



St Mary's University School of Graduate Studies

CONTRIBUTION OF MULTIMODAL TRANSPORT OPERATION SYSTEM TO
PERFORMANCE OF ETHIOPIAN SHIPPING AND LOGISTICS SERVICES ENTERPRISE

By

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January, 2018

Addis Ababa, Ethiopia



ST MARRY UNIVERSITY OF SCHOOL OF GRADUATE STUDIES
INSTITUTE OF AGRICULTURE AND DEVELOPMENT STUDIES

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PERFORMANCE OF ETHIOPIAN SHIPPING AND LOGISTICS SERVICES
ENTERPRISE

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ID :- SGS/0488/2008A

A THESIS SUBMITTED TO ST MARRY'S UNIVERSITY SCHOOL OF GRADUATE
STUDIES IN PARTIAL FULFILLMENT OF THE REQUIRMENTS FOR THE
DEGREE OF MASTER DEVELOPMENT ECONOMIS

January, 2018
Addiss Ababa, Ethiopia

Board of Examiners

As members of Board Examiners of the master thesis open defense examination, we certify that we have read and evaluated the thesis prepared by Wubeshet Demissie and examined the candidate. We recommend that this thesis be accepted as fulfilling the thesis requirement for the Degree of Master Development economics.

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DECLARATION

I, Wubeshet Demissie, announce this research paper entitled “Contribution of Multimodal Transport Operation System to performance of Ethiopian Shipping and Logistics Services Enterprise” is my own and I dare to say original research work that has not been produced by others in any other universities for any other requirements in any form. To this end, I acknowledged all sources of information that I used to produce the study appropriately and I would say perfectly.

Declared by

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ENDORSEMENT

This to certify that Wubeshet Demissie has carried out her thesis work on the topic entitled “Contribution of Multimodal Transport Operation System to performance of Ethiopian Shipping and Logistics Services Enterprise” under my guidance and supervision. Accordingly, I here assure that her work is appropriate and standard enough to be submitted for the award of Master of Arts in Economic Development.

Gommeraw Adinew (Ph.D.)

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ACKNOWLEDGMENT

I am using this opportunity to express my gratitude to everyone who supported me throughout the research project. It is difficult to thank all those people and institutions that have helped me in accomplishing my thesis research work, but the following deserve a special mention. Accordingly, I would like to express my gratitude to my advisor Gomoraw Adinew (PD) for the useful comments, remarks and engagement through the learning process of this master thesis. Furthermore I would like to thank my wife Semrawit Gizaw for supporting and understanding me in every life aspect and entire process. Also, I like to thank Ethiopian Shipping and Logistics Services Enterprise who have willingly shared their precious time during the process of interviewing and filling the questionnaires.

Above all, I extend my special thanks to the Almighty God for everything of merits is due to his benevolence.

LIST OF ABBREVIATION

ACIS:- Advance cargo information system

APEC:- Asia Pacific Economic Commission

ASYCUDA:- Automated system for custom data

CLT:- Container lifting truck

DWT:- Dead weight loss

EDI:- Electronic data interchange

ESL:- Ethiopian shipping line

ESLSE:- Ethiopian shipping and logistics services enterprise

FDI:- Foreign direct investment

ICC:- International chamber of commerce

LLDC:- Landlocked developing countries

LPI:- Logistics performance index

MMTO:- Multimodal Transport Operation

MT:- Multimodal transport

MMTOS:- Multimodal Transport Operation System

MMTS:- multimodal transport system

NVO-MTO:- Non vessel owned multimodal operator

OCED:- Organization for economic cooperation development

RORO:- Roll on roll off

TEU:- Twenty fit equivalent unit

UNCTAD:- United Nations Council on Trade and Development

UNESCAP:- United Nations Economic and Social Council, Economic Council for Africa

VO-MTO:- Vessel owned multimodal transport operator

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ABSTRACT

The multimodal system is an optimization process of the location, movement and storage of resources from the point of origin, through various economic activities, to the final consumer. The practices and developments trying to maximize or optimize the benefits of multimodal transport system vary in different parts of the world. In Ethiopia Multimodal Transport is considered as solution's for coastal access to Djibouti port, import and export, technology transfer, infrastructure development, employment opportunity, development of other sector, human capital, and others but much is not done physically on the ground.

The objective of the study was to assess the contribution of MTOS with the aim of identifying the key benefits, potentials and constraints for optimization of its benefits for development of effective and efficient logistics system and trade competitiveness. To meet this objective, descriptive research methodology was applied and qualitative and quantitative assessments were made. Information from primary and secondary sources was used to carry out the assessment through interview, observation and questioners.

The key identified contributions are combined state and private transport to solve import cargo mobility, employment and income opportunity to citizens, support foreign direct investors and improved financial performance of AEO, save foreign currency, decrease demurrage cost, Source of income, expand dry port and performance and improved cargo transport operation and reduced handling cost. The major factors that hinder operation of multimodal transport operations are foreign currency problem, lack of modern ICT and transportation infrastructure in size and number, lack of competent professionals in the organization, lack of good governance and absence of competition.

The study suggests that in order to improve the services of MTS encourage competition between private operators and the ESLSE, the government or Ethiopian Maritime Affairs Authority is recommended to produce the possible new law or/and proclamation which requires private potential MMT Operators to be established at the national level for developing and maintaining competitive advantage.

