

**ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGMENT**



**Assessment on Truck Transport Management practices in Ethiopian Ministry of National
Defense Logistics Main Department**

A thesis submitted to Addis Ababa University School of Commerce, in partial Fulfillment
of the Requirement for the Award of Master of Arts Degree in Logistics and Supply Chain
Management

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SCHOOL OF COMMERCE

Assessment on Truck Transport Management practices in Ethiopian Ministry of
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Declaration

I, TSEGAY ABADI KIDANE, declare that this thesis is my own original work on the topic entitled “Assessment on Truck Transport Management practices in Ethiopian Ministry of National Defense Logistics Main Department ” and that it has not been presented to any other University for similar or any other degree award. To this end, I acknowledged all sources of information that I used to produce the study appropriately and I would say perfectly.

Signature.....

Date.....

Confirmation

This is to certify that **Tsegay Abadi** has carried out this research work on the topic entitled “Assessment on Truck Transport Management practices in Ethiopian Ministry of National Defense Logistics Main Department ” under my supervision, this is his original work and has not been presented to any other a University for similar degree award and it can be submitted for the partial fulfillment of the requirements for the award of Masters of Art degree in Logistics and Supply Chain Management.

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List of Acronyms/abbreviation

C2:	Command and Control
COP:	Common Operational Picture
CO ₂ :	Carbon dioxide
CSS:	Combat Service Support
DOD:	Department of Defense
DTS:	Defense Transportation System
EMoND:	Ethiopian Ministry of National Defense
FDRE:	Federal Democratic Republic of Ethiopia
FM:	Field Manual
GHG:	Greenhouse Gas
GIS:	Geographic Information System
GPS:	Global Positioning System
GTM:	Global Transportation Management
HN:	Host Nation
ITS:	Intelligent Transport System
ITV:	In-Transit Visibility
JFC:	Joint Force Commander
LOC:	Line of Communication
METT-TC:	Mission, Enemy, Troops, Train and Time Consideration
MoND:	Ministry of National Defense
NCO:	Noncommissioned Officer
POE:	Ports of Embarkation
PRC:	People's Republic of China
RFID:	Radio Frequency Identification
SLS:	Smart Logistics Setup
SOPs:	Standard Operating Procedures
SPSS:	Statistical package for Social Sciences
STM:	Smart Transportation Management
TOs:	Transport Officers
UPS:	United Parcel Service
US:	United State
VOs:	Vehicle Operators
V2I:	Vehicle to Infrastructure
V2V:	Vehicle to Vehicle

Abstract

The objective of this study is to critically assess truck transportation management practice and finding the major shortcomings of the transport services in MoND logistics main department. The study used descriptive research design in both quantitative and qualitative approach. Primary data were collected through questionnaire, interview as well as field observation. Purposive sampling technique for 7 interviewees and simple random sampling technique used for 186 respondents asked in the open and closed ended questionnaire. In addition, secondary data, such as annuals evaluation reports, quarterly and monthly reports, plans, and other relevant documents of MoND-Logistics assessed and other documents like; journals, articles, research papers, was used. Methodologically, this study is in accordance to the nature of the data required and designed to be descriptive. Statistical package for Social Science Software (SPSS) was applied to present data and to get the required analysis results for study. The researcher also presents the results by using descriptive statistics such as mean, standard deviation, charts, tables and other related statistical data presentation techniques. The major finding of the study indicates that, there are empty trips or underutilization of vehicles and limited utilizing modern technologies such as global positioning system, radio frequency identification

The required professional competency of managers and drivers to carry out their duties and responsibilities is at good level but not at the higher professional competence level. Since the department lacks comprehensive approaches on undertaking appropriate on the job training for both managers and subordinates and problem of establishing a liaison with governmental marketing organizations and other stakeholders in order to find market for those empty trips.

Keywords: *Descriptive Research, Transport Management practices.*

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Transportation is the actual physical movement of people and goods from one place to another and several means of transportations exist for both man and goods. These means it has evolved through the length of time of man's existence on the planet. Air transportation is a relatively more recent means of transportation with the invention of air travel in the last century. Prior to this time, man had transported himself and goods on land with the aid of animals, on wheels (aided by animals) and most recently automobile and trains (Emmanuel, 2013).

In the 21st century, transportation systems faces significant challenges and problems because of global competition, government budget constraints, and increased demand from special interest groups such as senior citizens, infrastructure challenges, sustainability issues, and energy costs. The pattern of trade that helps to drive transportation requirements is changing more quickly and becoming more complex because of the dynamic global environment and the changing economic base in the United States (Coyle., 2011).

The Asian development bank policy study, (Bank, 2012) indicated that, transport cost is the largest component of logistics cost. At 52.6%, the People's Republic of China transport cost component is lower than that of many countries. For example, in the US, the transport cost was 63% of logistics cost in 2009; in 2008, it was 65%.

According to Litman,(2010), Increasing transport system efficiency provides productivity gains that filter through the economy in various ways. For example, reduced shipping costs may increase business profits, reduce retail prices, improve service quality (more frequent deliveries), allow tax increases or a combination of these. Even modest efficiency gains can provide significant benefits. For instance, if a business has 8% annual return on investment and transport represents 16% of its costs, a 5% reduction in transport costs increases profits 10%.

Army transportation is essential to effective and efficient force generation and sustainment and it provides vital support to the Army and joint forces across the strategic, operational, and tactical levels of war US Army (2003).

In the United States field manual, Defense Transportation System (DTS) is that portion of the worldwide transportation infrastructure that supports department of defense (DOD) transportation needs in peace and war. It consists of two major elements: military (organic) and commercial (nonorganic) resources. These resources include aircraft, ships, barges, rail and road assets, pipelines, services, and systems organic to, contracted for, or controlled by department of defense US Army (2013).

Different historical sources point out that the first automobile came to Ethiopia in 1907/08, Gregorian Calendar, following which other cars with different models were imported from England and Germany. The sources also point out that in 1908, Gregorian calendar; several trucks were operating in Dire Dawa during the dry season. In Ethiopia modern service delivery of transport emerged for the first time during the regime of Emperor Menelik. After the invading Italian army was driven out of Ethiopia, an office known as “Ministry of Works and Communications” is formed to lead the service of transport and communications by proclamation No1/1953, promulgated to define powers and duties of the ministries.

Ethiopian ministry of defense (MoND) transport department is organized under the logistics main department of the national defense. The FDRE ministry of defense policy (defense, 2010) has been prepared to create and develop the defense forces combat capability, and to use the existing combat power in any moment and situation leading our logistics activities in modernized and effective way. The defense logistics policy described the role of transport as follows. “The function of transport is moving the force, equipment, and supply from the initial location to its destination and back to the initial location.” during the operation, it also engages in supporting the movement of the force by providing transportation and carrying out the transport activity it plays the force multiplier role and ensures effective utilization of force by moving the force to the needed place with in short time.

Ethiopian MoND, defense transportation system basically operates as an integral part of the national transportation system and consists of military and commercial assets, services as well as systems that are originally contracted or controlled by the transport department of the national defense. Operating the defense transport system involves the management of a complex number of interrelationships within the defense and among diverse federal and commercial activities. All military transportation activities, regardless of the function they execute must follow the programs of the defense transportation system. In planning support for military operations, military transportation planners and operators at the joint and service level must consider the diversity of the defense transportation system and its accompanying coordinating challenges. Planners must also understand that the defense policy allows government intervention in to the private sector only to the degree necessary to ensure the civil transportation system is responsive to military needs. This means the national defense activates private sector assets to augment defense transport system capabilities only to meet the short falls to the defense transportation capacity.

Ethiopian Ministry of National Defense (EMoND), transportation is not profit oriented as any private transportation company. Its main objective is to serve the army needs and enable the army successfully accomplish its missions. It is clear that troops should get the required daily and monthly food supplies, daily water supplies, fuel supplies, medical supplies, standard weapons and its ammunition, on time, at the right place by the exact quantity.

Figure 1.1 Convey to peace keeping mission



1 1

Source: Ministry of defense logistics main department, 2003EC

The MoND, basically use different types and modes of transportation such as animal, personnel, air and vehicle transports. Among those, truck transportation transport has the greatest share and it has a major responsibility of transporting enormous amount of military equipment, goods, and service as well as man power within the country and to international peacekeeping operations

MoND transport department has been equipped with different types of small vehicles and heavy trucks which are used to mobilize human and material resources from their point of origin to the point of end users to provide the army needs at all corners of the country such as East Command, West Command, North Command, Central Command, Air Force, training centers and other main departments of the head office and also forces deployed in peace keeping missions. Failure in transportation service affects army mission directly. Although establishing a transportation department is an important development in providing the required transportation services to the armed forced deployed in all corners of the country on

time, the national defense is supposed to carry out the service operation based on a well-established management system and approach in accordance with the particular context of the defense and other transportation laws in the country. In this regard, it needs to have well developed operational guidelines, and materialized methods and procedures that should be followed in a suitable way.

However, the transportation management scientific practices are recent phenomenon in the Ethiopian defense; much is not known about the employed management systems currently in place across the defense transportation main department in serving its purposes. Therefore the researcher was attempt to study the overall management practices of truck transportation service provided under the Ethiopian national defense transportation department with a view to point out strengths and weaknesses of the services for further improving it.

1.2 Statement of the problem

To increase efficient and effective truck transport practice in Army operations, applying modern intelligent transportation system played a great role to enhance good visibility and reliability of transportation management. That is the most common controlling techniques, using Global Positioning System (GPS), geographic identification system (GIS), Radio frequency Identification (RFID) and advanced information systems. GPS provides the service of vehicles positioning. It could help the control centers to monitor and dispatch trucks. GIS provides the basic geographic database for the deliverers to enable to organize their routes easier and faster. Advanced information systems provide the real-time information for both managers and deliverymen to adjust their paths as new demands occur. The integration of GPS, RFID and advanced information systems provides a high maneuverability of transport systems and its benefits of the integrations are bring better service quality, reduced unnecessary trips, and increased loading rate Michael et al, (2005).

The European Commission report Mercier (2010) to meet the challenges of achieving virtually accident-free, clean and efficient mobility through ITS, it is crucial that all elements of transport systems are able to communicate and cooperate in exchanging real-time

information. Bi-directional communication is needed from vehicle to vehicle (V2V) and vehicle to infrastructure (V2I). This requires the development of a communication architecture that provides a common frame for cooperative systems to work together.

Ethiopian Ministry of National Defense has considered the vital role of truck transportation management practices in the organization. Accordingly, transport department has established under the defense logistics main department mainly to provide transport services to the army in various ranges of military operations. It is apparent that transport management system is not an end by itself. Its practices and implementations required to make cooperation with other logistics function. To this end, creating appropriate transport structure as well as designing and launching effective systems that guarantee the appropriate transport services across the defense are of paramount importance.

Based on preliminary assessment conducted with the head of defense Logistics main department and transport department officials, the following problems have indicated in transportation management practice: the real practice of truck transport management doesn't use modern technologies, such as RFID, GPS & GIS controlling system when they are dispatching to missions, there is an empty trips of vehicles, problems on capacity building and limited

Professional competency of employees, lack of common understanding on standard operating procedures (SOPs).

Due to this gap the current truck transport management practices have a poor visibility and traditional management system, lack of skilled manpower, lack of advanced information and inefficient truck transportation services. And as logistics main department study (2003 & 2004) indicated that, more accidents happened on human and small vehicles of the defense force. In this regard, the national defense logistics main department specifically transport department has the responsibility to formulate standard operating procedures (SOPs) and strategies that help to enhance the awareness of safe driving, ensure timeliness and quality of transport services within the Army.

The main *intention* of the researcher in the study used to specifically examine how effective the transportation services is in general and to look on the specific management practices in particular, and also the researcher assessed the basic role of transportation services played in making military missions successful. So far such kind of research has not been undertaken in the ministry of national defense, this study used as a base line for farther research and it can be contribute to identify the strengths and weaknesses of truck transport services provided under the department as well as to recommend possible solutions to make the service better and improve future its efficiency on supporting the Army. Thus the researcher was focused on the following research questions.

1.3 Research Questions

1. What are the specific principal methods and procedures use to ensure quality transport services across the Defense?
2. What are the required professional competencies level of Managers and drivers to carry out their duties and responsibilities?
3. How does the defense truck transportation department implements visibility and status of overall transport system?
4. What are the challenges facing in implementing truck transport management system?

1.4 Objectives of the Study

1.4.1 General objective

The main objective of this study is to assess the current truck transportation management practice and its major shortcomings of transport services in Ethiopian ministry of defense.

1.4.2 Specific objectives

1. To assess the specific principal methods and procedures use to ensure quality transport services across the Defense.
2. To investigate the required professional competencies level of Managers and drivers to carry their duties and responsibilities.
3. To investigate the visibility and status of the overall truck transport management practice in defense.
4. To identify the challenges of truck transport management system of defense.

1.5 Significance of the study

- It helps researchers for future research and reference in this field of study.
- It has a great importance to the ministry of national defense logistics transport department since it shows there main gap on the practice of track management system
- It helps the overall transport service users of the army. and
- It helps the government organs to use as a base for formulating and implementing transportation policy and strategy programs.

1.6 Scope of the study

Opening up a modern defense transportation system is a recent phenomenon in the Ethiopian defense. Therefore, as a new development, it is hardly possible to expect a fully developed and national defense has been undertaking the operation particularly focusing on serving the transportation needs in the existing defense system. This study mainly focuses on the practice of truck management system in Ethiopian ministry of defense logistics main department i.e. The study concerns issues relating to defense transportation management systems and assessing the policies, procedures and truck transport management practices in place, as well as the various

ways in which the department interacts with all its stakeholders, policies, professional competencies, human skills, controlling mechanisms and accountability measures were described within the contexts of the management structures and systems. These issues are

selected because they represent crucial elements in defense transportation system reform agendas. Thus, this research is delimited to the transport department, in Ethiopian ministry of national defense logistics main department, in Addis Ababa.

1.7 Limitations of the study

Some limitations that were influenced the study. First the researcher was facing an obstacle on easily finding secondary data, because of poor filing system and lack of well-organized availability of secondary data in the department. Secondly, although a number of resource and studies made on the transport management practices in other regions of the world, the researcher didn't get an access and prior study resources regarding Ethiopian ministry of national defense truck transport management practices.

1.8 Organization of the study

The study was organized in to five chapters. The first chapter deals with introduction which was focusing on background of the study. The second chapter concerned on the theoretical related literature review, the third chapter discussed on the methodology, the fourth chapter data presentation and analysis and at the end fifth chapter was presented summary of major finding, conclusion, recommendation and suggestion of the study.

CHAPTER TWO: REVIEW OF THE RELATED LITERATURE

2.1 Introduction

Under this chapter the researcher broadly discussed about the definition of transport specifically focused on truck transport management practice that affect logistics effectiveness and efficiency. And also it consisted by **theoretical** and **empirical** studies conducted by different researchers on Truck transport management practices and its impact on defense force transport performance.

