designed in the company target to min acquisition cost and logistic cost. Half of the respondents 55.1% replied the enterprise has good practice in terms of minimizing the acquisition and logistic cost but 38.6% poor and 14.3% replied very poor in trying to minimize the cost.

In item 2 the question is about we offer high quality products to our customer, quality encompasses many things and the customer of the enterprise is the employees of the enterprise so they have to be extra careful because their own work will be damaged. After this the respondents 40.8% replied good in providing quality products but 38.6 replied poor and 14.3 also said very poor in providing quality products to their customer.

In item 3 were asked about the time it takes b/n you place your order with your supplier and order is received at your destination location it means purchase order cycle time and it is one part of total logistics cycle time and it highly influence the cycle time. The respondents are almost equal who replied poor 34.7% which means it takes long time and 38.8 replied good it doesn't take much time, 14.3 very poor it does take very long time.

In item 4 the question were about the product entry is exactly customer wants and exact quality, the most effective indicator of logistics accuracy or quality is the perfect order percentage (POP),accurate means deviating only slightly or within acceptable limits from a standard (accuracy is the quality or state of being accurate.) and from the respondents 12.2 replied very poor and 36.7 also said poor in the entry of the products but 36.7 also said good and 14.3 replied very good in entering exact wants and quality of the customers.

The average mean and standard deviation of the supply respectively are 2.49 and 0.88. From this it can be concluded that there is no satisfying practice of supply management practice in the enterprise.

Based on the interview result towards EEP general logistics performance in the enterprise the three people interviewed (top manager of purchasing department and logistics & warehouse department, manager of purchasing and manger of the logistics and warehouse department) agreed on the upper stream of the logistics performance is mostly done by the 3rd party logistic performance like Ethiopian shipping line and the suppler of the materials but the downstream of the logistics is mostly done by themselves they agreed that there is no effective logistics performance in the downstream specially the warehouse has many problems.

4.5 Transportation practice

Transportis responsible for the physical movement of materials between points in the supply chain it has the highest cost in logistics will see the performance of EEP transportation.

Table 4.6 Analysis of transportation in Ethiopian electric power

Transportation		Very Poor 1	Poor 2	Good 3	Very good 4	Excellent 5
1	The transportation practices of the enterprise satisfies customers by timely delivery	6(12.2%)	22(44.9%)	19(38.8%)	2(4.1%)	0%
2	The transportation practices of the enterprise satisfies customers by delivering safely.	4(8.2%)	18(36.7%)	22(44.9%)	5(10.2%)	0%
3	The transportation of the enterprise applying economies of scale to minimize transportation cost per unit	6(12.2%)	14(28.6%)	27(55.1%)	2(4.1%)	0%
4	The transportation practices of the enterprise deliveries damage free	7(14.3%)	12(24.5%)	21(42.9%)	9(18.4%)	0%

Source: survey result (2017)

In the first item asked about the transportation practice of the enterprise satisfaction customer by timely delivery. Timely delivery can influence the whole work of the project we have to give much attention to it. From the respondents 12.2% very poor and 44.9% replied poor in timely delivering but 38.8% replied there is good performance in delivering timely.

In item 2 were asked about the transportation practice of the enterprise satisfies customers by delivery safely. Not delivering safely can cause high cost so we have to be careful it has to be perfectly shipped without damage, from the respondents 10.2% very good and 44.9 good in safely delivering the products because the EEP products mostly are very expensive but 36.7% respondents replied poor in delivering safely.

In term 3 respondents were asked the transportation of the enterprise applying economics of scale to minimize transportation cost per unit, indicates that transport cost per unit of weight

decreases as load volume increases. This occurs because the fixed costs of pickup, delivery, and administration can be spread over incremental volume. The respondents 55.1% replied there is good practice in using economic of scale to minimize cost but 28.6% replied poor practice of economic of scale.

In the last item were asked about the transportation practice of the enterprise delivers damage free, transportation is highly exposed to damage so it has to be carefully practiced. 42.9 of the respondents replied there is good practice in delivering damage free also 18.9 replied very good practice but 24.5% said poor practice in safely delivering.

Generally, average mean and standard deviation of the total item represents 2.52 and 0.81 respectively, this shows that most of the respondents shows their disagreement on the factors raised on the transportation management practice of the company.

The relationship between the top management of logistic and the operators they said the three has top managers of the departments have medium relationship but the three mangers don't rely work together specially the purchasing department and warehouse department they are in different places so they don't work us one logistics processes. There is no type of technology EEP apply recently to improve its logistics performance many of the logistics materials are rented like the machineries in the warehouse and transport vehicles.