Keywords: Multimodal Transport system, Ethiopian shipping and logistics services enterprise, Performance.

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

In recent decades, globalization and technological developments have changed the approach to production, trade and transportation, both in developed and in developing countries. This trend has resulted in a continuous shift of manufacturing to countries offering a competitive advantage. Thus, logistics has become an important value-added service in the global production and marketing of goods. The World Bank's LPI (2010) indicates that 'countries at the same level of per capita income with the best logistics performance experience additional growth of 1% in Gross Domestic Product (GDP) and 2% in trade'. According to Ferrantino and Arvis et al (2013) Trade and transport facilitation are at the core of stimulating economic development.

World Bank measures logistics performance of countries across the world in six key dimensions every two year since, 2007 with the aim of informing the debate on the role of logistics for growth and the policies to support it in such areas as infrastructure, service provision, and cross-border trade facilitation. According to *Connecting to Compete 2014*: Germany was best performing country with an LPI score of 4.12, and Somalia as the worst with 1.77 (on a scale of 1 to 5). Ethiopia was 104 with the LPI score of 2.59 from LPI score of 2.24 in 2012 (World Bank, LPI, 2014).

Multimodal Transport was applied in most international transport operations due to Container (Cullinane, *et al*, 2005). Ethiopia is a landlocked country experiences problem while transporting its goods to and from the ports of Djibouti, with the aim of improving the flow of goods between Djibouti port and dry ports in Ethiopia, Ethiopia implemented "multimodal" transport system since, January, 2011(Fortune, 2012).

The Ethiopian Shipping and Logistics Services Enterprise (ESLSE) is vested with the huge responsibility of rendering sea-transport & logistics services to the country's importers, exporters, and investors in a more effective and efficient way, by reducing transit time and cost. Researchers have attempted to evaluate logistics services of ESLSE. According to Fekadu

(2013), Ethiopian logistics system is characterized by poor logistics management system and lack of coordination of goods transport, low level of development of logistics infrastructure and inadequate fleets of freight vehicles in number and age, damage and quality deterioration of goods while handling, transporting and in storage.

According to (Debela, 2012; Tadesse, 2006) Ethiopia's freight transport practice is characterized by underdeveloped and fragmented management system, inadequate and inappropriate fleets of vehicles and truck, poor transport and lack logistics infrastructure. High accidents which is ranked among the worst in the world and congestion in cities at inlets/outlets of cities, lack of coordination of goods transport, damage of goods and quality deterioration due to inappropriate storage, packaging, and transpiration(Debela, 2012; Tadesse, 2006).

On the contrary ESLSE in 2016 reported the MMTS is implemented for 98% of Ethiopia's imports and exports and saved more than 700 million US Dollar annually paid for Container Demurrage to Djibouti government. In addition, Ethiopian LPI score decreased from 2.41 in 2010 to 2.24 in 2012 and increased to 2.59 in 2014 World Bank LPI (2014). The number of containers processed through the multi modal system reached more than 70,000 TEUs per year in the 2016 from 12,337 TEU in 2013. The number of containers processed in the seven dry ports operated by ESLSE is 19,822 TEU at a time in 2016 from 4,000 TEU at a time in 2013.. According to ESLSE over 1.2 million tons of cargos have been transported on sea by the companies owned and charter ships. Along these shipment 30 thousand TEU and over 2 thousand 4 hundred RO-RO cars have been moved using multi-modal transport service and the enterprise has earned 4.1 billion birr revenue from sea transport, freight forwarding and port and port related services (<http://www.eslse.com>).

The Multimodal Transport aim of ESLSE is improving the flow of goods between Djibouti port and dry ports in Ethiopia. Problems relate to logistics lead to high transport costs and long transit times. Therefore, evaluation of ESLSE performance is more important because the developmental government organization and the only vessel owned Multimodal Transport operator due to logistics is an input to economic sector like industry, commerce and so on. The gap identified was what the contribution of multimodal operation system to ESLSE performance. In this research thesis attempt will be made to identify key contribution of Multimodal Transport to performance of ESLSE since 2011 to indicate for the optimum utilization of the benefit and open way for another research conducted in this area by economics students.

1.2. Statement of the problem

International trade is one of the most important economic activities which can make a lasting impact for the prosperity and wellbeing of a nation. It boosts development and reduces poverty through investments and job creation. Well-functioning logistics, both domestically and internationally, is a necessary precondition of national competitiveness (Arvis, et al., 2014). The delivery of efficient and effective logistics and transport services is essential for economic development for any country. According to World Bank, LPI (2014), Logistics performance is strongly associated with the reliability of supply chains and the predictability of service delivery available to producers and exporters.

Landlocked countries face a cost and time penalty compared with their coastal neighboring countries (Arvis et al, 2012). Multimodal transport services is prerequisite for competitiveness in a globalized economy for many landlocked countries at the same time logistics and multimodal services is growing in line with increasing demands for faster, more frequent, reliable and secure deliveries (UNCTAD, 2003).

According to Fekadu (2013), on the assessment made about Logistics practice in Ethiopia, he summarized in his study that Ethiopian logistics system is characterized by poor logistics management system and lack of coordination of goods transport, low level of development of logistics infrastructure and inadequate fleets of freight vehicles in number and age, damage and quality deterioration of goods while handling, transporting and in storage. According to Tadesse and Girma (2015) on the evaluation of multimodal summarized: majority of the customers were not satisfied with delivery and documentation performance and cost and convenience service performances. In contrast, employees evaluated their organization positively on many performance indicators. The comparative analysis made with “uni-modal” approach for customers indicated that the “multimodal” system which was supposed to improve the service performance did not even satisfied customers as much as the “uni-modal” approaches on majority of the performance indicators used in this study.