2.2 Definitions and Transport over views

Transport is a central ingredient in the time and spatial economic utility of products and services and it is a core component of logistics, moving goods between different points in the supply chain. Logistics is a process of planning, implementing, and controlling the efficient flow of products, information, and funds to conform to the client's requirements (Manila, 2012).

Fair, M.and Williams, W (1981) Transportation plays a connective role among the several steps that result in the conversion of resources into useful goods in the name of the ultimate consumer. It is the planning of all these functions and sub-functions into a system of goods movement in order to minimize cost and maximize service to the customers that constitutes the concept of business logistics.

According to Michael, A. (2005) Transport system is the most important economic activity among the components of business logistics systems. Around one third to two thirds of the expenses of enterprises' logistics costs are spent on transportation.

As the Asian development bank policy study (2012) Transport cost is the largest component of logistics cost. At 52.6%, the People's Republic of China transport cost component is lower than that of many countries. For example, in the US, the transport cost was 63% of logistics cost in 2009; in 2008, it was 65%. Based on various factors indicated that, a transportation

cost is different from one to another country, The PRC's road transport market is the most extensively

used among the different modes of transport, with price being the most critical competitive differentiator.

Due to limitations in government supervision, the PRC's road carriers resort to excessive driving hours, extreme overloading, and illegal equipment modifications to improve their operating efficiency. They pass on their internal costs to society in the form of external costs such as excessively high accident rates, destruction of road services, and high levels of pollution.

The PRC's road transport market is populated by many small carriers (with average fleet size of less than 1.5 trucks). Excessive competition in the marketplace has kept road transport charges very low.

Although, different author's explained that, the cost of transport has greatest share among logistics elements, I definitely agree it is easy to minimize or control transportation costs. as cited by Xiao (2011) transportation costs take big percentage of total logistics costs, and it is easy to reduce transportation costs if they notice some small questions like choose the right vehicle, reduce loading and unloading times, choose the best route, expand the volume for per transport and reduce the time to transport, improve packaging to get more space.

As mentioned above transportation system is the most important economic activity among the components of business logistics systems and from previous studies constitutes approximately a one third of all logistics costs. Transport Management practice refers to those methods or techniques found to be the most effective and practical means in achieving transportation objectives such as low costs, timely delivery of transportation related information to the rest of the enterprise and to customers, increase transportation velocity while making optimum use of the firm's resources Stock (2001).

2.3 Truck transport management practice

In the Clark County Freight Mobility Study (2009) the basic principles of truck mobility defined as follows, Trucks are bigger and heavier than passenger vehicles, and therefore, are slower to accelerate, require longer stopping distances, and have larger turning radii than a passenger vehicle. Trucks for the purpose of transportation planning or traffic operations analysis, the 13 classifications are often grouped into three primary categories: light (small), medium, and heavy (large).

Light trucks are a single unit, have two axles and up to six tires. This size truck performs light commercial activity, and includes small delivery trucks such as those operated by UPS. On highways and arterials the operating characteristics are similar to a passenger car.

Medium trucks have three or four axles. A heavy garbage truck or a single dump truck would be categorized as a “medium” truck. Medium trucks carry heavier loads, require a wider turning radius, and use more capacity on highways and arterials than a passenger car.

Heavy truck shaves five or more axles and a “tractor-trailer” configuration. The operating characteristics differ substantially from a passenger car, with slower acceleration speeds, longer stopping distances, different sight lines, and a large turning radius.

Best in practice enterprises have regular review meetings with carriers that performance trends and provide the carriers opportunities to bring up the challenges they face. The review meetings provide excellent time to discuss upcoming needs and for carriers to update clients on emerging issues in the industry that may affect operations and or performance. To deal with today’s increasingly turbulent and complex environments, collaboration has been widely discussed as a process designed to create competitive advantage through mutual respect, trust, information sharing, joint ownership of decisions, and collective responsibility for outcomes between buyers and sellers (Ellinger, Daugherty, & Keller, 2000).

Performance measurement is very important as a strategic tool and also provides means to achieve the objectives required. Based on Skinner (1971) many firms have been observed to evaluate performance, primarily on the basis of cost and efficiency. Besides the financial measures, nowadays have the non-financial measures which include time, quality and

flexibility. Time element has strategic importance in business and hence time has to be used as a strategic metric in performance measurement (Stack 1990). These authors argued that measuring, controlling and compressing time shall improve quality, reduce costs, improve responsiveness to customer orders, enhance delivery, increase productivity, increase market share and increase profits. Flexibility (to measure the ability to deal with the dynamic nature of the business) is a performance apart, since it is an ability to change something (for example, the production volume or mix) in relation to all the three performances of cost, time and quality (De Toni and Tonchia, 1998)

2.3.1 The importance of truck transport practice

Truck transport is a transportation method in which goods are moved by truck. People may also use the term “truck transport” to refer specifically to moving motor vehicles such as cars, boats, and motorcycles by truck. Trucking is a worldwide industry, with companies’ large and small offering and utilizing transport services. This method of transportation is highly flexible and very efficient. People quickly realized the potential applications of truck transport, combining trucks with trains and boats for complete shipping needs. Unlike horses, trucks didn't require careful care and feeding to keep running, and they could haul heavy loads, be handled by small staffs, and used in all weathers and in all kinds of conditions. By the middle of the 20th century, truck transport had become the method of choice for moving everything from agricultural commodities to zoological supplies.(Gunnar Stefansson, 2009)

According to Gunnar (2009) project evaluation report found that, in truck transport, specially designed large truck is used to haul goods. Some trucks are modified to carry specific types of goods, such as refrigerated trucks for loads which need to be kept cold, platform trucks for shipping cars, and livestock trucks which can carry live animals. The truck may have a single driver or a pair of drivers who take turns to keep the load moving 24 hours a day until it reaches its destination. Truckers tend to follow established routes to reach their locations, relying on roads which are dependable and which have support services like weigh stations and fuel facilities.

Best practices for a management field are a set of useful solutions for the managers at every level (strategic, tactical, and operational) for performing their job (planning, organizing, leading, controlling) (Liviu & Emil, (n.d)). Transport Management practice refers to those methods or techniques found to be the most effective and practical means in achieving transportation objectives such as low costs, timely delivery of transportation related information to the rest of the enterprise and to customers, increase transportation velocity while making optimum use of the firm's resources. Younkin, 2006, as cited by Liviu & Emil, (n.d), advanced the following transport management best practices; carrier management practices, load planning and optimization practices, preparing and executing shipments practices, shipment monitoring practices, freight payment and audit practices, and performance monitoring practices.

2.3.2 The role of Transportation in a supply chain

The researcher believes that, without effective transportation service no organization will be succeeding its objective. But transportation plays a vital role to fulfill customer requirements and helps to connect suppliers with end users in the competitive environment (Ensermu, 2015) found that, *“Transportation refers to the movement of product from one location to another as it makes its way from the beginning of a supply chain to the customer. Transportation is an important supply chain driver because products are rarely produced and consumed in the same location”*.

The role of transportation in a supply chain also defined by other authors, Michael, et al (2005) the role that transportation plays in logistics system is more complex than carrying goods for the proprietors. Its complexity can take effect only through highly quality management and by means of well-handled transport system; goods could be sent to the right place at right time in order to satisfy customers' demands. It brings efficacy, and also it builds a bridge between producers and consumers. Therefore, transportation is the base of efficiency and economy in business logistics and expands other functions of logistics system.

Service quality of transport defined in different dimensions. Alireza, M., Shermineh, G.& Farhad Sadeh(2011) found that, increasingly over past decades, there has been recognition from transport operators that improvement in transport service quality is critical in achieving

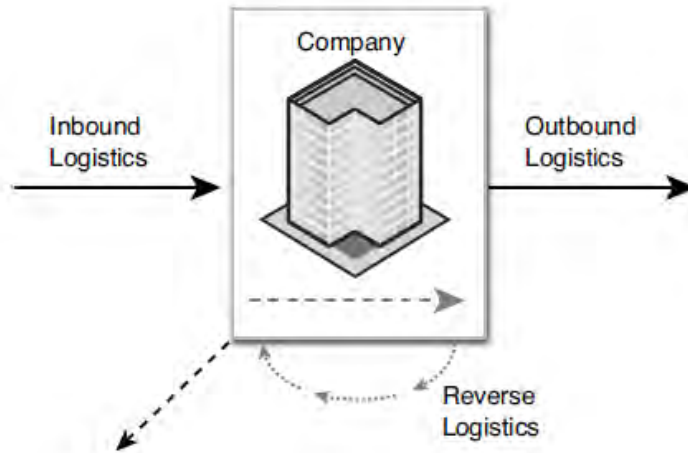
a differential advantage over competition. However, little literature directly addresses the dimensions or determinants of service quality in transport. Such dimensions or determinants are reflected only through the service factors in the selection criteria of transport elements, such as carriers or modes. Pearson's (1980) found the most important criteria are flexibility, speed of transit, reliability and regularity

2.3.3 Transportation and Logistics relations

As mentioned above the importance of transportation would be defined in different terms and also the authors explained the relationship between logistics and transportation as follows based on Thomas (2014) *Logistics* is defined as “that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services and related information from the point of origin to the point of consumption in order to meet customers’ requirements.” Transportation is represented in this expression through the word flow. Transportation provides the flow of inventory from point’s of origin in the supply chain to destination or points of use and consumption. Practically in military more of exercised outbound logistics.

According to Thomas, et al (2014) Inventory sometimes flows in the reverse direction. *Reverse logistics* refers to “the role of logistics in product returns, source reduction, recycling, materials substitution, reuse of materials, waste disposal, and refurbishing, repair, and remanufacturing.” So transportation not only delivers material and products to customers, but also moves reusable and recyclable content to companies that can use it. Figure 2-1 below shows the forward and reverse flows managed by logistics.

Figure 2-1 forward and reverse flows in logistics



Source: Council of Supply Chain Management Professionals, January 2014

2.3.4 Basic transport management systems

Different countries can be used various transport systems regardless of their capacity and the Ethiopian defense forces has also. As explained by the author Liu (2012) Pull or push distribution systems must both involve transporting goods from suppliers to customers. A basic transportation problem is finding the most economically efficient means of transporting goods available at a given set of suppliers to designated destinations. The mathematical tool for obtaining solutions to the transportation problem is referred to as a transportation model, which is conventionally formulated in terms of cost-minimizing objectives.

Transportation costs and pricing are determined on the concept of professional transportation service. Commercial transportation service, as a vital part of the worldwide economy, is governed by the economics between the buyer and the seller of the service. In terms of business logistics, the provider of transportation services is typically called a transportation carrier, and the buyer of such a service is called a shipper.

2.3.5 Conceptual model of Smart Transportation Management system

To be able to solve some of the shortcomings in many of today's logistics setups, frameworks for logistics systems using more data and information, often referred to as smart or intelligent, have been developed such as the Smart Freight concept given by Lumsden and Stefansson (2007) and the Smart Logistics Setup (SLS) proposed by Stefansson and Sternberg (2007). Those help further develop the above concepts and use a conceptual model of the smart transportation management (STM) system to analyze what components are necessary to get such a system running effectively, and analyze what performance factors are involved and what management issues are at stake the two contributions mentioned above are the basis for the conceptual model used as follows firstly, the framework by Lumsden and Stefansson (2007) introduces characteristics of freight that is moved along with more data and information, making local decision possible as the involved company has access to more information.

Based on, Lumsden and Stefansson (2007). The Smart Freight concept where smartness is defined on three different levels: on resource, goods and item level. Secondly framework of SLS introduced by Stefansson and Sternberg (2007). For the design of the SLS framework, a scenario of transportation and logistics setup was developed out of identified user requirements and this framework includes a high-end system solution that includes different state-of-the-art components such as an identification system based on radio frequency identification (RFID) technology, an on-board vehicles information system that enables data and information execution, an embedded computer system that is integrated with many of the vehicle functions, and a communication system based on several of the existing telecommunication solutions to secure data exchange and distributed decision making Gunnar (2008).

As Stefansson and Sternberg (2007). said that further development of the previous smart systems is presented, namely the smart transport management framework. The essentials of such a system have been studied and are based on three different cornerstones:

a) Smart Freight; b) Smart Vehicle; and c) Smart Infrastructure.

These areas constitute the fundamentals of the STM framework and they turn out to be sufficient to describe the necessary elements that must exist to describe the advanced transportation management system.

2.3.6 Intelligent Transport Systems

To increase efficient and effective truck transport practice in Army operations, applying modern intelligent transportation system played a great role to enhance good visibility and reliability of transportation management. According to this point Authors explained as follows. Applications of ITS in transport systems are widespread. The most common techniques for logistics include Global Positioning System (GPS), Geographic Information Systems (GIS) and advanced information systems. GPS provides the service of vehicles positioning. It could help the control centers to monitor and dispatch trucks. GIS provides the basic geographic database for the deliverers to enable to organize their routes easier and faster. Advanced information systems provide the real-time information for both managers and deliverymen to adjust their paths as new demands occur. The integration of GPS, GIS and advanced information systems provides a high maneuverability of transport systems and its benefits of the integrations are better service quality, reduced unnecessary trips, and increased loading rate (Michael et al, 2005).

In the field of military, the advantage of intelligent transportation systems (ITS) has resulted in the rapid and widespread adoption of a wide range of technologies to aid transportation. They include the use of wireless communications, radar, sophisticated computer-aided video detectors, and on-board computer and vehicle navigation systems, all leading to the evolution of an integrated and multimodal transportation concept enabled by technology. ITS could affect military transportation in many ways.

According to Ranaiefar (2012) the goal of Intelligent Transportation Systems (ITS) is to integrate individual transportation elements and join them through use of information and communication technologies into a single system. ITS provide the opportunity to increase the use of existing transportation system and generate additional capacity from the existing

physical infrastructure. Other benefits of freight ITS include, but not limited to, Increase safety and security, decrease negative environmental impacts of freight transportation.

Transportation technology to Asset visibility: As the authors John, J et al., (2006) explained it; enterprise asset management is recognized in both the private and military sectors as being a powerful approach not only to increasing efficiency (lowering cost) but also to improving effectiveness in executing strategies to improve competitiveness. Historically, the challenge has been having a practical method for collecting the data to gain necessary visibility without on-site inspection and measurement. Periodic on-site visits and/or sampling methods have been used, but cost and effectiveness are often issues.

The development of new technologies has helped to solve the real-time visibility problem of assets, including inventory and equipment. New technology allows the implementation of enterprise asset management systems to be applied in a practical manner. Technologies such as radio frequency identification (RFID) tags and global positioning systems (GPS) have enabled companies to accurately pinpoint the exact location of equipment and materials. Such visibility allows decisions to be made more quickly and accurately to solve problems and reduce uncertainty. In the long-haul motor carrier industry, keeping track of drivers and their equipment had traditionally been a challenge. But now, with GPS and wireless computers for drivers and RFID tags on trailers, keeping track of the assets has become much less challenging. Instructions can also be relayed to drivers to help them solve problems or address other issues such as finding specific locations. The tags can also store valuable information about the maintenance and use history of the equipment for preventing breakdowns and for general records (Bardi, 2006).