4.6 Warehouse management system

Warehouses are an essential part of most supply chains, a warehouseis any location where stocks of material are held on their journey through supply chains.

Table 4.7 Analysis of warehousing in Ethiopian electric power

warehousing		Very Poor 1	poor 2	Good 3	Very good 4	Excellent 5
1	The design of the warehouse system is properly done to improve customer service by eliminating errors	3(6.1%)	22(44.9%)	23(46.9%)	1(2.0%)	0%
2	The design of the warehouse is easy to access items and convenient to load and unload	21(42.9%)	23(46.9%)	5(10.2%)	0%	0%
3	The warehouse system of the enterprise has low Damage frequency	11(22.4%)	23(46.9%)	13(26.5%)	2(4.1%)	0%
4	The warehouse system is designed to minimize the total warehouse cost	1(2%)	26(53.1%)	21(42.9%)	1(2%)	0%

Source: survey result (2017)

In item 1the respondents were asked about the design of the warehouse system is properly done to improve customer service by eliminating errors. The all the respondents equal present of respondents replied 44.9% poor system design but 46.9% also replied good system in warehouse that increase customer service by eliminating errors.

In the second item were asked about the design of the warehouse is easy to access items and convenient to load and unload, this will decrease the time it takes and decreases the damage frequencies. 10.2% very good and 46.9% replied good design of warehouse that easy the performance but 42.9% replied to there is poor warehouse design in the enterprise.

In the 3 item 22.4% very poor and 46.9% replied poor about the warehouse system of the enterprise has low damage frequency.in addition more than half of the respondents agree with there is high damage frequency in warehouse but the 26.5% don't agree with the rest they replied there is good damage frequency.

In the fourth item the respondents were asked about the warehouse system is designed to minimize the total warehouse cost and half of the respondents 53.1% don't think the warehouse is designed to minimize the warehouse cost but the rest of the respondents 42.9% don't agree with this they replied there is good warehouse design. From the interview we can see that the warehouse is very in effective and below the standard also the materials are very big they

consume much space and some materials be damaged because of improper placement they highly cost.

Generally**,** questions rose about warehouse management practice in EEP shows there is no significant or satisfactory practice of warehouse management practice in the company with the mean of 2.42 and standard deviation of 0.67.

The major challenge they are facing they replied the warehouse are not designed standard materials are placed every were and highly damaged and suppliers sometimes deliver low quality products it costs us a lot and the contractors most of the time they take also the logistics work to and don't give attention to the logistics practices the projects will not be done on the time it is intended. They only see financial costs us there main logistics key performance indictor (KPIs). In total logistics costs it is included the purchasing cost from the starting supplier selection and warehouse cost, transportation and also demerge cost. Most of the time we analyze one project costs so we start from the beginning of the project until it ends and give service.

Most of the respondents replied in the suggesting space EEP has poor logistics performance because of many reasons specially the departments don't coordinate with each other and there is no professionals logistics area so there is no optimization in the right materials for the right users. Most of the respondents agreed that there is no good management and they highly agreed that the warehouse is below the standard it should be corrected quickly, enough space should be provided, different machineries should be there to easy the task and some items are pot over one year without any usage and it has high cost.

CHAPTER FIVE

5.1 SUMMARY, CONCLUSION AND RECOMMENDATION

In this chapter the finding from chapter four is summarized then conclusion of the major findings is drawn. And at least, some possible recommendations are forwarded based on the major finding of the study.

5.1.2 Summary of Major Findings

The general objective of this research is to assess the overall logistics performance of EEP and to provide alternative recommendations for the enterprise to improve their performance. Specific objective is to identify the major problem in the logistics practice, to assess the logistics five processes in terms of quality, to assess the logistics five processes in terms of logistics productivity, to assess the logistics five processes of cycle time, to assess the logistics five processes in terms of finance and to assess how they measure and analyze their performance of Ethiopian Electric Power. A review of related literature was done to understand the problem and address the objective in a better way.

In the course of conducting the actual study questionnaire and interview were selected with judgmental sampling technique. From the total 52 questionnaire distributed which 3 were not correctly filled and rejected. Therefore 49 were effectively used for analysis that shows response rate of 94.23%. Based on the finding from frequency statistics majority of respondents were highly experienced 71.4% were who worked over 10 years, Concerning education level most of the respondents had university education (first degree and diplomas) only 24.5% were 12 and under.