According to Alderton (1995), the multimodal system is ‘an optimization process of the location, movement and storage of resources from the point of origin, through various economic activities, to the final consumer’. An integrated movement of freight that involve at least two modes of

transport under a single through rate with a goal of providing seamless transport system from point of origin to the final destination under one billing and liability is known as intermodal transport (Brewery, et al ,2001). Multimodal transport is an increasingly indispensable element of customized logistics services, which link up both domestic and global production and market places through the interconnectivity of and between modes of transport Jacoby and Hodge (2008). Improvements in multimodal connectivity are immediately enjoyed by the direct users. The potential benefits to shippers are explained by Jacoby and Hodge (2008).

Multimodal in Ethiopia at infant stage compared to other countries. ESLSE implementation of multimodal targets for seamless, low cost, and maximum customer convenient transporting of imported goods from Djibouti to dry ports in Ethiopia and the reverse flow in case of exported goods. According to World Bank LPI 2014 Ethiopia reached 104 (2.59 LPI score) out of 166 economies from 141 (2.24 LPI score) out of 155 economies in 2012. The situation gets improvement after the implementation of multimodal system. Besides to this ESLSE reported Multi Modal system will be in effect for goods passing through Port Djibouti which accounts for 98% of Ethiopia's imports and exports and saved more than 700 million US Dollar annually paid for Container Demurrage to Djibouti government. That is the number of containers processed through the multi modal system reached more than 70,000 TEUs in the 2016, up from 12,337 three years earlier. The number processed through the seven dry ports was reached 19,822 TEU in the current fiscal year – more than a four-fold increase from a mere 4,000 three years before and the number of dry ports reached 7 in number with increased capacity. In addition to this many employment opportunity was created.

Studies made in this field tried to show the poor performance of Ethiopian logistics services practices and low customer satisfaction on Multimodal Transport system. Researchers made on Multimodal are not assessed and evaluated interims of its direct and indirect economic benefits. So assessing the contribution of MMTO by identifying the major services provided by MTO is important for further practices in development economics field. Therefore, this research tries to describe major services provided by MTO and what is its contribution to ESLSE performances by assessing the key contribution of MMTO in order to optimize the benefits. This research expected to provide knowledge about the contribution of implementation of multimodal transport operation to performance of ESLSE in particular and Ethiopian economy in general by answering research questions to identify their relationship.

1.3. Research Questions

- What are the major services provided by MTO?
- What is the contribution of MTO to Logistics Performance?
- What is the contribution attained from the operation of Multimodal Transport Operation?
- What are the major factors affecting multimodal transport operation system in Ethiopia and which multimodal transport requirements are not provided by ESLSE and Ethiopian government?

1.4. Objective of the Study

1.4.1 General Objective

The general objective of this study is to identify the key contribution of multimodal transport operation system to ESLSE logistics performance in particular and Ethiopian economies in general since implementation of Multimodal transport operation, since January, 2011. By clearly define the multimodal transport objectives, highlight its inherent benefits, level of development.

1.4.2 Specific Objective

This research has the following specific objectives to achieve its general objective.

- ✓ To describe the major services of multimodal transport operation and its performance
- ✓ To assess the key contribution of multimodal transport operation to logistics performance
- ✓ To assess the overall contribution of multimodal transport operation system

1.5 Significance of the study

This study emphasized on the contribution of multimodal transport operation system on ESLSE logistics performance and its spillover effect in the other economic sector. An effective multimodal transport system will bring short-term benefits to local traders and transport operators, as well as longer-term consequences in the structural changes of a country's transport and international trade development.

Therefore the outcome of this study will help the ESLSE to identify the key benefits from multimodal transport operation and it helps improve practice to optimize benefits of MTOs. In addition the policy makers, academicians, researchers, and potential service users who directly or

indirectly involve in the multimodal transport operation would be benefited from this study if they make use of the outcome. Finally this study provide knowledge about Logistics is major economic activity and the contribution of implementation of multimodal transport operation and helps as an input for future researchers of economics field of study and expands knowledge about logistics performance index and its components.

1.5. Scope and Limitation of the Study

Although this study focus on identifying key contribution of Multimodal Transport System in Ethiopian Shipping & Logistics Services Enterprise it is acknowledged that this study have some limitations and there is enough room for further study. The major limitations of this study are as follows: Firstly, these studies only focus on a Multimodal Transport and hence, results from this study cannot be generalized to overall Logistics Performance Index. Secondly, the study is based on available information from secondary and primary sources. Accuracy of the study depends on provided information but adequate attention is given to reliability and validity of the research by persuading respondents about the importance of their response on the validity of this work and through crosschecking different literatures together with random observations. Finally, collecting well organized data for a different year about the logistics activities undertaken by all stakeholders is difficult and lack of time in and data are limitation to this study.