2.3.7 Challenges in Practice of Truck Transport Management

a) Challenges of the pain points in transportation

As cited by, <http://www.enterprisemobilitynetwork.com>.(access date,Dec 27, 2015) In today' transportation operations, there are a number of issues which can be translated into seven areas of waste in transportation defined as follows

Lack of real-time visibility of freight and assets: Efficiency is heavily dependent upon real-time visibility of trucks, trailers and containers in transportation. Lack of real-time visibility hinders a wide variety of functions, including: Efficient scheduling of loads, ability to execute dynamic schedule changes, ability to see asset utilization levels, ability to control container costs, and ability to note exceptions in a timely manner

Labor issues: eg extraordinarily high turnover rates further erode productivity, as new drivers become familiar with everything from paperwork to the actual routes.

Rising fuel costs: While the increase in fuel costs cannot be controlled, unnecessary fuel consumption is a waste that directly drives the cost of sales up — and profitability down.

Costly mis-ships: In highly manual processes, the integrity of the data can easily become a very real concern. Forms completed by paper and pen must ultimately be entered into the computer, most often by administrative staff. This ‘double-touch’ of the data (where ‘person one’ writes the data down and ‘person two’ interprets and enters then data into the computer) significantly increases the likelihood and frequency of errors.

Cash-to-cash cycles times: much inefficiency in manual processes translates into delays in billing and collection. Time spent processing forms and waiting for data to be entered into the computer ultimately translates into the addition of many days to the already strained cash-to-cash cycle.

New compliance regulations: For an organization already overburdened with manual processes, new government regulations often mean additional processes, additional time and additional cost.

Safety: Waste in the management of safety issues can translate directly into a major increase in costs for the transportation provider. While speeding tickets and accidents can result in a significant rise in insurance rates, accidents can also lead to major liability.

b) Ways to maximize efficiencies of the pain points in transportation

In the [motorola.com/supply chain mobility](http://motorola.com/supply_chain_mobility) (2007,) the solutions to the pain points of transportation shown as follows. Mobility eloquently applies the latest in technology to address the unique pain points in transportation — reducing or eliminating the associated wastes with each through a number of applications

Real-time visibility of freight and assets — complete with performance metrics. Today's transportation providers can leverage global positioning system (GPS) and radio frequency identification (RFID) technologies to achieve real-time visibility of the entire transportation operation. This ability to track and trace any asset at any time enables: *creation of the most effective load schedules*. The ability to see and best match available loads with available trucks

maximizes asset use and minimizes mileage and fuel costs while ensuring timely arrival at the end destination, *cost-effective management of dynamic schedule changes*. The ability to locate and direct the right truck to the right location, *Maximum asset utilization, improved container management*: With RFID, your containers are automatically tracked without human intervention, *Real-time exception management*: With mobility, you have the performance metrics right at your fingertips to see exceptions in real time.

Improved driver productivity: There are a number of applications that can significantly improve driver productivity by eliminating much of the need to perform manual paperwork, and putting all the information needed throughout the workday right at the fingertips of the driver: *Reduction in fuel consumption*: Mobility assists in reducing fuel consumption in two ways: When loads are optimized, the improved efficiency in routing reduces mileage and the associated additional fuel costs. Real-time monitoring of engine performance enables the collection of a wide range of metrics that can drive fuel consumption down.

Improved data integrity and reduction in errors: Completion of forms via paper and pen and subsequent entry into a computer at a later date is replaced by electronic forms that are automatically populated with available data whenever possible.

Proof-of-delivery for faster cash-to-cash cycles times; When proof-of-delivery moves from paper to mobile computer, proof of delivery information can be transmitted to the office instantly, including time of delivery and the recipient's name — and if the mobile device is equipped with imaging capabilities, drivers can even capture signatures electronically and snap a quick picture to document the condition of the shipment.

Cost-effective compliance: As government regulations increase in volume as well as complexity, mobile computing keeps compliance simple and cost-effective.

Pro-active safety management: Mobile computing can be applied to record and transmit engine statistics and on-board events, including sudden acceleration or deceleration, speeds and diagnostic warnings to enable: Proactive management of driving habits and Reconstruction of an accident or other event based on historical data.

2.4 Best Practices in Transportation Management

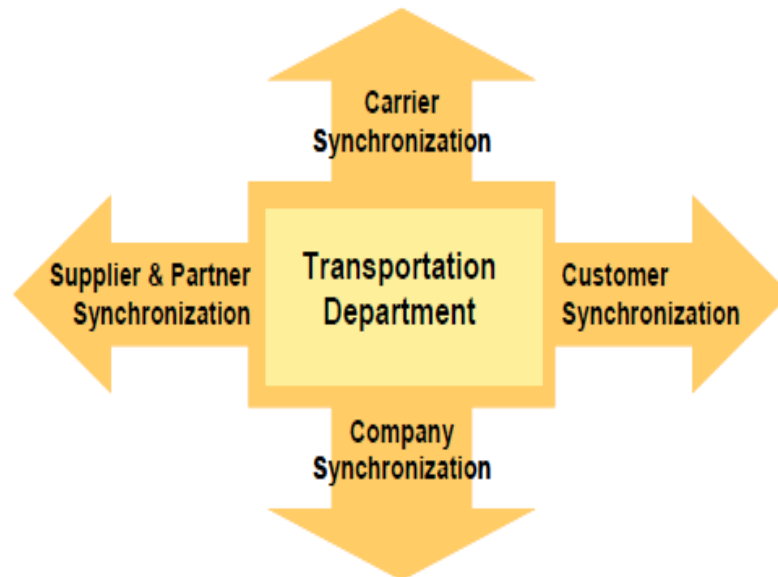
As the author, Enslow (2005) found that, nowadays supply chain and transportation executives are under newly intensified pressure to keep transportation costs down in the face of rate

increases and keep service levels up in the face of capacity constraints. From the above point of view, to identify today's success strategies for transportation management, Aberdeen Group researched the domestic transportation practices of a variety of large and midsize companies and selected seven as best practice leaders. Let's see the Aberdeen Group research found.

2.4.1 Transforming the Waterfall

How are transportation managers responding to these pressures? Aberdeen Group's best practice research shows that top performers are embracing the new challenges, treating them as an opportunity to increase the value the transportation organization delivers to the enterprise. Traditionally, the transportation function has been the last step in a sequential, waterfall fulfillment process, responsible for consolidating and shipping out the orders the warehouse packs. By comparison, in best practice companies, the transportation department plays a central role in synchronizing activities and data across the key stakeholders in the supply chain (Enslow, 2005). And the writer argued that, one transportation director said, "*At our company, transportation was not viewed as a differentiator or core competency – it was just supposed to happen. But now that mindset is changing.*" At the best performing companies, the transportation department's scope of responsibilities and the level of collaboration with other internal and external functions have sky-rocketed. Let's see the relationship in the figure below

Figure 2.2: Transportation Management's Expanding Responsibilities.



Source: Aberdeen Group, June 2005

Transport management practice in Army needs highly integration with all armed force units as well as other concerned parts to achieve its objective. So the researcher agreed with the necessity of transport synchronization for fast moving goods and services in all conditions such as, peace and war time. According to Enslow (2005), which transportation strategies are most influential in driving performance improvements? Based on the benchmarked companies, external collaboration and internal transportation centralization top the list. For instance, 63% of benchmarked companies report that they still have fragmented transportation operations or have yet to coordinate inbound and outbound transportation. The best practice indifferent cases tried to how companies in a variety of industries have succeeded in turning these strategies into action.

Table 2.1: Transportation Management Best Practices

Rank	Best Practice	% Stating It Has Been Important in Driving Improvement
1	Collaborate with carriers, suppliers, and customers to create more economical transportation processes	88%
2	Centralize transportation planning across the company via a load control center	77%
3	Reconfigure transportation network to optimize total delivered cost	76%
4	Create a more customer-centric transportation process	73%
5	Take greater control of inbound freight	69%
6	Synchronize activities across corporate functions	66%

Source: *Aberdeen Group 2005*

FM 4-0 (FM 100-10), in CSS also discussed that the use of synchronization as follows: Synchronization is a critical force projection characteristic. Just as a commander arranges activities in time and space to gain the desired effect during employment, he should also synchronize deployment activities to close the force successfully. Resources (such as lift assets, technical enablers, time, and information) are scarce. Synchronization normally requires explicit coordination among the deploying forces and staffs, supporting units and staffs, a variety of civilian agencies, and other services. Synchronization is best achieved when supported with situational understanding based on timely and accurate data from information technologies that create a common operational picture (COP) and are enhanced with automated optimization, scheduling, and decision aids.

2.4.2 Transport from the military perspective

Army transportation plays a key role in ensuring that Army and joint forces can execute global force projection and sustain forces in operations. Supporting the JFC and the Defense transportation system (DTS), Army transportation is essential to effective and efficient force generation and sustainment.

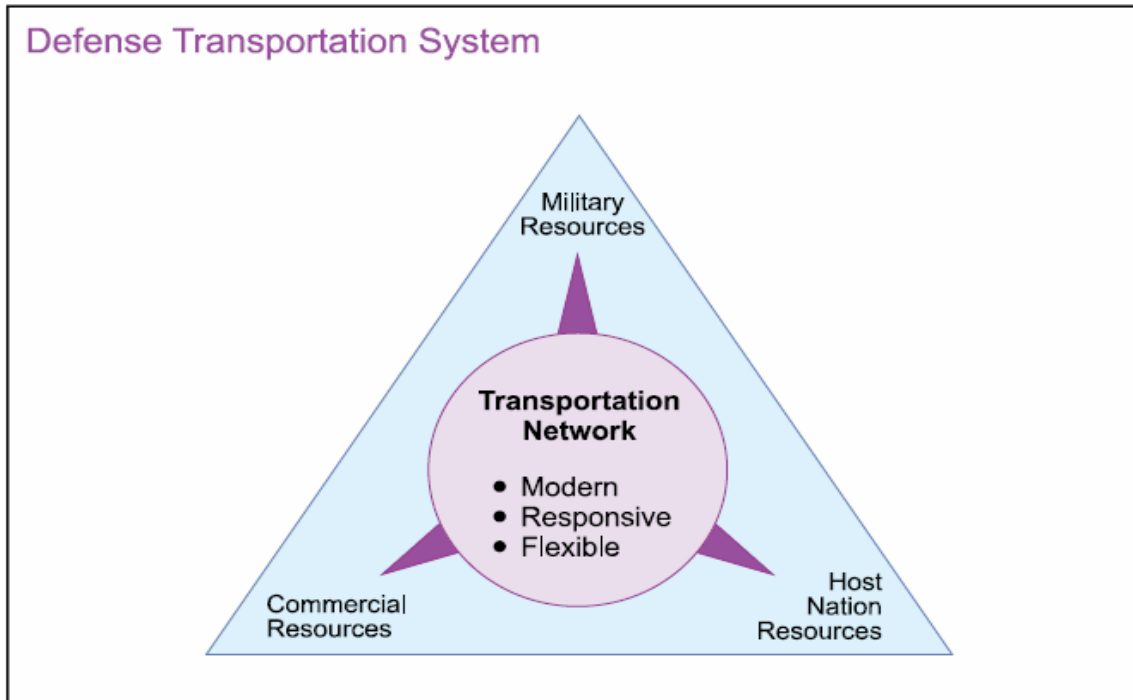
The Army can mobilize Reserve Component forces necessary to meet the contingent needs of combatant commanders or the requirements of war or national emergencies. Combat service support (CSS) is a critical part of the mobilization process. As units transition from peacetime to crisis or war, U.S. Army forces must be quickly brought to wartime readiness in equipment, personnel, supply, maintenance, legal, and medical areas. CSS organizations man and operate mobilization stations and aerial and seaports of embarkation. Reserve Component CSS forces were quickly mobilized and integrated with the active component forces (FM 4-0).

Among the components of CSS transportation plays a key role to generate the force. According to FM 4-0, Transportation is moving and transferring units, personnel, equipment, and supplies to support the concept of operations. It incorporates military, commercial, and multinational capabilities

Most commonly, the defense transportation system (DTS) is that portion of the worldwide transportation infrastructure that supports department of defense (DOD) transportation needs in peace and war. As shown in Figure 2.3, defense transport system consists of the military, commercial, and host nation (HN) assets. A modern, flexible, and responsive transportation network capable of integrating military, commercial, and host nation resources must exist in order to provide effective transportation services.

Global Transportation Management (GTM) refers to an integrated process that includes coordinated efforts in the planning, programming, budgeting, and execution process, development of unified or coordinated management procedures and systems for deliberate and crisis action planning, and application of department of defense and civil transportation systems.

Figure 2.3 Defense Transportation Systems



Source: US FM 4-01, June 2013

In-Transit Visibility (ITV), is the capability to employ information technology resources to track the identity, status, and location of department of defense units.

Transportation requirements: Commanders and planners at the strategic, operational, and tactical levels require a detailed supporting database to provide adequate force, deployment, employment, sustainment, and retrograde information.

General considerations: Although the level of detail may vary depending on the scope of the mission and the echelon of command where a transportation requirement is being worked, there are several general considerations that influence transportation planning and capability.

Critical infrastructure protection: Central to all plans that use defense transportation system is the assurance that physical infrastructures (such as ports and road and rail systems), command and control (C2) systems, and intelligence infrastructures will be available when needed.

In truck transport management practice, improper planning of transport requirements may lead us to unnecessary costs.

According to McKinnon (2000) the problem of underutilization of assets may occur if the available slots of a container truck are not fully used during import- or export-related transportation. The underutilization of a slot capacity (i.e. the number of empty or non-empty containers a truck can carry) of a container truck can be termed “the empty trips problem. From this view point managers play a great role and take in to consideration the practices for taking truck loads in both directions (especially, the elimination of deadheads in backhauling – truck loading on return trips to avoid empty trips.

According to the US field manual (FM 4-0), planning is not the strict prerogative of management, especially; each truck driver must plan his intended journey so that the goods he has to deliver safely and timely. Each transport company must decide how, with regard to the sector of the industry and the operating environment, it can fit into and find a place in the market sector. For example, the company may decide that it is in the business to produce a very high quality customer service catering for a very selective clientele at a premium price. On the other hand, the company may decide to provide a service carrying low value freight with a minimum quality of service.

For the manager in transportation, planning is carried out in three stages:

1. Collect, analyze and set down all the relevant facts which have a bearing on the plan,
2. Consider all the facts and work out the alternative courses of action which will fulfill the objectives of the plan.
3. Choose the best course of action in light of all the facts gathered in. It must be recognized that action by one section of an organization will affect the actions of other sections. The best solution for a section may not be the one that produces the best results for the company as a whole.