The logistics performance measures stems from the four categories of measures and five interdependent processes has results and the quality measurements of logistic performance is below the standard the Perfect Order Percentage is very low the Orders entered as specified by the customer present is very low and the inventory availability don’t satisfied to total demand and timely and safely delivery is also problem of the EEP.

In productivity measurement of logistics performance EEP only concern on logistics cost but A danger in focusing too much attention on logistics costs is that certain cost elements cannot be controlled by logistics managers and engineers. Logistics work force can be utilized if the workers are educated with the same thing they work but most of workers are not educated in logistic profession. They don’t try to use transport capacity efficiently.

In financial measurement of logistics performances the addition of total response cost, total supply cost, total transportation cost, total inventory cost and total warehouse cost will give us

total logistics cost. And EEP logistics high cost especially warehouse cost and cost of damage goods.The inventory planning system of the company also cannot minimize the costs related to inventory like holding and ordering costs.

Based on the finding cycle time measuring logistics performance order entry more time and order processing time has long, Warehouse order time takes long time, This shows that the design of the warehouse is still poor to access items and not convenient to load and unload.

5.2. CONCLUSION

The aim of this research was to study on logistics performance measures stems from the four categories of measures and five interdependent processes.Methods of data analysis were descriptive statistics and the following conclusions were drawn based on the results of the study.

- Another aspect of human nature is that what gets measured gets improved. That's the good news. The bad news is that if there is not a holisticset of logistics performance measuresin place**,** but Ethiopian electric power doesn't measure their performances in very effective way. Ethiopian electric power enterprise seems inefficient in measuring five logistics interdependent processes in terms of quality, productivity, finance and cycle time.
- Lack of developed tool to check customer/users satisfaction level in logistics activity and the customer service policy of logistics also a problem, The transportation management practice of the company increases logistics cost, The inventory planning system of the company also cannot minimize the costs related to inventory like holding and ordering costs, Long import process of customs process affects availability of items timely and the supply management does not target to minimize cost of procurement. This show that the overall supply management practice has a negative impact on logistics management practice of the company and the overall design of the warehouse is still poor to access items and not convenient to load and unload and have high cost of damage.

5.3. RECOMMENDATIONS

Based on the results of the study, the following recommendations are suggested for consideration:

- This study contributes to a better understanding of logistics performance measurement system, Performance measurement and evaluation identifies close position of processes, process costs and the source of their realization. Performance indicators, methods of measurements and target valuations must be set to correspond with the strategic objectives of the implementing structures. Appropriately selected indicators and effective logistics system to measure logistics have significant cognitive, motivational and diagnostic functions. So Ethiopian electric power should identify the suited logistics performance indictors which assess of an efficiency of the complete system of the

enterprise that include all the logistics objectives, also that show the behavior of the logistics chain and also the behavior of the logistics system as a whole and that allows examination of that links in the process structure, the structure of the departmental hierarchy and diagonal links. Measuring performance across the value chain should include the upstream and downstream partners.

- The enterprise should have standard tool to check level of customer/users point of view to take corrective action based on the results from the tool
- The enterprise should work on transportation management to minimize costs incurred, Transportation economics and pricing are concerned with factors and characteristics that drive cost. To develop effective logistics strategy, it is necessary to understand factors and characteristics, to achieve economies of scale and distance to minimize the transportation cost per unit of items, the company should apply maximum load of trucks and consider the route of the distance to deliver products to customers/users.
- The enterprise should design the warehouse in a way to minimize damage and upgrade the knowledge of employees to use technology to improve service for their customers and maximize use of storage space, achieved through appropriate measures in the design, minimizing the use of manipulating operations and use of modern equipment of warehouse,
- The inventory planning management of the enterprise should consider the real demand which benefit the enterprise by avoiding unnecessary inventory costs and lower inventory levels,

5.4. SUGGESTION FOR FUTURE STUDY

One suggestion for future research would be improved by expands the scope of the study by adding enterprises under study and Further studies should be done on other aspects of how to measure logistics performance in another performance indicators.

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Appendix

Addis Ababa University
College of Business and Economics
School of Commerce
Graduate Programs Coordination Office
Logistics and Supply Chain Management
A Master Thesis Study on Logistics Performance of the Ethiopian Electric Power

Dear participants:

Re: A Request to Participate in Research

I am a graduate student of Logistics and Supply Chain Management at the School of Commerce, Addis Ababa University. I am currently conducting a research study on "Logistics Performance of the Ethiopian Electric Enterprise" required for the fulfillment of MA degree in Logistics and Supply Chain Management at School of Commerce, Addis Ababa University. This research is fully endorsed by the School of Commerce, Logistics and Supply Chain Management Unit.