1.6. Organization of the study

The research is divided into five chapters. The first chapter contains introduction of the study, which consists of background of the study, problem statement, and purpose of the study, research question, and significance of the study, limitations and direction for further research and organization of the study. The second chapter deals with the theoretical framework of the study of different authors about the multimodal concepts and contribution. Attempts would have been made to see the need for multimodal transport operation benefits with the objective of optimization of benefits. The third chapter deals with the research methodology to be used in the study together with ethical consideration. In the fourth chapter, the researcher tries to present result and data analysis and interpretation concerning multimodal transport contribution and related issues. The final chapter would have concentrate on summary, conclusion and recommendation on the overall study based on the analysis of collected data.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Theoretical Literature

2.1.1. Concept of Multimodal Transport

International multi modal transport means the carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place in one country at which the goods are taken in charge by the multi modal transport operator to a place designated for delivery situated in a different country (United Nation Convention on International Multimodal Transport Of Goods, 1980). According to Alderton, (1995) the multimodal system is ‘an optimization process of the location, movement and storage of resources from the point of origin, through various economic activities, to the final consumer’. An integrated movement of freight that involve at least two modes of transport under a single through rate with a goal of providing seamless transport system from point of origin to the final destination under one billing and liability is known as intermodal transport(Brewery, et al ,2001).

As a modern efficient organization mode of transport, multimodal transport is characterized with one striking feature of ‘one charge, one document, and entire trip liability’ (Sino-Dutch Joint Committee, 1998, 12). A multimodal transport operator is responsible for the fulfillment of the multimodal transport contract and charges the shipper only once for the freight of the entire trip. Only one contract of carriage, a multimodal transport document, is used for the entire trip. According to Janic (2001) stated that intermodal, combined, and multimodal transports are terms used generally with freight transport.

According to Ballis and Golias (2003) “multimodal” transport is a system of transporting freight with a minimum of two different modes of transport in an integrated manner. Multimodal Transport system helps improve trading efficiency, transforming the relation between international carriers and trading partners UNCIMTG (1980). According to ESLSE (2011) Multimodal Transport is transporting of imported and exported goods by using two and more modes of transport under a single contract.

Multimodal Transport is characterized by the following facts (Xu Gubin, 1999) :

- ✓ It is a **Service Activity**:- which refers to the carriage of goods under a transport contract between the multimodal transport operator (the MTO) and its client (Alderton, 1995)
- ✓ It is a **Commercial Activity**:- which should be performed by qualified international transport operators and which, therefore, requires a legal framework to ensure minimum standards in the provision of services and some protection of the interests of the various commercial parties involved (UNCIMTG, 1980);
- ✓ It is an **International Activity**;- by which goods pass from one country to another and use various transportation modes, involving different fiscal regimes and responsibility regimes, which must be harmonized. (UNCTAD Secretariat, 1994b).

Multimodal transport is a service innovation by which the MTO assumes a contractual responsibility to move goods from a point of origin to a destination under a transport contract, for an agreed price with a time-limit for the delivery (UNCTAD Secretariat, 1994b). This service innovation ensures that the goods will move to their destination as fast and securely as possible, at a cost known in advance (UNCTAD Secretariat, 1994b).

According to Gubin (1999) Features of multimodal transport are:-

- **Reduced Door-to-door Transport Time.** By multimodal transport, transport operations are always carried out at a faster speed, which reduces the total transit time. One of the major reasons for this is that since there is only one operator, i.e. MTO, in charge of the whole transport, he is capable of intercepting the cargo whenever there is a change of mode and ensuring that this change is affected without delay. There is also another reason which might account for the fastest possible delivery by the MTO. He wants the container to come back as soon as possible after the delivery of cargo so that he can have a higher utilization ratio of the container and eventually earn more freight. (UNCTAD, 1997).
- **Cost-effectiveness.** By utilizing multimodal transport, both MTOs and shippers will be able to have an idea about the total transport cost before the transport actually commences. This will ensure an effective control of transport cost. The reduction of transit time by multimodal transport will also lead to a reduction of financing costs,

simply because the interest payment period will be made shorter after the transit time is shorter (UNCTAD Secretariat, 1994b).

- Reliability. Since being closely controlled by a single operator, i.e. MTO, seamless transport is guaranteed at each stage of the multimodal chain. The transport process is thus made more reliable. As a result, breakdowns in the supply or distribution process are reduced to a great extent, which will lessen the need for safety or buffer stocks for shippers or consignees. (UNCTAD Secretariat, 1994b,).

In order to eliminate the possible confusions which might occur when considering the transport of goods on one document by more than one mode of transport, it is necessary to distinguish between multimodal transport and the various types of transport as follows: Multimodal Transport: if the carrier that organizes the transport takes the responsibility for the entire transport, he issues a multimodal transport document (Castro, 1996). Segmented Transport: if the carrier that organizes the transport only takes responsibility for the portion he is performing himself, he may issue an intermodal bill of lading (Castro, 1996). Unimodal Transport : is the transport of goods by one mode of transport by one or more carriers(Castro, 1996). If there is only one carrier, he issues his own transport document, e.g. a Bill of Lading, an Air Waybill, a consignment note, etc. If there are more than one carrier, for example, carriage from one port via another port to a third port with transshipment at an intermediate port, one of the carriers may issue a “through bill of lading” covering the entire transport. Combined Transport: is the transport of goods in one and the same loading unit or vehicle by a combination of road, rail and inland waterway modes (Castro, 1996). And Intermodal Transport: is the transport of goods by several modes of transport from one point or port of origin via one or more interface points to a final port or point where one of the carriers organizes the whole transport. Depending on how the responsibility for the entire transport is shared, different types of transport documents are issued. (Castro, 1996).