As US Field Manual 4-0 combat service support (2003), Army transportation operates as a partner in the department of transport system to deploy, sustain, and redeploy forces in all military operations. Transportation provides vital support to the Army and joint forces across the strategic, operational, and tactical levels of war.

2.5 Professional Competence for Truck transport Managers and drivers

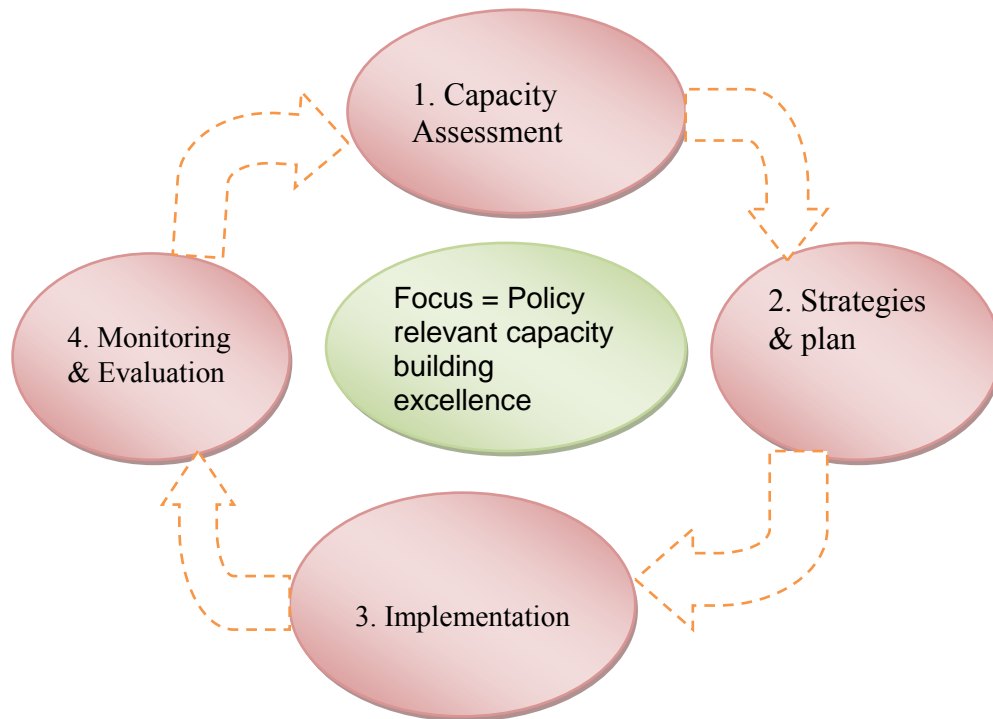
The MoND transport policy tries to enhance professional competency of drivers and managers as system. Those measures in terms of educational qualification, standardized license, encourage long time work experience and free accident records taking in to consideration and the organization give an emphasis on capacity building and professional competency. different authors found and discussed that as follows.

2.5.1 Capacity building

Capacity building is a dynamic process that is often part of a broader developmental or change process. Based on the department for international development (2010) practice paper explained that there are principles of good capacity building that defined as follows. It is suggested that the following generic **principles** underpin successful efforts at capacity building. Capacity building is a *process*: Effective capacity building is the result of the interplay between individual, organizational, network and institutional factors. *Strengthen existing processes, Ensuring full local ownership, Role of external expertise, Skills and resources, A different way of working, collaboration and partnership and group development.* Even though all the above principles are applicable in capacity building activities, **group development** is the most and circular principle to military capacity building. Thus, the departments for international development (2010) practice paper found as shown below. Just as most people are reluctant to admit to weaknesses, most teams, especially their leaders, are convinced that they work well. The reality is often different. Generally groups, particularly those with multi-cultural memberships, develop through four stages. **Forming**---establishing the ground rules, **Norming**—developing shared values, **Storming**—dealing with conflict/misunderstandings as values are debated, and **Performing**—efficiently and effectively carrying out the groups objectives.

The department suggests that a four-step approach be considered which is based on the good learning cycle. The key steps are as follows:

Figure 2.4 Capacity building steps



Resource: Department for international development practice paper, 2010

2.5.2 Truck transport Managers

An Acquired Rights certificate or knowledge will be treated as having a serious impact on the repute of that professional transport manager. That knowledge shall be demonstrated by means of a compulsory written examination require persons who possess a certificate of professional competence. Transport managers with continuous training helps to update their knowledge if they wish to do so may require that holders of certificates of professional competence valid only for national or local transport administration. The holder of a standard international license must engage a holder of an international certificate of professional competence to act as transport managers.

Thus, standard licenses are required to meet the requirements of professional competence. <https://www.gov.uk/government/collections/senior-traffic-commissioners>(access,date, May14, 2016)

Lowe (2010).developed, the requirement to meet professional competence standards has applied solely to those who hold supervisory or management positions where they effectively have day-to-day control of the activities of drivers and operation of vehicles. It should be assuring whether a professional competence qualification by exemption or by examination, so proof that a manager is professionally competent and has fulfills the requirements of licenses.

Theater transportation requirements largely depend on mission, enemy, troops, terrain and weather, time, and civilian considerations (METT-TC). Logistic theater preparation is essential in determining requirements. Additionally, the Army provides transportation support to other services and multinational partners when directed by the combatant commander or by the JFC. Establishing communication links to other than Army forces is a challenge; transportation planners must integrate all requirements and support considerations into movement plans and programs US Army field manuals (2005).

TOs should keep records of how many transport requests there were for the period and they set controlling mechanism to their duties. As USAID deliver project, task order 1(2010) indicated that, to make a TMS work, it is necessary to develop Standard Operating Procedures (SOPs) that are specific to each component of the system and to include them in the overall transport policy. In practice, the overall policy will be developed before any specific components of the TMS, including the SOPs for operational management as explained below. And the researcher agreed with this idea because managers and vehicle operators should have standard operating procedures to perform their responsibilities. According to USAID, task order 1(2010) explained that SOP is simply a document that states how specific activities should be carried out. All SOPs should be kept in a file wherever vehicles are located and made accessible to all staff members. Among sops, the size and complexity of an organization will determine exactly which SOPs are appropriate.

The human resources policy, vehicle allocation policy, vehicle usage planning policy, vehicle use and loan policy vehicle issuing policy and vehicle fueling policy.

Developing a plan is mandatory to managers, so, According to Cuninghame, et al, (2010) Planning mechanisms and technical procedures for all heavy vehicle users are necessary to ensure that vehicles are used in an efficient and cost-effective manner. Truck transport planning relies upon the cooperation and participation of everyone who manages, operates, or uses vehicles. TOs must have the full support and confidence of their managers to fulfill their key responsibilities including: Analyzing trip authorities for authorization and correct recording of all trips, allocating truck to authorized personnel, negotiating with other managers who sign trip authorities for joint trips, and Ensuring that procedures for the emergency use of heavy vehicles are followed.

2.5.3 Truck transport drivers

Vehicle operators (VOs) are the key people responsible for the effective, safe, and economic operation of a vehicle. In this guide, VOs refer to both professional drivers and drivers who use vehicles to carry out official duties. Vehicle users are people who are transported to carry out their duties. As suggested above, vehicle users may also be vehicle operators, in which case they must meet all VO requirements as well as those requirements relating to their official duties. Regardless of their primary duties, all VOs require a valid license and must be properly trained to safely use and care for all forms of transport they will be required to operate (Cuninghame, 2010).

According to Gunasekaran (2015) found that traits and skills needed for sustainable transportation mentioned as follows and the intension of the researcher will focus to show the importance of traits and skills of a truck driver in the context of sustainable supply chain networks.

a) Traits of a truck driver

Maturity: Mature truck drivers respect local government rules and generally take more responsibility for environmental practices like regular engine cleaning, proper maintenance and driving within speed limits, whereas younger drivers are more irresponsible and enjoy breaking rules (Min and Emam, 2003; Suszuki et al., 2009; Williams et al., 2011; Saldanha et al., 2013; Williams and George, 2013).

The authors found that, **Education level** is an important criterion that differentiates responsible from irresponsible truck drivers.

Endurance: Endurance is regarded as a key criterion for determining the longevity of a driver, as poor endurance may lead to frustration (Min and Emam, 2003; Williams and George, 2013).

b) Skills of a truck driver:

Technical knowledge: Technical knowledge includes basic automobile engineering, fundamentals of logistics and transportation and basic instrumentation awareness for environmental testing and basic engine diagnostics and maintenance.

Behavioral skills: The AI reveals that due to poor communication skills and inappropriate attitudes, drivers often end up in direct confrontation with regulatory authorities in a large country where different languages are spoken.

2.6 Role of Truck Transport in the Army

Army transportation plays a key role in ensuring that Army and joint forces can execute global force projection and sustain forces in operations. Supporting the joint force commander (JFC) and the defense transportation system (DTS), Army transportation is essential to effective and efficient force generation and sustainment. Army transportation operates as a partner in the defense transportation system to deploy, sustain, and redeploy forces in all military operations. Transportation provides vital support to the Army and joint forces across the strategic, operational, and tactical levels of war. It is a seamless system that unites the levels of war with synchronized movement control, terminal operations, and mode operations. Army transportation incorporates military, commercial, and host nation capabilities. It involves the total Army (active and Reserve Components). More detailed information on

Army transportation is in the FM 4-01-series of manuals. Transportation is essential because no modern firm can operate without providing for the movement of its raw materials or its finished products. This importance is underscored by the financial strains placed on many firms by such disasters as a national railroad strike or independent truckers' refusal to move goods because of rate disputes. In these circumstances, markets cannot be served, and products back up in the logistics pipeline to deteriorate or become obsolete.

According to the location theory, Sloggett and Woods (1989) transportation plays an important role in making location decisions for new business or industry. Generally, two transportation objectives are taken into consideration while making a business location decision: 1) low transportation cost and 2) satisfactory transportation service.

The variety and complexity of military operations require the Army to establish a transportation system that is expandable and tailorable. The objective is to select and tailor required transportation capabilities at the operational and tactical levels to achieve total integration of the system. These capabilities include movement control, terminal operations, and mode operations.

At the theater strategic and operational levels, sufficient force structure deploys early to conduct reception, staging, and onward movements, which includes opening ports, establishing inland line of communication (LOC), and providing C2 for movements. An important facet of building combat power during the reception, staging, and onward movement phase of the operation is receiving the force and sustainment supplies at the ports of embarkation (POE). This same transportation force structure is required to redeploy the force when operations conclude. Ports, terminals, and inland LOC are critical nodes in the distribution system. FM 4-0 (FM 100-10).

Planning mechanisms and technical procedures for all vehicle use are necessary to ensure that vehicles are used in an efficient and cost-effective manner. Vehicle planning relies upon the cooperation and participation of everyone who manages, operates, or uses vehicles. The facility manager should appoint a Transport Officer to coordinate vehicle planning (as noted earlier, there may be only one person managing all transport responsibilities in smaller health units). TOs must have the full support and confidence of

their managers to fulfill their key responsibilities including: Vehicle planning follows a three-step process: period movement plan, period transport schedule, and seven-day transport schedule.

US Army field manual found that, transportation operates as a partner in the defense transportation system to deploy, sustain, and redeploy forces in all military operations and its objectives as follows. First, transportation provides vital support to the Army and joint forces across the strategic, operational, and tactical levels of war. Second, it is designed as a seamless system that assuring a function of synchronized movement of control troops in all types of operations. Third, Army transportation incorporates military, commercial, and supporting nation capabilities based the given mission. Fourth, transportation system is aimed to provide rapid movement of forces. And fifth it provides essential military equipment to Armed forces and support resources where and when required.

As Ethiopian MoND Field Manuals and Teaching materials in joint military staff college (2013) primary task of the Ethiopian defense transportation system is to provide support to the army and thereby to execute all military operations effectively. The defense transportation system basically operates as an integral part of the national transportation system. The defense transportation system consists of military and commercial assets, services and systems that are originally contracted or controlled by the transport department of the national defense. Operating the defense transport system involves the management of a complex number of interrelationships within the defense and among diverse federal and commercial activities. All military transportation activities, regardless of the function they execute must follow the programs of the defense transportation system. In planning support for military operations, military transportation planners and operators at the joint and service level must consider the diversity of the defense transportation system and its accompanying coordinating challenges. Planners must also understand that the defense policy allows government intervention in to the private sector only to the degree necessary to ensure the civil transportation system is responsive to military needs. This means the national defense activates private sector assets to augment defense transport system capabilities only to meet the short falls to the defense transportation capacity.

According to the MoND Transport operational planning (2013); The Logistics department head of Ethiopian Ministry of National Defense coordinated the planning and distribution of all the logistics (supplies) to the Ethiopian Army. Of all the services provided, transportation of material, personnel and water are very critical. Army transportation is not profit oriented as any private transportation company. Its main objective is to serve the army needs and enable the army successfully accomplish its missions. Among the specific tasks of the defense transport department, one is to provide efficient water transport service for troops in all fronts by coordinating its transport departments under the different commands and ensure delivery of material supply to the armed forces in both peace and war times. It is clear that troops should get the required daily and monthly food supplies, daily water supplies, fuel supplies, medical supplies, standard weapons and its ammunition, on time, at the right place by the exact quantity.

Based on MoND field manual, vehicle combat readiness transport plays critical roles to facilitate the mobilization of the army when the demand to move from place to place is mandatory and has to be carried out immediately with in and out of the command region. The National defense forces of Ethiopia basically use all different types and modes of transportation such as animal, personnel, air and vehicle transports to facilitate the flow of goods and services to the end users. Although it uses different mode of transportation, vehicle transport have the greatest share from the other types of transportation. The defense transportation system has a major responsibility of transporting huge amount of military equipment, goods, and service as well as man power within a country and also out of the country to international peacekeeping operations. The Transport department of the national defense has been equipped with different types of vehicles and heavy trucks which are used to mobilize human and capital resources from their departure to the destination points. The transport service is provided to serve the army needs at all corners of the country such as East Command, West Command, North Command, Central Command, Air Force, training centers and other main departments of the head office and also on the peace keeping operational areas of our armed forces. Problems in the transportation service directly affects an army performance, and therefore the researcher will attempt to study the overall management

practices of the service provided under the defense transportation main department with a view to point out strengths and weaknesses of the services for further improving it.

2.7 Empirical literature of truck transport

Transport is an important sector to grow up economic development of developing and developed countries as a whole. Let's see different authors discussed and found **empirical** issues related to this point. As the *Social Science Research Report Series*, no.18 in Kenya indicated that, Communication is an important aspect of development. In the case of a developing country like Kenya, road transport facilitates economic activity. Kenya being' an agricultural country, the success of the sector entirely depends on an efficient, reliable and safe roads transport system. While emphasizing the role of the public service vehicles, Republic of Kenya (1995) noted that the road and pipeline transport sub-sector grew at a rate of 13.5 percent compared to 10.5 percent in 1993 in response to a favorable business environment. The researcher agrees with this study, because in developing countries like Ethiopia the roles of communication and transport sectors used to facilitate and enhance the economic activity.