The management of logistics activities has become a valuable way of improving organizational performance. The aim of this study is to evaluate the logistics of Ethiopian Electric Power Enterprise in terms of quality, productivity, cost and cycle time performance indicators. The findings would benefit apparently all stakeholders of the enterprise including the management, clients, employees and citizens of the nation. The results from this study would help to identify bottlenecks, waste, problems and improvement opportunities in the logistic operational performance of the enterprise.

Your participation will form a critical part of the research. So, your genuine, frank and timely response is vital for successfulness of the study. Therefore, I kindly request you to respond to each items of the question very carefully.

The study is purely for academic purpose and thus shall not affect you in any case. Besides, your responses will be treated with the strictest confidence. No reference will be made to any individual and the information will be reported in an aggregate form. A summary of my finding will be provided upon request.

I can be contacted via phone or email at the address listed below. If you have any queries please do not hesitate to contact me. I thank you in advance for your cooperation and consideration.

Sincerely,
Debora Abreham
School of Commerce
Addis Ababa University
Tel: 0922782353
Email: debora2015astu@gmail.com

General Instructions

- There is no need of writing your name
- Where answer options are available please tick (√) in the appropriate box for part I and tick for your response to each statements of part II.
- The researcher refer customer as the employees of the EEP

Thank you for scarifying your precious time in advance!

PART I: Demographic Information

1. Educational Qualification:

Grade 10 completed☐ 12 completed certificate ☐

College diploma ☐ first Degree ☐ Second Degree and above ☐

2. Job title

Director ☐ Manager ☐ Supervisor ☐

Other_____

3. Years stayed at the organization:
Less than 2 years ☐ 2–5 years ☐ 6–10 years ☐

Over 10 years☐

4. Your department/work unit _____

PART II:Logistics Performance Measures Matrix

Indicate your level of agreement With regard to logistics practices of your firm, please tick the appropriate number toindicate the extent to which you agree or disagree with each statement. The item scalesare five-point Rating Scale with 1 =poor, 2 =fair, 3 =good, 4 =very good, 5=Excellent

customer response		Very Poor 1	poor 2	Good 3	Very good 4	Excellent 5
1	The order entry is exactly as customer requirement					
2	The employees who serve the customer has enough knowledge.					
3	Time to solve customer complaints is short.					
4	Customer order processing time is short.					
inventory planning and management		Very Poor 1	poor 2	Good 3	Very good 4	Excellent 5
1	The inventory model used target to minimize overall total inventory costs like holding, ordering, and stock out					
2	The inventory model determine the quantity ordered based on real demand analysis					
3	The availability of the inventory to satisfy the demand of the customer					
4	Effective use of assets in inventory management					
Supply		Very Poor 1	poor 2	Good 3	Very good 4	Excellent 5
1	The supply management system designed in the corporation target to minimize acquisition cost and logistics cost					
2	We offer high quality products to our customer.					
3	The time it takes between you place your order with your supplier and order is received at your designated location.					
4	The product entry is exactly what the customer wants and exact quality					
Transportation		Very Poor 1	Poor 2	Good 3	Very good 4	Excellent 5

1	The transportation practices of the enterprise satisfies customers by timely delivery					
2	The transportation practices of the enterprise satisfies customers by delivering safely.					
3	The transportation of the enterprise applying economies of scale to minimize transportation cost per unit					
4	The transportation practices of the enterprise deliveries damage free					
warehousing		Very Poor 1	poor 2	Good 3	Very good 4	Excellent 5
1	The design of the warehouse system is properly done to improve customer service by eliminating errors					
2	The design of the warehouse is easy to access items and convenient to load and unload					
3	The warehouse system of the enterprise has low Damage frequency					
4	The warehouse system is designed to minimize the total warehouse cost					

If you have general comments about logistics performance analysis and evaluation system in the EEP, just put forward in the space provided._____
_____
_____
_____
_____
_____

Appendix 2:

Unstructured interview questions with the top managers of Ethiopian Electric Power and Logistics Manager

1. What can you say about your company's logistics performance?
2. How do you evaluate your logistics performance?
3. What are the major problems in the current logistics practices?
4. What is included in your total logistics costs? Where your calculation of the total logistics does costs start and end?
5. What does it look like the relationship between the top management of logistic and the operators?
6. What type of technology EEP apply recently to improve its logistics performance?