Multimodal transport is therefore a concept which places the responsibility for transport activities under one operator, who then manages and co-ordinates the total task from the shipper’s door to the consignee’s door, ensuring the continuous movement of the goods along the best route, by the most efficient and, cost-effective means, to meet the shippers requirements of delivery. This means simplified documentation, and increasingly by electronic means such as electronic data interchange (EDI). The goal of intermodal transport is to provide seamless

transport under one billing and common liability on the whole movement from origin to destination also noted that an intermodal transport as an alternative to reduce environmentally hazardous emissions through using less road transport.

Intermodal transport concept is just at its infant stage in Ethiopia. The system was started on January, 2011 by Ethiopian Shipping and Logistics Service Enterprise. The term “multimodal” was used instead of intermodal but with the same meaning of intermodal, *i.e.*, to provide seamless transport under one billing and liability on the whole movement from origin to destination. The “multimodal” transport system was introduced with the aim of easily moving freight from port Djibouti on time. The system was started after the issuance of Multimodal Transport Implementation Directive on July 2010 by Ethiopian government. The directive defined the multimodal transport system as “a system whereby transportation of goods is under a single contract but performed by more than two means of transportation; the carrier is liable for the entire journey including the shipment’s delivery at final destination; the transportation can be made by sea, rail, and trucks (roads).” This definition is the same with what is given for intermodal transport system.

The practices and developments trying to maximize or optimize the benefits of multimodal transport system vary in different parts of the world, both developed and developing countries. Intermodalism is considered the solution for congestion and environmental problems, and to attain competitiveness of European economy in the global market. For Ethiopia Multimodal Transport is considered the solution for, coastal access to Djibouti port, import and export, technology transfer, infrastructure development, employment opportunity, development of other sector, human capital, and others but much is not done physically on the ground.

In conclusion, this study tries to assess key contribution of multimodal transport operation for ESLSE since January 2011 and to Ethiopian economy. In addition to this, this study will to answer research questions.

2.1.2. Direct and Indirect Impacts

Multimodal transport is an increasingly indispensable element of customized logistics services, which link up both domestic and global production and market places through the interconnectivity of and between modes of transport. Improvements in multimodal connectivity are immediately enjoyed by the direct users. The potential benefits to shippers are explained by

Jacoby and Hodge (2008). For example, when new transportation infrastructure is built companies take advantage by adjusting their logistics processes and supply chains. They change purchasing and operations behavior in the short-run, while in the longer term they make input substitutions and reconfigure production processes to take advantage of transportation system improvements, thereby improving service and reducing costs. The potential to reduce a company's operating costs arise from lower sourcing costs; reduced fleet, warehousing and inventory costs; and from improved transit time visibility.

The economy-wide impact captures the spillover or other related multiplier effects from the transportation and supply chain benefits. Expansion of a transportation network, as a result of multimodal connectivity brings better linkages to supplies, inputs and final goods thereby improving the efficiency of global supply chain in production. Improved logistics and supply chains could open up access to previously unreachable areas as well as link key economic centers in a region to national markets.

The economy-wide benefits could include the following:

- ✚ ***Trade expansion and larger foreign direct investments:*** Transportation and logistics improvements are critical to trade flows and the competitiveness of an economy's exports and imports. Each day saved is equivalent to an average *ad valorem* tariff reduction of between approximately 0.4 and 1% for export and 0.8 and 1.5% for import.² (Hummels et al, 2007). In addition, an increase in competitiveness could attract additional FDI. For manufacturers, more efficient transport links mean factories can take advantage of cheaper land and labor in the country's interior.
- ✚ ***Industrial impact:*** More trade and investments could foster growth in other industrial sectors such as tourism, manufacturing and retail. Improved logistics will also enable more efficient (global and regional) production networks. In turn this will result in more employment in positively affected industries/sectors through forward and backward linkages (Hummels et al, 2007).
- ✚ ***Regional Integration:*** Better transport and logistics support stronger regional integration. World Bank (2009a) argues that falling transport costs have coincided with greater economic concentration within countries and have caused trade with neighbors to become even more important. This occurs because of the growing importance of scale economies in production and transport.

✚ ***Development and poverty reduction:*** Basic foodstuffs, as well as agricultural inputs like fertilizers, and development products like medicines, all need to be moved quickly and cost effectively in order to promote human development aims. Better transportation logistics enables faster deliveries of goods and services as well as a reduction in consumer prices. Transport infrastructure also provides rural areas with access to greater participation in development opportunities that leads to a more balanced spatial development. Adequate logistics access will promote rural entrepreneurship and trade (UNESCAP 2008).

✚ ***Other Benefits:***

- ✓ ***Foster economic diversification:*** Improved logistics encourages greater variety in production by directly lowering the fixed costs of expansion and by lowering the marginal costs of serving markets (Carruthers et al 2003).
- ✓ ***Decreased environmental hazards:*** Better transportation infrastructure facilities in terms of environmental safety and standards could reduce the risk of environmental calamities. In addition, the removal of congestions that existed previously could potentially reduce air pollution through a more energy efficient transportation logistics system (World Bank LPI, 2014).

The economy-wide impact of improved multimodal connectivity will mostly be realized in the medium to long-run. The potential economic gains through the opening of wider trade access will depend on the changing patterns of flows of goods, services, and factors of production. Moreover, the distribution of these benefits will depend on the linkages and the integration level between the overall international supply chain and transport logistics network.