As the authors Eelco den, B., Femke, B., Arno, S., & Huib van, E. (2009) found that, Road freight transport (tonne-km) has grown sharply over the past few decades and is expected to grow by a further 60% in the EU between 2005 and 2030, due not only to economic growth, increased internal EU trade and globalization, but also to supply-side effects such as improved quality and stable or declining freight prices.

Other researchers discussed that, Empty truck run is a typical problem for transportation sector for an increase in the transportation cost and inefficient use of energy. The survey found that out of a distance of 245,118 km. (per week), 85.75% of the backhauls were empty, which accounted for 210,193 km. of empty truck run and 2,350,402 Baht worth of inefficient use of energy in one week. The number of empty truck runs will be lower with matching process enabling, where 14.59% of the total empty truck runs will be saved. The lower number of empty truck runs not only benefits the manufacturers for the lower transportation

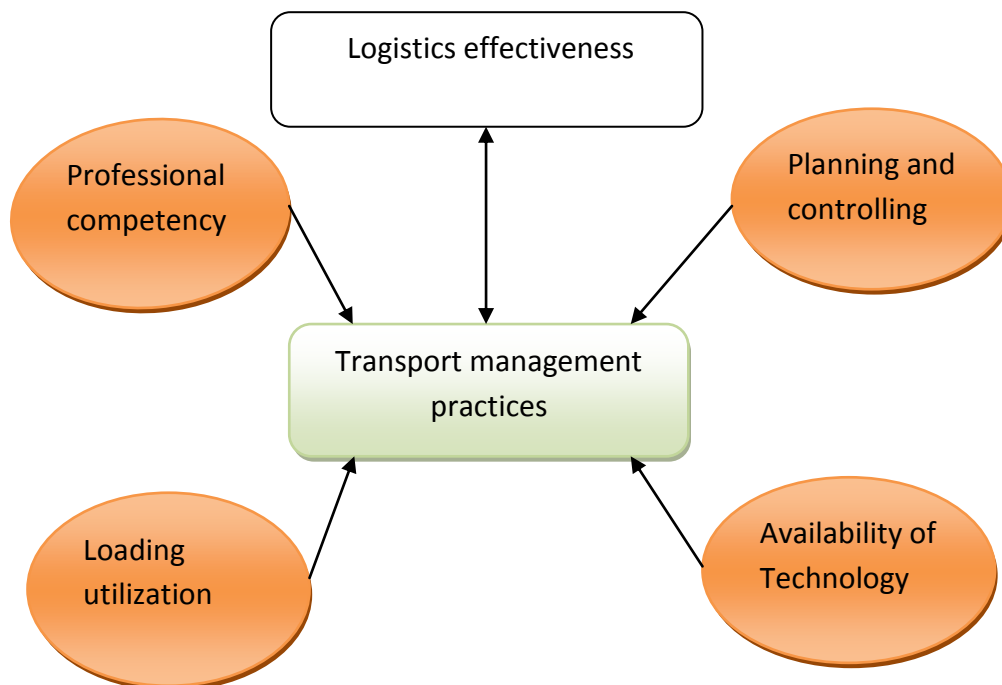
cost but also provides a good impact to the society as a whole.. (Chaiyot Peetijade & Athikom Bangviwat, 2012)

Although transport sector has a great contribution on performing multipurpose functions to enhance an economic growth of any nations but also its impact seeing as follows.

The transport sector is a major contributor to climate change. It is considered to be currently responsible of 23 % to 25 % of world energy-related GHG emissions (International Energy Agency (2009)), of which 65 % originates from road transport and 23 % from rail, domestic aviation and waterways (Chapman (2007)). Given current trends, transport energy use and CO2 emissions are projected to increase by nearly 50 % by 2030 and more than 80 % by 2050. (Alain, H., Andr, S.,& Julien, T.2009).

2.8 Conceptual Framework

In this section, the identified factors to be investigated for interrelationship are indicated. The study would seek to establish how adoption of those factors, the transport management practices can lead to realization of the truck transport performance.



Data source: Own survey, 2015

Vehicle transport management practice virtually refers to those methods or techniques found to be the most effective and all the practical means's in achieving the following transportation objectives such as low costs, timely delivery of transportation related information to the rest of the enterprise and to customers, increase transportation velocity while making optimum use of the firm's resources Stock (2001) and more importantly allowing the army to operate its missions apperopriately.

Transport' activity in MoND generally focused on two core activities which are providing internal and external transport services to the Army and its better performance is highly interconnected with above conceptual framework. From this point of view, common benefits of transport is, timely delivery of commodities, generating forces, improve service quality and assessing technology. This benefit leads to ministry of defense improving an overall its logistical support effectiveness and its transport performance which leads to ensure end users satisfaction. But this benefits are not achieving without challenges, the main challenges of truck transport management practice includes loss of controlling over transport activities, traditional management system, difficulty of managing risk of an unsatisfactory outcome and the quality of work life/motivational level of personnel.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

This chapter deals with the methodology employed by the researcher i.e. It specifically addresses the research method used in the study; selection of samples; the procedures used in the study, the methods employed to collect data; and to assure the reliability and validity of the data collected.

3.1 Study area

This study was conducted in MoND Logistics main department in Addis Ababa. Transport department gives a transportation service for the armed forces such as eastern command, western command, northern command, central command, air force, units in peace keeping mission, training centers and MoND main departments in the Ethiopian ministry of national defense.

3.2 Research design

As discussed in chapter one that the objective of the study is to assess the current truck transportation practice and the major shortcomings of transport services in the Ethiopian ministry of defense and to investigate how the problems influence the logistical service effectiveness in Ethiopian armed forces as well as suggest possible solutions that contribute to the betterment of transport service that is currently in practice. So as to meet these objectives, the research methodology was carefully designed.

According to Chinnathambi (2013) research methods are various procedures, schemes and algorithms used in research. All the methods used by a researcher during a research study are termed as research methods and the researcher essentially planned, scientific and value-neutral and include theoretical procedures, numerical schemes, statistical approaches, etc. Specifically research methods help the researcher to collect samples, data and find a solution to a problem. Particularly, scientific research methods call for explanations based on collected facts, measurements and observations.

In order to describe and examine the current practice of truck transportation management system in Ethiopian ministry of defense logistics transport department Addis Ababa, the researcher used descriptive type of research design. Ethiopian ministry of defense transport is not- for-profit organization in this regard, descriptive research allows the researcher to assess and describe the nature; condition and degree of the present situation of truck transportation practice in Ethiopian ministry of national defense armed forces. Further the researcher was employing in this study a mix of quantitative and qualitative methods. The qualitative strategy is employed to understand the behaviors and motivations of the managers, supportive staffs and drivers of the department in their responsibilities such as planning, organizing, controlling and implementation of transportation service delivery and to investigate the organizational behavior of the transport department in terms of the institutional framework on the transportation practice. Quantitative strategy is used to describe and analyze measurable data. The data of this study has displayed in terms of tables, charts, and graphs by using percentages, mean values and standard deviations.

3.3 Study Population

The population of the study comprised of all the higher and middle officers, management staffs and noncommissioned officers in logistics transport department Addis Ababa that make appeals for assistance and are actually involved in the practice of transport management.

3.4 Sample and Sampling Techniques

The researcher adopted a stratified sampling and purposive sampling in this study. Stratified sampling is used to obtain a representative sample from each unit. Since the total population of the department is stratified under five units with people who have different knowledge and experience in their specific job. According to Ajay (2014) the frame can be organized by these categories into separate "strata." Each stratum is then sampled as an independent sub-population, out of which individual elements can be randomly selected. C.R. Kothari (1990) argued that, *“under this sampling design, every item of the universe has an equal chance of*

inclusion in the sample". From this point of view the researcher used random sampling technique (by lottery method) to identify the representative samples from each stratum.

Also the researcher employed purposive non-probability technique to select interviewees for the study. Since that was an appropriate technique to select well experienced and knowledgeable respondents for interview.

According to Cochran (1963:75) as cited by Israel (2013), for populations that are large, Cochran developed this Equation to yield a representative sample for proportions.

$$n_0 = \frac{Z^2 pq}{e^2}$$

It is valid where n_0 is the sample size, Z^2 is the abscissa of the normal curve that cuts off an area α at the tails ($1 - \alpha$ equals the desired confidence level, e.g., 95%), e is the desired level of precision, p is the estimated proportion of an attribute that is present in the population & q is $1-p$.

In this case if the population is small then the sample size can be reduced slightly. This is because a given sample size provides proportionately more information for a small population than for a large population. Thus, the sample size (n_0) can be adjusted using the following equation.

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}} = \frac{384}{1 + \frac{(384-1)}{300}} = 169$$

Thus in order to increase the response rate, the researcher adds 10% of non-respondents rate and here the researcher distributed a total of 186 questionnaires to respondents.

Table3.1. proportionally decompose of sample size in to five stratum of transport units

Transport Department	Units	Number of employees	Sample size proportions
	Support unit	70	$(70 * 186) / 300 = 43$
	Supply and distributive unit	15	$(15 * 186) / 300 = 09$
	Truck load transport unit	127	$(127 * 186) / 300 = 79$
	Maintainance unit	83	$(83 * 186) / 300 = 52$
	Troop Transport unit	5	$(5 * 186) / 300 = 03$
Total		N= 300	n = 186

3.5 Instruments of data collection

The investigator used both primary and secondary data. Primary data were collected by using a pre designed open and close ended questionnaires, personal observation and interviews. This research questionnaire were developed by the researcher based on the related literatures and also adopted some of the questions and interview guide from “Centre for Research and Technology Hellas (2008) in Hellenic Institute of Transport. The investigator also used semi-structure interview, since semi-structured interviews allow respondents the freedom to express their views in their own terms and it can provide reliable, comparable qualitative data.

The questionnaire has two parts. The first part consists of items dealing with respondent’s profile. The second part consist items that are focused on assess and discuss objectives that listed in section 1.4. In chapter 1and the researcher presents those questions by using a Likert’s scale based on a scale 1 to 5 (a likert 5 type rating scale), with 5 strongly Agree, 4 Agree, 3 Neutral 2 Disagree and 1 strongly Disagree. As well as secondary data that were collected from MoND logistics different annuals evaluation reports, the department quarterly and monthly reports, plans, and other relevant documents.

3.6 Procedure of data collection

The procedure involved in the selection of individuals purposively for the interview included the following activities. First, identify 7 respondents for interview, three of them from logistics main department and four respondents from transport department those who have full information and experience concerning this study. Secondly to increase the response rate, the researcher adds 10% of the sample size, since we expect a non-response rate of 10% and distributed 186 questionnaires to respondents. Thirdly after individuals for the interview and for questionnaire have already identified, clear consent was given to them to understand the objective of the study and to give an attention on its importance.

Finally interview and questionnaire data were collected respectively and properly from the respondent by the redesign schedule.

3.7 Data quality management

The researcher assured and considered the following points in his procedure in order to meet the requirements of the objectives of this study.

3.7.1 Content Validity

Content validity test was conducted to ensure that the measure includes sufficient coverage of the investigated questions, meanwhile the face validity was conducted to validate the items of research questionnaire and to ensure that the items are more consistent. Before the main study the researcher carried out the pilot survey to minimize errors due to improper design elements, such as question wording or sequence. So it is important to discover confused interview instructions; learning and ensures validity of the questionnaire whether it is too long or too short of the information, the researcher was used Cronbach's Alpha pre-testing technique, by using a 20 small sub-sample, may determine whether the data collection plan for the main study is an appropriate one.

3.7.2 Scale Reliability

The researcher used both quantitative and qualitative research methods (Methodological triangulation) to check whether the conclusions from each of the methods have the same. In

the main study phase, the investigator was briefing respondents to give serious attention for respondents necessary information and completing the questionnaire presented and assure them their feedback will be keep secure. Questionnaire was modified from similar topic and then tested as described below.

Reliability test has been done to check whether the Questionnaire consistently reflect what it mean measure or not. For the test of reliability Cronbach's alpha was used as a measure of internal scale consistency using SPSS software version 20. As per the result found from the pre-test collected data the overall Cronbach's alpha is **0.883** which is acceptable reliability or it has high validity. According to Tavakol, M & Dennick, R (2011) there are different reports about the acceptable values of cronbach's alpha, ranging from 0.70 to 0.95. So based on the above result the scale is reliable.

Thus, in all units of transport department, the data collected by using questionnaire designed in Amharic. The Interview was conducted on transport department heads and unit leaders. Since the researcher believes that those respondents are highly knowledgeable and have better expertise on truck transport management practices.

3.8 Data analysis

In order to achieve the stated research objectives, the collected data was analyzed based on the nature of the study objective. After the data were collected, the data entry and cleaning had done as well as the researcher used a statistical package for the social sciences (SPSS 20) for the data analysis. And the result of the data analysis was presented by using tables, figures and charts. In order to have the required result the researcher used a descriptive statistics in terms of percentages, mean score, standard deviation, tables and graphs. To assess the awareness level of respondents about the concept of truck transport management practice and their professional competencies the researcher exerted high effort to carefully understand and interpret the information and use it together with the qualitative data.

3.9 Ethical consideration

Ethics had a great relevance in research work and the researcher considered ethical issues critically as much as possible. To this effect a letter of cooperation had written from logistics main department to the transport department concerned officials and practically those officials had shown unreserved support and cooperative to the researcher, because they were informed by the official letter. So participants had oriented about the importance of the research study and how they had completed the form. The researcher had informed participants the issue of confidentiality and highly secured on answering the questionnaires as well as the researcher give consent to respondents their response does not disclose for anybody without their consent.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION OF THE STUDY

PART I: Introduction Reliability test and demographic profiles

4.1 Introduction

The previous chapter had presented the design of research methods and ways including the rationale for undertaking the research using a mixed approach and data collection tools used. Thus, the quantitative as well as the qualitative analysis of data was incorporated to this chapter, the qualitative part was supposed to be complementary to the quantitative analysis. Hence the qualitative data gathered through interviews and open ended questions. In this study the following three research instruments were used namely, interviews, questionnaire, and observation. Where necessary, two or more instruments were used jointly to ensure that all the important information had been elicited.

Interview – a semi - structured interview schedules were developed and administered with seven (7) key selected department heads and unit heads that who have knowledgeable and experienced on the issue under this study. Thus, the selected interviewees were communicated by the researcher himself to be interviewed face-to-face to get further and reliable information, opinion, and attitudes of the respondents to enrich or help the data gathered by questionnaire.