A study commissioned by the APEC Policy Support Unit (2009) used a general equilibrium model to assess the potential gains from a 1% increased productivity of the transport sector in APEC economies. The increase in productivity has two key effects. First, it lowers the cost of distributing inputs and outputs (thus lowering their price). Second, it increases income and therefore increases the demand for goods and services. This increase in the level of goods and services demanded is offset, at least in part, by the reduction in the cost of delivering goods. The simulations were restricted to those APEC economies with large transport sectors. In the developing economies, the combined effects of income growth and falling prices is substantial in

Chile; China; Peru; the Philippines; and Thailand – with income growth ranging from 7% for Chile to 2% in Peru, with average price falls of 2%. In the industrialized economies with extensive transport systems, income growth ranges from 1.3% in the US to 3.1% in Japan while price falls between 0.4 to 1.3% APEC Policy Support Unit (2010).

2.1.3. Multimodal Transport Requirements

Several entities involved in transportation can be termed as the operator in the multi modal system. If they have signed a multimodal contract they assume the responsibility of an operator. They also issue multimodal transport documents to the merchants.

Basic Requirements for Being Multimodal Transport Operators

- ✚ Operational Qualifications for MTOs:-Having financial capability, expertise and an international network of agents or offices might be the three most important ones. (UNCTAD, 1997). These are:-
 - Financial Capability:- An MTO should be financially capable of meeting all his commitments, including his liability to the consignor.
 - Expertise and Competence of Personnel:- To handle such a business, it is obvious that a high level of expertise and competence is required. Knowledge about trade facilitation measures is also of great importance for MTOs, because by taking advantage of these measures their MT operations could be made more efficient and effective. Therefore, the application of information technology in MT operations has raised higher requirements for MTOs' personnel in this regard.
 - An International Network of Agents or Offices :- Multimodal transport is by nature an international business. MTOs cannot confine their operations to just a local area. Therefore, it is necessary for MTOs to establish subsidiaries or agents at different ports or places covered by their MT operations all over the world.

✚ Different Qualified MTOs

Although the essential requirements or qualifications for a Multimodal Transport Operator are basically same no matter whether it is a VO-MTO or a NVO-MTO. This can be reflected in the following representative examples (UNCTAD, 1997).

- Liner Shipping Companies:- Since a single liability regime covering the entire MT trip applies in multimodal transport operations, an MTO should be financially capable to meet the claims that might arise during the MT process. Liner shipping companies have such financial capability to meet claims. In terms of expertise and competent staff needed for MT activities, liner shipping companies have been in the position of knowing multimodal operations better than many others, because they have been involved in this business since the inception of the concept. Liner shipping operators have accumulated sufficient expertise and knowledge in dealing with activities at the land/water interface points, such as the terminal operations, Customs procedures, etc. which are of crucial importance in the whole chain of cargo transit.
- Freight Forwarders:- Since freight forwarders have been engaging in the arrangements of all segmented transport all the time, which constitutes the fundamental part of multimodal transport, they are already familiar with multimodal operations.

The upgrade of three main elements is necessary for an efficient multimodal transport system. These elements are commercial practices, administrative requirements and transport infrastructure.

❖ Commercial Practices

- *Merchant*:-There are no international conventions in force governing contracts for the international sale of goods, so disputes and misunderstanding have often arisen between buyers and sellers, mainly because of different interpretations about the terms used in the contracts. In order to avoid such situations which hinder the smooth flow of international trade, the International Chamber of Commerce (ICC) has introduced standardized trade terms known as INCOTERMS (ESCAP, 1992).

- *Banking practices and documentation system* :- In the financing of such sales, the banks were accustomed to receiving a bill of lading issued once the goods were on board the ship (Brooke & Buckley, 1985). An update of the rules released at the end of 1993 (UCP 500) clarified the situation with regards to the banking procedure by indicating that unless the letter of credit stated the contrary; the following types of transport documents are to be recognized by banks: Article 23: Marine/Ocean bill of lading Article 24: Non negotiable seaway bill Article 25: Charter bill of lading Article 26: Multimodal transport document Article 27: Air transport document Article 28: Road, rail or inland transport document Article 29: Courier and post receipts and Article 30: Transport documents issued by freight forwarders.

❖ **Administrative Requirements**

- *Trade facilitation*:- One of the main problem that occurs in international trade is that each country has its own rules and procedures concerning the import and export of goods. For this reason, According to FALPRO, trade facilitation is done through the streamlining of the information flow mainly on three levels: *Simplification*: The reduction of the amount of information required by the various authorities to an absolute minimum. *Normalisation*: The reduction of variants of formalities, procedures and documents both at the national and at the international levels. This mainly concerns, transport documents, INCOTERMS, payment conditions and trade documents. And *Harmonisation*: The harmonisation of statistics of streamlining of the transmission of data using EDI.
- *Customs*:- In all countries Customs play a major role in enforcing laws at the nation's borders. The globalization of the world economy has placed increased pressure on the world's Customs administrations. Merchants have demanded faster, more standardized and uniform service while governments require more revenues. At the same time Customs must produce trade statistics and enforce other agency laws (i.e., health, intellectual property, etc.) at the nation's border.

❖ **Transport Infrastructure**

Where transport infrastructure is poor, the development of multimodal transport may not be easy. In order to be able to gain maximum benefit from multimodal transport, infrastructure that is

capable of handling containers must be in place. To remain competitive, exporters and/or importers must be able to reduce transportation costs that are included in the goods' delivered price. In order to improve or eliminate such hidden costs, it is essential to improve the quality of a region's or a country's international transport and logistics capabilities. Therefore, efficient operations of transport modes and intermodal facilities, resulting from reduced physical barriers and institutional interference, and from simplified legal regimes, is the necessary precondition for effective improvement of international trade and transport. These improvements will lead to the existence of a mature multimodal transport system in that region or country.

Requirements to improve multimodal transport and logistics services

✓ Infrastructure and technologies:-

Containerized cargo also requires less but better qualified personnel in ports, where reforms are still pending in many developing countries. It further requires port, rail and road infrastructure, as well as the corresponding regulations and labour regimes. Like containerization in previous decades, information and communication technology (ICT) is today radically changing the way in which international trade and transport are conducted. Electronic means of communication are used to exchange information, enter into contracts and trace goods during transit. Transport users and providers are using them internally, and also to exchange information among themselves.

Increased competition and private sector participation empirically tend to encourage investment in infrastructure and the introduction of new technologies. The public sector maintains an important role with regard to investment in public infrastructure such as national telecommunication systems or access to ports. Here, Governments may have to invest themselves, or they may concession the construction and operation of infrastructure, in which case a new regulatory role of the public sector is required.

- **Logistics information systems:-**The Advance Cargo Information System (ACIS) is a logistics information system designed to improve transport efficiency by tracking equipment and cargo on transport modes (rail, road, lake/river) and at interfaces (ports, internal clearance depots) and by providing information in advance of cargo arrival.

✓ Security and safety

In the case of transport and international logistics, corruption, theft and accidents not only imply a direct cost, but also reduce the competitiveness of exports. Especially at ports and other nodes

where cargo is shifted from one mode to another, security risks are particularly high. Uncertainty and also weak legal systems are thus a particular obstacle to multimodal transport, where often an original carrier located in a foreign country is supposed to cover the entire risk of the entire transport chain.

✓ **Facilitation**

Coherent trade and transport facilitation measures are necessary for the development of international logistics and multimodal transport services. The international movement of cargo and vessels involves a potentially large number of controls and inspections and to the extent that such controls take too long, or their duration varies arbitrarily, this becomes an impediment to the planning and operation of services.

- **Customs management systems:-**The Automated System for Customs Data (ASYCUDA) programme was created 20 years ago to automate the customs administrations of small developing countries. It has become the leading customs reform programme and is among the world's most powerful customs automation systems. ASYCUDA handles every step in the customs process, from pinpointing high-risk consignments for inspection to processing payments. At the bilateral and regional levels, there are successful experiences concerning information sharing. Common customs posts, for example, or the sharing of information related to the port state control of maritime vessels, reduce the need to assign personnel and improve the quality of controls.

✓ **Legal aspects**

In view of the absence of international uniform regulation of liability, there has been a proliferation of diverse national, regional and subregional laws and regulations on multimodal transport. The lack of a global uniform regime has obliged developing countries to resort to solutions at the regional and/or subregional level. To reap the maximum benefits of modern technology, a supportive legal framework is required, one which recognizes the legal effect and validity of electronic data messages and thus adequately facilitates their use.

✓ **Market access**

Trade balances, the available transport mode options and economies of scale have a particularly strong impact on transport costs. The more cargo and transport mode options a service provider has at his disposal, the better he is positioned to choose the most adequate logistics mix of routes,

transshipment points, frequencies, speed, volumes and transport modes. Any restrictions that unnecessarily limit his choices will also imply higher costs and lower quality services for the transport user.

Multimodal transport is an increasingly indispensable element of customized logistics services, which link up both domestic and global production and market places through the interconnectivity of and between modes of transport.

2.1.4. Benefits of Multimodal Transport

Multimodal transport system helps improve trading efficiency, transforming the relation between international carriers and trading partners. Multimodal transport system is considered a game changer as it is quite effective in solving a major part of cargo mobility issues. By combining state and private transportation modes into one transport system, the best rates and transit time can be capitalized. Arrangements of multimodal transport are very serious issue which requires relevant knowledge, experience and professional competence.

Generally the benefits of multimodal shipping include

- ✓ Lower costs;- Shippers can make advantages of lower rates, more predictable pricing, and the flexibility loading and unloading goods in a dropped trailer environment, which reduces handling costs.
- ✓ Environmentally friendly:- Shippers can significantly reduce their carbon footprint by going intermodal because trains only emit approximately 5.4 pounds of carbon dioxide per 100 ton miles hundreds roads miles whereas trucks emit approximately 19.8 pounds.
- ✓ Reliability, capacity and safety advantages:- Shippers have more access to equipment and standardized transit schedules. As companies move their freight to intermodal, there is also the opportunity to streamline their reverse logistics, providing additional saving.

The cost and quality of transport services will have considerable impact on the development of national production as well as foreign trade activities. These are key arrangements to development as no country can develop without trade and transportation is central gravity of effective and efficient trade. An effective multimodal transport system will bring short-term benefits to local traders and transport operators, as well as longer-term consequences in the

structural changes of a country's transport and international trade development(UNCTAD Secretariat, 1994b).