Including 10% non response rates, 186 questionnaires were distributed, 185(99%) was returned, out of which 6(3%) were not correctly filled and rejected. Therefore 179 (96%) questionnaires were correctly filled and used for the study analysis.

As cited by Groves, R. M. (2006), Babbie (2007, p. 262) is bold enough to say, “A review of the published social research literature suggests that a response rate of at least 50% is considered adequate for analysis and reporting. A response of 60% is good; a response rate of 70% is very good”.

The chapter consists of two major parts, the first section deals with the demographic profile of respondents, and the second section presents the analysis and discussion of qualitative and quantitative main data.

4.2 Reliability Test

For the test of reliability Cronbach’s alpha was used as a measure of internal scale consistency using SPSS software version 20. As per the result found that, an overall Cronbach’s alpha over the total of 179 samples had shown below.

Table: 4.1 Cronbach's Alpha Reliability.

Reliability Statistics	
Cronbach's Alpha	N of Items
0.893	18

Source: SPSS Result, 2016

4.3 Descriptive Statistics

As, pointed out in the methodology part, the research design of this study was descriptive statistics. Descriptive statistics entail transformation of raw data into a form that would provide information to a set of factors in a situation. Thus, the profile of the respondents together with their perception about the topic of the study were presented, analyzed and interpreted under this section through descriptive statistics relating the objective of the study.

4.4 Characteristics of Respondents

In this section, respondents asked their background information like gender, field of study, work experience in year, military rank and educational qualification, and their current work positions described separately. The details of the characteristics of the respondents have shown clearly as follows.

Table 4.2: Gender of the respondents

Gender		Frequency	Percent
Valid	male	151	84.4%
	female	28	15.6%
	Total	179	100%

Source: own survey result, 2016

Table 4.2 indicated that, 84.4% of the sample respondents were males and 15.6% were females. This implies that the study consists of more male than female respondents and this not intentionally have done, because female respondents have given an equal chance to be selected, but the actual number of male in the target population was greater than the female in ministry of national defense transport department.

Table 4.3: Work experience in year

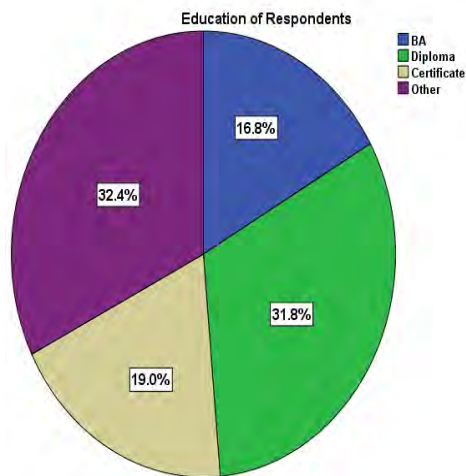
Work experience in years		Frequency	Percent
Valid	<5	24	13.4%
	5-14	12	6.7%
	15-20	25	14.0%
	21-25	43	24.0%
	26and above	75	41.9%
	Total	179	100%

Source: Own survey result, 2016

Concerning the respondent's service year in the organization described as follows, around 13.4% of the respondents had less than (<5) years work experience and about 6.7% of them had experience ranging from 5-14 years, 14% of the respondents had 15-20 years work experience, about 24% of the respondents have worked in the organization from 21-25 years and 41.9% have the highest work experience of 26 years and above. The result indicated that,

65.9% of respondents have above 20 years working experience in the department. This illustrates that the majority of respondents have a good work experience to perform their duties and responsibilities.

Figure 4.1 Educational level



Source: Own survey result, 2016

The educational level of employees shown as follows 30(16.8%) respondents were first degree holders, about 57(31.8%) of them were diploma level, 34(19.0%) of respondents in the study had certificate and TEVT and 58(32.4%) of respondents of the department were below certificate.

As concerning respondent's field of study, the following table, shows to what extent their profession is related with transport management and logistics functions.

Table 4.4 Respondents of on Field of Study

The Respondents field of study		Frequency	Percent
Valid	Transport management	6	3.4%
	POL management	2	1.1%
	Ordnance management	4	2.2%
	Supply management	12	6.7%
	Others	155	86.6%
	Total	179	100%

Source: Own survey result, 2016

What we observed from table 4.4, in relation to the extent of transport department educational back ground of employees related to transport, out of 179 respondents 6(3.4%) graduated in transport management, 2(1.1%) of them were graduate in petroleum, oil and lubricant, and about 4(2.2%) employees in ordnance management, 12(6.7%) of respondents have first degree on supply management and the rest 155(86.6%) of respondents were not directly related with transport or logistics field of study. This result indicated that most of respondents (86.6%) have worked traditionally and by experience but very small numbers which is 3.4% participants were graduate in transport management and 10% respondents graduated in supply management, petroleum oil and lubricant, ordnance management which is related to transport field of study.

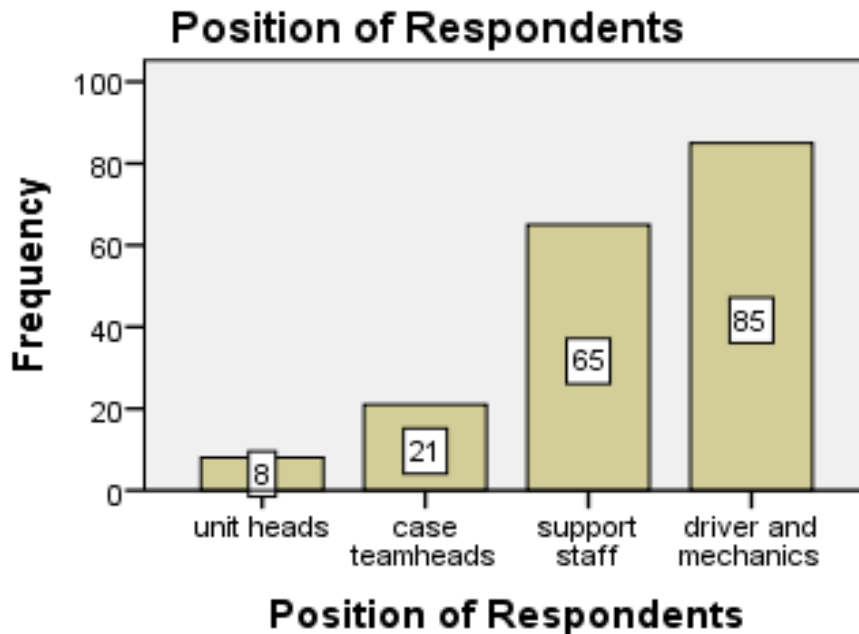
Table 4.5 Military Rank of Employees

		Frequency	Percent
Valid	Higher Officer	24	13.4%
	Middle Officer	78	43.6%
	NCOs	76	42.5%
	Private	1	0.6%
	Total	179	100%

Source: Own survey result, 2016

As table 4.5 above indicated that, the majority of respondents 78(43.6%) were middle officers (includes second lieutenant, Lieutenant and captain), and 76(42.5%) of respondents were non commissioned officers (NCOs), 24(13.4%) of respondents were higher officers (Majors- Full colonels), the last but not the least 1(0.6%) of employee was a basic soldier or private. This result indicated that NCOs and middle officers were the greatest number of the employees in transport department.

Figure 4.2 Positions of Respondents



Source: Own survey result, 2016

Figure 4.2 shows (47.5%) of the respondents were drivers and mechanics, 36.3% of them were support staff, about 11.7% of respondents had the responsibility of case team heads and 4.5% of respondent's positions were unit heads in transport department. This indicated that all employees had an equal chance to be selected in the study based on their proportion without bias but practically the researcher found that, the number of drivers and mechanics in transport department were greater than others professions.

PART: II Data analysis, desiccation and results

4.5. Truck Transport Management Practices

Principal methods and procedures of transport management practices to ensure quality of transport services across the Defense.

Table 4.6 Truck transport management practices

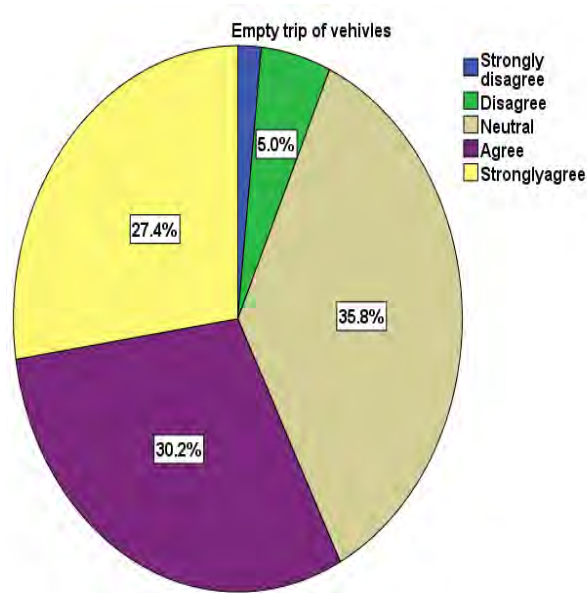
Principal methods and procedures of transport management practices in defense	SD = 1		DA = 2		N = 3		A = 4		SA = 5		Total
	F	%	F	%	F	%	F	%	F	%	
There is a clear monthly, quarterly and annual plan in the department	6	3.4%	10	5.6%	29	16.2%	93	52%	41	22.9%	100%
Subordinates have an opportunity to participate and share their ideas through developing each plan.	2	1.1%	30	16.8%	42	23.5%	75	41.9%	30	16.8%	100%
Orientation is clearly given to all department members on the prepared plan.	8	4.5%	27	15.1%	40	22.3%	67	37.4%	37	20.7%	100%
The department has a convenient contingent plan to meet the changing demands of the army.	6	3.4%	22	12.3%	38	21.2%	76	42.5%	37	20.7%	100%
Transport officers will receive timely feedbacks from internal and external service users to increase speed of transit.	9	5%	27	15.1%	63	35.2%	57	31.8%	23	12.8%	100%
Transport department has a strong principal cooperation with its stakeholders.	5	2.8%	19	10.6%	56	31.3%	64	35.8%	35	19.6%	100%
There is an empty trip while the vehicles return back.	3	1.7%	9	5%	64	35.8%	54	30.2%	49	27.3%	100%
Unit commanders usually check overall vehicle readiness whether they have fuel and necessary spare parts before dispatching.	5	2.8%	18	10.1%	28	15.6%	72	40.2%	56	31.3%	100%

Source: Own survey Result, 2016

Based on table 4.6, the researcher found that, 93 (52%), and 41(27.9%) of the respondents agreed and strongly agreed respectively on the question that stated, there is a clear monthly,

quarterly and annual plan developed in the transport department and similarly majority of respondents had positively responded on the presence of monthly, Quarterly, and annual plan in the department. while replying to the open-ended questions, 75(41.9%) and 30(16.8%) of respondents also agreed and strongly agreed on the research question stating, subordinates have an opportunity to participate and share their ideas through developing each plan, and about 104(58.1%) of the respondents agreed on the question stated, orientation is clearly given to all department members on the prepared plan,113(63.2%),of respondents agreed and strongly agreed on the question, department has a convenient contingent plan to meet the changing demands of the army and the rest respondents disagreed and neutral on this issue. The majority of respondents 36(20.1%), 63(35.2%) disagreed and not sure respectively on the question that, transport officers will receive timely feedback from internal and external service users to increase speed of transit. But about 80(44.6%), respondents agreed and strongly agreed on transport officers timely receive important feedback from users. About 99(55.4%) of respondents agreed on the question, transport practices in defense has a strong principal cooperation with its stakeholders and 128(71.5%) of respondents also agreed on the question stated, unit commanders usually check overall vehicle readiness whether they have fuel and necessary spare parts before dispatching for a given mission and lastly 103(57.5%) of respondents agreed and strongly agreed on the question, there is an **empty trip** while vehicles return back to their original departure. Vehicles empty trip in transport department has a significant inefficient of transport services in ministry of national defense. Then it is further described in the figure below as follows.

Figure 4.3 Empty trips of vehicles



Source; Own survey result, 2016

Figure 4.3 shows that, there is an empty trip of vehicles while they returned back to their departure place. So respondents were instructed to respond the question on a 5 point likert scale and indicate that strongly agree with the statement that is 5, Agree 4, Neutral 3, disagree 2, and strongly disagree 1. Based on this, about 54(30.2%) and 49(27.4%) of respondents had relied on agree and strongly disagree respectively on the empty running of trucks while they were returns back to their original place and 64(35.8%) of the respondents were neutral or not sure about the empty trip of vehicles and very less respondents 9(5%) and 3(1.7%) of them disagreed and strongly disagreed respectively on the empty trip of vehicles when returns back to their original place. From this point, it is possible to generalize that, in ministry of national defense transport department was inefficient utilization of truck transport management practice. Because most of the time vehicles move empty or without having load while returns back to their departure.

The researcher also further described the principal methods, procedures and transport management practices by mean score and standard deviation, to ensure quality of transport services across the defense force in the following table.

The mean value of principal methods, procedures and transport management practices to ensure quality of transport services across the defense described as follows.

Table 4.7 Mean Score of truck transport management practice

Truck transport practices to ensure quality service in ministry of defense	N	Mean	Std.d
There is a clear monthly, quarterly, and annual plan in the department	179	3.85	.949
Subordinates have an opportunity to participate and share their ideas through developing each plan	179	3.56	.994
Orientation is clearly given to all department members on the prepared plan	179	3.55	1.113
The department has a contingent plan to meet the changing demand of the army	179	3.65	1.046
Transport officers will receive timely feedbacks from internal and external service users to increase speed of transit.	179	3.32	1.042
Transport department a strong principal cooperation with its stakeholders	179	3.59	1.010
There is an empty trip while the vehicles return back	179	3.77	.966
Unit commanders usually check overall vehicle readiness whether they have fuel and necessary spare parts before dispatching	179	3.87	1.055

Source; Own survey result, 2016

From Table 4.7, majority of the respondents agreed on the question stated, transport department commanders usually check an overall readiness of vehicles whether they have fuel, spare parts and other necessary materials before moving to mission and there is a clear monthly, quarterly and annual plan in the department, there was an empty trip of vehicles and the department is taking in to account the chancing demand of users by the mean scores of 3.87, 3.85, 3.77 and 3.65 respectively. On the other hand, respondents agreed to a moderate extent or neutral on the question that, transport department has a strong principal cooperation with its stakeholders, subordinates have an opportunity to participate and share their ideas

through developing each plan, orientation is clearly given to all department members on the prepared plan and transport officers will receive timely feedbacks from internal and external service users to increase speed of transit as shown by the mean scores of 3.59, 3.56, 3.55, and 3.32 respectively. Thus, the result revealed that the mean score values for planning system, employees participating and sharing their ideas through developing each plan, setting contingent plan, receiving feedback from customers and cooperation with its stakeholders have above the moderate or medium mean value but although, this result is not bad the department give an attention to reach its result better than mean value of 4 and cloth to 4.5. As most interviewees and respondents on the open and close ended questionnaire agreed on vehicles empty trip in transport department and respondents agreed on the same question, by mean score value of 3.77. As a result, it brings cost or inefficient utilization of vehicles in transport department.

4.6 Professional competencies of managers and drivers in defense.

Table 4.8 Mean Score of professional competencies

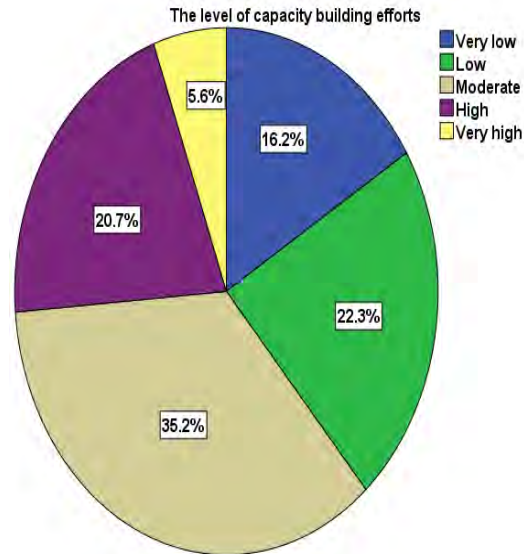
Professional competencies of managers and drivers of the department	N	Mean	Std. Deviation
Professional qualifications of respondents	179	3.39	.914
Employees performance based on skill and knowledge	179	3.61	.894
Level of understanding of employees on standard operating procedure	179	3.36	.922
Commitment of employees and leaders on enhancing their professional competencies	179	3.38	1.060
Performance of the transport department and unit heads	179	3.36	.958
To what extent the department capacity building efforts	179	2.77	1.121

Source: Own survey result, 2016

From table 4.8, the researcher sought to establish the professional competencies of managers and drivers that have been put in Place at defense truck transport management practices, the respondents were instructed to respond the statements on a 5 point Likert scale and indicate

that to what extent they agree with the statements that is: 5- Very high, 4- high, 3- Moderate, 2-low, 1- Very low. A mean (M) score of 0-1.5 means that the respondents answer agreed on very low, between 1.50 to 2.50 means they said low, 2.50 to 3.50 means the respondents were Moderate, 3.50-4.50 means they agreed on high, and a mean above 4.50 means the respondents very high. Based on the findings on Table 4.8, the professional competencies of managers and drivers that have been put in place by respondents in the defense transport department: Employees performance based on skill and knowledge (M=3.61, SD=.894), These professional competencies of managers and drivers in transport department had the mean scores greater 3.5 and therefore the respondents agreed with the professional competencies of managers and drivers in transport department. But, most of the respondents agreed on moderate mean value in the Professional qualifications of managers and employees with (M=3.39; SD=0.914), Level of understanding of employees on standard operating procedure with (M=3.36, SD=0.922), Commitment of employees and leaders on enhancing their professional competencies (M=3.38; SD=1.060), Performance of the transport department and unit heads (M=3.36,SD=0.958) and to what extent the department capacity building efforts with (M=2.77, SD= 1.121) so majority of respondents answer fall in between 2.77 to 3.39. This result indicated that, the mean score were an average neither low nor high but the mean score of capacity building efforts in the department was insufficient and weak as described in detailed by percentage, frequency and what respondents replayed in the interview as well as on the open ended questionnaire above. Let's see figure 4.4 below, further described the capacity building efforts of managers and drivers by the pie chart as follows.

Figure 4.4 Level of capacity building efforts



Source: Own survey result, 2016

In Figure 4.4 above, the level of capacity building efforts in transport department have shown mean score of 2.77 which indicated that below a medium mean score and moreover for this question (Figure 4.4 above) about 69(38.5%) respondents agreed on the low level of capacity building in transport department, 63(35.2%) of them responded that, it has moderate capacity building efforts and 47(26.3%) respondents agreed on high capacity building efforts in the transport department. Not only that but also an **interview** was conducted according to the predesigned questions. For this research interview helps to get necessary information directly from respondents. One of the prerequisites for undertaking interview is preparing interview guide questions. So to this effect, a semi-structured guide questionnaire was prepared in advance. Based on this point, the researcher also conducted an interview with selected officials about the capacity building efforts put in place by the national defense to ensure modern transportation services in all directions of the army. Thus, the researcher recorded and transcribes the responses of those officials and the result is as follows: The majority of interviewees said that, capacity building of the Army is taking as one mission and vision of defense theoretically. However, MoND have done limited activities such as establishing

different training centers, and colleges to carry out the capacity building of the army. As a part of this transport department have an access to train its employees but as most interviewees responded that, unless some usual efforts have done, no continuous training and effective capacity building had conducted to overcome the dynamism of today's military situation and problems in the real practice is observed especially on easily operating modern equipments and technologies. From this point, what the researcher found that, there is no parameter used to measure technical skills and whether they have good traits of drivers and other support staff in the department. Moreover the interviewees replied that, although the drivers have long time experience and they have performed their tasks effectively, almost all drivers have not graduated from high school. In this case the respondents suggested that there were gaps and shortfalls. From this point of view what we observed that, a limitation on correctly identified the principal way of *good capacity building* in transport department and it can be promptly addressed the principles, steps and main pain points for improving the direction of drivers and commanders permanent capacity.

4.7 Visibility and status of transportation management system in Ethiopian defense

Table 4.9 Mean score of Truck visibility and status management system

The visibility and status of overall truck transportation management system in defense	Very poor		Poor		Good		Very good		Excellent		Total
	F	%	F	%	F	%	F	%	F	%	
How do you rate transport officers using effective control mechanism on their responsibilities?	8	4.5%	33	18.4%	67	37.4%	54	30.2%	17	9.5%	100%
How do you rate the availability and utilizing modern technology of GPS, RFID and other equipments in each truck?	56	31.3%	60	33.5%	41	22.9%	19	10.6%	3	1.7%	100%
To what extent commanders focusing on the job training to build up employee's capacity and enhance their awareness?	27	15.1%	46	25.7%	54	30.2%	37	20.7%	15	8.4%	100%
How do you rate the attention of drivers in following safely rules while driving?	2	1.1%	10	5.6%	34	19%	83	46.4%	50	27.9%	100%

Source: Own survey result, 2016

As Table 4.9 above shown that 67(37.4%) and 54(30.2%) of respondents replied good and very good respectively on the question, transport officers performance and utilization of effective control mechanism towards their responsibilities, 56(31.3%) and 60(33.5%) of them responded that very poor and poor respectively on the question stated, availability and utilizing modern technology of GPS, RFID and other necessary communication equipments in each truck, 73(40.8%) of the respondents agreed on the poor execution related to the question, on the job training to build up employee’s capacity and limited up grading their awareness regarding new technology and 91(50.8%) of them said that, commanders in transport department have a good implementation of on the job training to build up employee’s capacity and their awareness in their tasks but they depend on previous technologies and 83(46.4%) and 50(27.9%) of the participants in the study replied very good and excellent respectively on safe driving and keep the rules of driving and also all **interviewees** were supported to the safely driving and well experienced truck drivers in Ethiopian ministry of national defense. In the same question let’s see how the visibility is specifically described in mean value and standard deviation as follows.

Table 4.10 Mean Score of visibility.

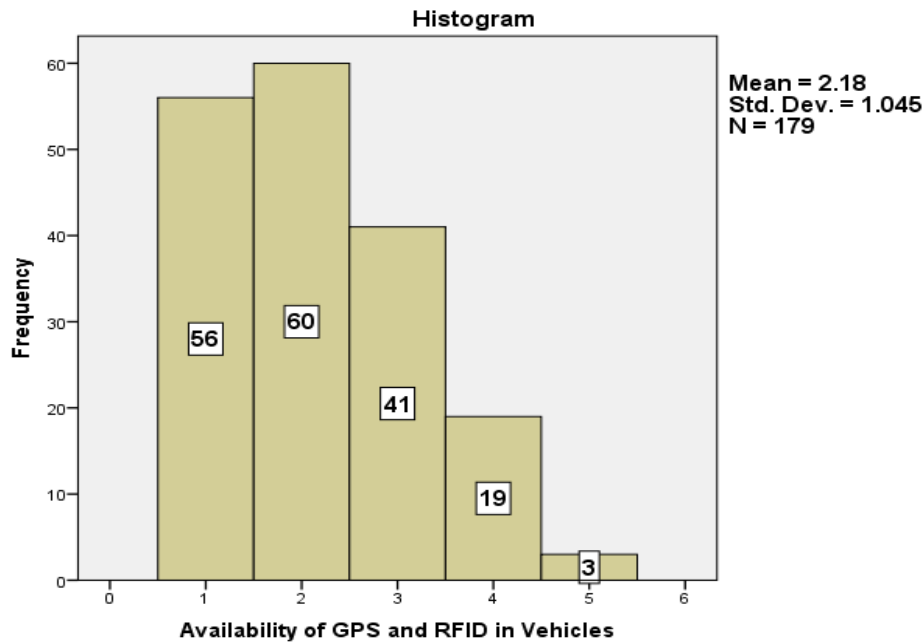
No	The visibility and status of overall truck transportation management system in ministry of defense?	N	Mean	Std.D
1	How do you rate transport officers using effective control mechanism on their responsibilities?	179	3.22	1.001
2	How do you rate the availability and utilizing modern technology of GPS, RFID and other equipments in each truck?	179	2.18	1.045
3	To what extent commanders focusing on the job training to build up employee’s capacity and enhance their awareness?	179	2.82	1.173
4	How do you rate the attention of drivers in following safety rules while driving?	179	3.94	.891

Source: own survey result, 2016

In order to see how commanders implement the visibility and status of overall truck transportation management system in defense the researcher gives 4 questions and here the

researcher were instructed to respond to the statements on a 5 point scale i.e. 1 =Very poor,2 = Poor, 3 = Good, 4 = Very good and 5 = Excellent and here the scale indicate a mean (M) score of 0-1.5 means that the respondents respond by saying very poor, between 1.50 to 2.50 means they it is poor, 2.50 to 3.50 means the respondents were Good, 3.50-4.50 means they Very Good, and a mean above 4.50 means the respondents say it is excellent. Therefore based on this from the above **table 4.10** we can say that the transport officers using effective control mechanism on their responsibilities with mean $M=3.22$ and $SD=1.001$ which is Good. And the same is true for commanders focusing on the job training to build up employee's capacity and enhance their awareness since the mean $M = 2.82$ and $SD=1.173$. What the researcher found that, the respondents agreed on very poor availability and utilizing modern technology of GPS, RFID and other equipment's in each truck. So, Mean $M =2.18$ and $SD=1.045$ and the awareness of drivers in following safety rules while driving is high with $M=3.94$, and $SD=0.89$. Accordingly, that the mean score indicated that visibility and on the job training of employees in transport department is below average mean value and this response of questionnaire respondents was cross checked with the interviewee result and surprisingly the same result was found hence as the interviewees responded that modern communication equipments such as global positioning system and radio frequency identification in defense truck vehicles transport system is not available or very poor and no advanced information systems is accessing . Therefore truck transport management practice of MoND is required modern technology to enhance visibility and since, it is a traditional controlling mechanism of truck transportation is implemented. As a result, commanders don't give the right and timely decision making, because of poor visibility and inaccessible timely and right information while vehicles were dispatching to mission and far away from their departure place. Let's see further described below especially on the gap of using GPS and RFID answered by the respondents.

Figure 4.5 Using GPS and RFID in Truck Vehicles



Source: Own survey result, 2016

Figure 4.5 have shown us, there is poor utilization of global positioning system and radio frequency identification in the real practice truck transport management in ministry of national defense. Since, the statistical survey result indicated us about 56(31.3%) and 60(33.5%) of the respondents agreed by saying very poor and poor availability of GPS and RFID in each vehicles respectively. A total of 54.8% respondents were saying no such kind of technologies used in every vehicle. So this result getting below an average mean value (M= 2.18). And also the majority of respondents in interview and in the open ended questionnaire agreed on unavailability of global positioning system and radio frequency identification in defense track transport management practice.

4.8 Challenges Facing the Practice of Truck Transport Management

As the majority of respondents replied on the main challenges facing the MoND transport management practice, no new technology were used in the department rather it used traditional way of data base registration system and most of the respondents replied that a problem on timely providing spare parts, based on this situation, vehicles needed to repair had stopped long time at garage. Moreover because of unserviceable car wash (lavajo), vehicles not washing after they came back to their departure and then this problem bring so many additional failures over them.

As the interviewees and respondents in open ended questionnaire responded that, the challenges faced by the department in implementing truck transport management system includes system compatibility and integration, limitation of cooperation from IT unit, user resistance and efforts to automate manual tasks, availability of timely spare parts and convenient infrastructure facilities, and ministry of defense rules doesn't allow its vehicles to shipping private freight.

4.9 Secondary Data Analysis

In the study document analysis was employed as a method of data collection. Relevant documents were identified and assessed by the researcher, how those documents well organized and recorded for the convenience of users to facilitate transport routine functions in the organization. The main documents used in the analysis include organization policies, reporting files, structures and guidelines for transport dispatching rules, regulations, periodical evaluation, plan of the department , list of serviceable and non-serviceable vehicles and other relevant models were used as sources of secondary data. To support the data collected by questionnaire and an interview for analysis, **field observation** had conducted by the researcher and focused on facility location, as a result, vehicles haven't parking and office facilities is not convenient, and data base filing systems is not available so the researcher observed poor filling system of necessary documents in transport department.

CHAPTER FIVE

SUMMARY, CONCLUSION, RECOMMENDATIONS AND SUGGESTIONS

5.1. Introduction

This study wants to assess the current truck transportation management practice and its major shortcomings of transport services in the Ethiopian ministry of defense. In this study the researcher give answer for the research questions, What are the specific principal methods and procedures used by the department of transport to ensure quality of transport services across the Defense?, What are the required professional competencies level of Managers and drivers to carry their duties and responsibilities?, How does the defense truck transportation department implements visibility and status of overall transport system? And what are the challenges facing in implementing truck transport management system? Therefore this chapter gives the, summary conclusions, recommendations, and suggestions for further research based on the results in chapter four.

5.2. Summary of findings

The results of the study provide important insights on truck transport management practice. Vehicle transportation plays a great role as force multiplier, sustainment and vital support to the Army and joint forces across the strategic, operational, and tactical levels of war. Transport support in Ethiopian ministry of defense had long time history and this unit is organized under logistics main department of the national defense. The FDRE ministry of defense policy has been prepared to create and develop the defense forces combat capability, and to use the existing combat power in any moment and situation leading our truck transport management activities in modernized and effective way.

The researcher looked for conceptual model of the smart transportation management system, intelligent transport systems, planning practices, professional competency of employees and over all truck transportation management practices provided under the Ethiopian national

defense transportation department with a view to point out strengths and weaknesses of the services for further improving it.

In order to achieve the study objectives, data were collected from the target population of logistics transport department employees and which processed in both quantitative and qualitative approach of descriptive research method.

From the demographic characteristics of respondents', the majority (84.4%) was male and the remaining (15.6%) were female participants. Besides, most employees who participated in the study survey were relatively ranging their work experience from 21 to 25 year 43(, 24%) and 26 and above years (41.9%). The greatest numbers of respondents who have 31.8% and 32.4% diploma and below certificate respectively educational level and the rest participants have 16.8% and 19% first degree and certificate respectively. Only 13.4% respondent's field of study has directly and in directly related with transport but 86.6% is not related with it. Rank of this survey participants were more between 43.8% middle officers and 42.5% non commissioned officers

The analyses result revealed that the mean score values for planning system, employees participating and sharing their ideas through developing each plan, setting contingent plan, receiving feedback from customers and cooperation with its stakeholders showed above moderate and good mean value but in the defense transport department there was an empty trip or under utilization of vehicles have indicated in their real practice.

The mean score of professional competencies of managers and drivers also indicated in medium but it needs more efforts to become better than the existed employee's professional competency and also the mean value of capacity building efforts getting below an average value, which is $M = 2.77$. Finally the mean value of visibility and on the job training of employees in transport department is 2.18 and 2.82 respectively and this result indicated that below an average score mean value and also the response of questionnaire respondents were cross checked with the interviewees result. Surprisingly the same result was found hence as the interviewees had responded that very limited and poor utilization of modern communication equipments such as global positioning system and radio frequency

identification in defense vehicles transport practices and no advanced information systems is accessing within it .

5.3. Conclusion

The research findings indicated that the principal methods and procedures of transport management practices to ensure quality of transport services across the defense includes developing clear monthly, quarterly and annual plans at all levels of the department. In developing the plan all subordinates in the department have an equal opportunity to participate. Once an agreed plan is set by the department, orientations are the major means of communicating the tasks in the plan for all members of the department. As strength, the department always prepares a contingency plan or “Plan B” in case new demands to execute arise for the army as local and global changes are fully unpredictable these days.

In order to boost transit speed, transport officers in this department receive timely feedbacks from both internal and external customers. Before dispatching the vehicles, unit commanders usually check an overall readiness whether the vehicles have fuel and necessary spares. Although the department tried to make cooperation and coordination among stakeholders, the findings of this study indicated that, there are gaps in implementing those plans and guidelines. Moreover it is also found out that, the department lacks adequate and appropriate planning to avoid problems related to empty trip of vehicles.

In this study, it is discovered that, there is an empty trip while the vehicles return back to their departure and often when they are moving to Djibouti. This indicated that there is underutilization of vehicles in the transport department. The research findings indicated unsatisfactory performances and less efficiency in this respect. Because the higher mean score value of empty trip is indicated that underutilization of truck transport management practices in the department.

The professional competencies of the managers and drivers, while carrying out their duties is found out to be adequate and very fair enough. Those managers and subordinates undertake

their duties and responsibilities are basically based on the way that they have prior knowledge and skills. i.e. most of drivers and other technical experts have a range of experience in the transportation service. Especially the drivers in the department have the required skill and knowledge that they gained through their long time experience.

Regarding the competencies of the department heads and unit heads, among total respondents very few of them have graduated from transport and other related function of logistics. Furthermore, the research findings indicated that, the capacity building efforts undertaken by the transport department to modernize its management system is not enough or below an average of the mean value. Only few and limited short and long regular training were given to employees. These trainings were not adequate for the employees to upgrade themselves in order to manipulate and familiarize with modern technologies. Generally speaking, on the management side, there is lack of adequate knowledge on how to implement the principal ways of good capacity building in in improving the effectiveness of the transport services

In the third basic research question, the availability and utilization of modern technologies in ministry of national defense, such as Geographic Information Systems, radio frequency identification, and other important communication equipments are very limited i.e. the control mechanism of truck transport management system in the MoND is very traditional. Accordingly, visibility of truck transport management practice is very poor and no timely information is being disseminated. As a result, the truck transportation practices in Army operations are less inefficient.

The challenges faced by the department in implementing truck transport management system includes system compatibility and integration, limitation of cooperation from IT unit, user resistance and efforts to automate manual tasks, availability of timely spare parts and inconvenient infrastructure facilities are the major factors which hinders the department not to provide effective transport services in full. Furthermore, the ministry of defense rules against allowing vehicles to carry private freight as well as the shortage of resources to implement and manage technological applications to modernize the practice is still among the major challenges.

5.4. Recommendations

According to the findings of the study, the researcher suggested the following points as plausible recommendations in the order of the seriousness of the problem.

Since, based on the study results, the researcher give the following recommendations; firstly by identifying the traits of drivers, a skill and knowledge gap; that enables the department to follow the right capacity building based on their gaps and it should have facilitates the required on the job trainings for both managers and subordinates based on their practical activities and the training should better to support by technologies such as simulators.

Effective capacity building is the result of the interplay between individuals, organizational, network and institutional factors. Therefore, in order to achieve the objective of human resource capacity building, the department should develop a comprehensive staff development plan and implement it effectively. It is better to develop the basic principles of capacity building and particularly it necessary to use group development principles as well as capacity building steps.

The department has to give an emphasis on developing data base recording system. Eliminating manual paperwork and developing more sophisticated transportation system are critical points that need deep emphasis

Secondly, to provide efficient and effective truck transport service in the Army, the department should exercise conceptual model of smart transportation management system. Since it help the department to adopt smart logistics setup, smart freight and smart transport management framework.

The MoND should revise its rules on truck transport systems to avoid cost inefficiency and the department should liaison with governmental organizations and other stakeholders in order to find market for those empty trips. As spare-parts and other operating costs for car become currently high and this kind of arrangement will assist to subsidize expenditures.

Thirdly, most of the activities in this department is done manually and there is gap in using the modern technologies in managing those truck transportation management practices; therefore the management should focus on using those modern technologies which helps in building efficient utilization of resources in this sector.

The department should focus on attaining real-time visibility of freight and assets - complete with performance metrics. Today's transportation providers can leverage global positioning system and radio identification technologies to achieve real-time visibility of the entire transportation operation. Good visibility brings the department an efficient and enables to have, advanced information systems which provide the real-time information for both transport officers and deliverymen to adjust their paths as new demands occur based on the dynamism of military situations.

Finally but strongly, the researcher recommend that other researchers in ministry of defense to conduct a more in depth study on the same or related topic of this study by using more preferably other methods of research like that of exploratory and using other research designs.

5.5. Suggestion for Further Study

The present study used only Ethiopian national defense logistics main department as a source of the data but in the future studies it should consider and expand the scope to include other stakeholder's which includes internal and external customers of this department.

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Annex -1. Information sheet and consent form English Version



ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE

LOGISTICS AND SUPPLY CHAIN MANAGEMENT DEPARTMENT

Information sheet, assessment on truck transportation management practices in Ethiopian ministry of national defense logistics main department, **transport department** in Addis Ababa.

The Principal Investigator: Tsegay Abadi Kidane.

Organization: Addis Ababa University

Sponsor: Defense University College

Introduction: This information sheet and consent form is prepared by the investigator whose main objective is to conduct an assessment on truck transportation management practices in Ethiopian ministry of national defense logistics main department. The investigator is MA student from Addis Ababa University School of Commerce logistics and supply chain management department.

Purpose: The main objective of this study is to assess the current truck transportation management practices and the major shortcomings of transport services in the Ethiopian ministry of defense logistics transport department and to investigate how this problem influence the logistical service effectiveness in Ethiopian armed forces. There for the finding of the study will help to know the current practice of truck transportation management and to identify the gaps to suggest possible solutions that contribute to the betterment of transport service in defense force.

Procedure: In order to assess the current truck transportation practice and the major shortcomings of transport services in the Ethiopian ministry of defense logistics main department in transport department Addis Ababa, the researcher invited the respondents to take part in his study. If you are willing to participate in the researcher's study, you expected to understand and sign the

Consent form. Then, you will be asked to give your response to the data collectors. For this questionnaire based study, participants are the samples selected from transport department.

Risk and/or Discomfort: By participating in this study you may feel that some discomfort specially on wasting your time. But this may not be too much as you compare to maintain effective transportation service that your openly response contributes to overall success of defense force combat operations.

Benefits: while you participate in this research study, you may not get direct benefit but your participation is going to help the objective an assessing on truck transportation management practice in Ethiopian defense force logistics transport department Addis Ababa,

Incentives: You will not be provided any incentives to take part in this project.

Confidentiality and Anonymity: The information that the researcher will collect from this research study will keep confidential. Information about you that will be collected from the study going to store in a file, will not your name on it, but a code number assigned to it. Which number belongs to which name will keep secured, and it will not be revealed to anyone except the principal investigator.

Right to Refuse or Withdraw: You will have full right to refuse from participating in this research (you can choose not to respond some or all of the questions). You have also the right to withdraw from this study at any time you wish to.

Persons to contact: If you have any question you can contact the following individual and you may ask at any time you want.

Tsegay Abadi Kidane : Addis Ababa University

- Tel: +251 914768804 and
- E-mail: last21yr@gmail.com

I the undersigned here read or have been read to me and I understand the research, the benefits, risks and procedures. Also I have been given the opportunity to ask questions about the research. I understand that I have the right to withdraw my consent at any time without any consequent penalty or loss of anything. I am assured that the information I gave will be kept confidential.

Name of Volunteer

Signature

Date

Annex 2: Questionnaires and Interview Guide English Version

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE
LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Questionnaire to be filled by Respondents

Dear respondents:

I would like to express my deep appreciation for your cooperation and honesty in answering the following research questions. The aim of collecting information and data through this Questionnaire is to conduct academic research on the title **“Practice of truck transportation management system in the national defense logistics main department: the case of transport department”** for the partial fulfillment of MA degree in Logistics and supply chain management. Your critical response has a great role to the outcome of the study. Thus you are requested to completely and objectively answer all questions. And I confirm that your answers will be used only for academic purpose with complete confidentiality, and it will be entirely anonymous. Finally I thank you one’s again in advance for your time and indispensable cooperation.

Instruction: - Before answering the questions please read the instructions;-

Don’t write your name in the answering sheet

Please try to answer the following questions openly by marking as (√) to the space provided along each questions according to your point of view on the following demographic information and likert five scale questions as per the specified choices below.

Tsegay Abadi

Graduate Student at AAU

E-mail last21yr@gmail.com

Mobile No = +251914768804

PART I

1. Demographic Information

Gender/Sex Male Female Field of Study -----

Work experience in transport(in year)	Rank	Education	Position
Less than 5 <input type="checkbox"/>	General officer <input type="checkbox"/>	Master & above <input type="checkbox"/>	Dep't Commands <input type="checkbox"/>
5 -10 <input type="checkbox"/>	Higher officer <input type="checkbox"/>	BA/B.sc <input type="checkbox"/>	Unit Heads <input type="checkbox"/>
11 – 15 <input type="checkbox"/>	Middle officer <input type="checkbox"/>	Diploma <input type="checkbox"/>	Case team Heads <input type="checkbox"/>
16- 20 <input type="checkbox"/>	NCO <input type="checkbox"/>	Certificate/TEVT <input type="checkbox"/>	Support Staff <input type="checkbox"/>
21 & Above <input type="checkbox"/>	Private <input type="checkbox"/>	Other <input type="checkbox"/>	Driver & Mechanic <input type="checkbox"/>

PART II: Questionnaires focusing to the practice of truck transport management system in defense logistics main department the case of transport department

Q1.What is the principal methods and procedures use to ensure quality transport services across the Defense?

Key:- 1 = Strongly Disagree 2 = Disagree 3 = neutral 4 = Agree 5 = strongly Agree

No	Items	1	2	3	4	5
1.1	There is a clear monthly, quarterly and annual plan in the department.					
1.2	Subordinates have an opportunity to participate and share their ideas through developing each plan.					
1.3	Orientation is clearly given to all department members on the prepared plan.					
1.4	The department has a convenient contingent plan to meet the changing demands of the army.					
1.5	Transport officers will receive timely feedbacks from internal and external service users to increase speed of transit.					
1.6	Transport department has a strong principal cooperation with its stakeholders.					
1.7	There is an empty trip while the vehicles return back.					
1.8	Unit commanders usually check overall vehicle readiness weather they have fuel and necessary spare parts before dispatching.					

Q2. About professional competencies of managers and drivers

Key: - 1 = Very low 2 = Low 3 = Moderate 4 = High 5= Very high

No	Items	1	2	3	4	5
2.1	To what extent the level of qualified professionals are available at the department?					
2.2	What is the extent of employee's performance based on knowledge and skill to undertake their duties and responsibilities?					
2.3	How do you measure your level of understanding on your standard operating procedure?					
2.4	How do you measure the commitment of commanders and subordinates to enhance their professional competencies?					
2.5	How do you rate the performance of department and unit heads?					
2.6	What is the level of capacity building efforts undertaken by the transport department to modernize its management system?					

Q.3 How commanders implement the visibility and status of overall truck transportation management system in defense?

Key:- 1 =Very poor 2 = Poor 3 = Good 4 = Very good 5 = Excellent

No	Items	1	2	3	4	5
3.1	How do you rate transport officers using effective control mechanism on their responsibilities?					
3.2	How do you rate the availability and utilizing modern technology of GPS, RFID and other equipments in each truck?					
3.3	To what extent commanders focusing on the job training to build up employee's capacity and enhance their awareness?					
3.4	How do you rate the attention of drivers in following safety rules while driving?					

Q4. Challenges on truck transport management practice:

You can freely express your feeling and experience for the following open ended questions, please indicated the number and use back of this paper if the space provided under each question is not sufficient for your response.

4.1 What are the main challenges facing on implementing truck transport management system in defense? Please be write your opinion -----

4.2 Do the vehicles carry full load while they moving and returns back? Please feel free to forward your suggestion in this regard here under.-----

4.3 List out some of the efforts make to overcome the challenges.-----

Interview Guide Questions

1. How do you describe the capacity building efforts put in place by the national defense generally to ensure modern transportation?
2. What are the main leadership challenges on capacity building practices of the transport department?
3. Do you think that the transportation dep't organizational structure accommodates all the relevant organs and how performs principal methods of truck transport management practice?
4. Are there any standards operating procedure or benchmarks used in ensuring the transport service delivery?
5. What methods and procedures does the department use to ensure quality of its transport service and to manage empty trip?
6. Would you exercise to develop traits and skills needed to the employee's for maintain sustainable transportation service and to enhance its visibility in the Army? If yes, what do you think the major factors and how implement it?
7. Do you think drivers and commanders professionally competent and happy while they perform their task at any time?
8. What possible recommendations do you forward to alleviate the problems (challenges)?

Thank you so much for your cooperation!!