There are three key players involved in the multimodal transport operation, viz. service providers, transport users and the Government (UNCTAD Secretariat, 1994b, 23).

- A) Service providers:- including modal carriers, freight forwarders, MTOs, banking institutions, insurance companies and so on, can offer market-oriented MT operations within the framework of national and international trade and transport practices.

Short-term Benefits

- Boosting their profession as international transport operators (especially for freight forwarders becoming MTOs);
- Increasing their local market shares and opening new markets overseas;
- Increasing their financial liquidity through the collection of prepaid freight on containerised door-to-door transport contracts, providing them with key financial leverage and with the possibility of sub-contracting shipping, railway and truck space at competitive rates while controlling sub-contractors' payment schedules;
- Commercial incentives to adapt to transport-related technologies, such as containerization and EDI;
- The need to reconsider their marketing strategies and, for example, concentrate their activities in "niche" operations to serve specific commodities on specific trade routes.

Long-term Consequences

- In order to maintain their competitiveness and also under the customers' pressure, transport operators will have to restructure their operations, taking advantage, among other things, of joint-ventures with foreign partners. They will increasingly try to differentiate their services in an effort to gain a competitive market advantage. By offering a greater choice of available value-added services for potential transport users, they may be able to grasp larger market shares and increase their profits
- B) Transport users:- including importers and exporters, can take advantage of MT operations in their international trade transactions.

Short-term Benefits

- Reduced transit time; punctuality; and increased cargo security, particularly at interface points
- Reduced transport costs (e.g. from negotiated volume rates) and other associated costs (resulting from the use of modern transport-related technologies: containers, EDI, computerised cargo-tracking systems, etc.);
- Pre-agreed price for the door-to-door transport operation;
- Closer commercial relationships with services providers
- New trading opportunities from non-traditional exports, under the stimulus of improved transport services.

Long-term Consequences

- In the longer term, as reliable and efficient MT services develop, transport users will be able to look into the reorganisation of their distribution outlets. This can already be seen in some regions of the world where the simplification of border crossings and the harmonisation of transport policies have fostered the development of new forms of logistics operations (for example, networks of logistics hubs and alliances to make modal operations more efficient).
- C) The Government:- designs and implements national laws and regulations regarding trade and transport.

Short-term Benefits

- Governments can also benefit from the MT approach since it offers the opportunity to streamline and update trade-and transport-related administrative procedures and regulations. It also stimulates trade, promotes new activities for the country's transport sector and saves on hard currency, thus improving the country's balance of payment. Governments can stimulate innovative solutions from trade and transport partners and can promote fundamental changes in existing practices. The MT approach can also strengthen the complementarity between transport modes, instead of creating competition. Long-term Consequences
- Governments will have to plan infrastructure developments and to design institutional organisations with increased attention to the needs of the transport industry so as to serve the national economy more effectively. With regard to regulatory measures, they should

be adopted to harmonise transport liability regimes and insurance practices, and to provide an appropriate legal framework for the establishment and development of MTOs.

Trade and transport facilitation measures and their acceptance by the trading community, transport operators, government agencies, banks and insurance companies also need to be taken into account, such as Customs regulations, trade and transport documentation, EDI technology, etc.). Governments need to develop policy measures to ensure the smooth development of Customs and transport operations/services and to avoid misallocation of resources. Human resource development measures also need to be taken to secure the adequate training of nationals from both public and private sectors to improve management of transport operations and reorganization of transport enterprises. (UNCTAD Secretariat, 1994b).

2.1.5. Challenges of Multimodal Transport

According to UNCTAD Report of 1994 on fostering competitive “Multimodal” transport services. The challenges of “Multimodal” transport were seen from two perspectives.

- The first is the capacity of rendering multimodal transport service, particularly by developing countries, *i.e.*, the development of multimodal transport requires globalization of production and liberalization of services which demands higher capabilities for countries to offer reliable and cost effective transport and logistics services. Countries need to develop their capacity so as to take advantages of technological developments.
- The second challenge indicated was need of harmonization of the legal environment for intermodal transport particularly considering the development of international transport demands the harmonization of the legal environment.

According to Agerachinehinadin (2008), land locked Ethiopia relies on Djibouti port for about 98% of its international trade which makes it vulnerable to factors beyond its control and have a strong impact on economic, political and strategic interest, economic welfare and prosperity, its alliance and support system in the international forum, access to trade, technology and military equipment.

In case of Ethiopia, the challenge of intermodal system is presently two fold (Fekadu, 2013).

- First, the country’s capacity to provide intermodal transport service that is reliable and cost effective is dependent on the use of advanced technology and infrastructure. In this

regard, Ethiopia's challenge may be more severe than elsewhere because the country presently has no operational rail transport system and the transport infrastructure in road sector is also not developed to the required level.

- Second, Ethiopia began the service very recently (2011) and the experience of the system to the country is new phenomenon. As the intermodal transport system is implemented recently its performance needs to be evaluated for possible solutions.

This study was made to address the benefits of Ethiopian multimodal freight transport. The system which was intended for reliable, efficient, maximum customer convenient transport system under one billing and liability was evaluated by customers and employees. The study identified problem areas that need further research and interventions to maximize the benefits of Ethiopia from integrated freight transport system.

2.1.6. Ethiopian Shipping and Logistics Services Enterprise and Djibouti Port

To maintain the commendable economic growth that has been registered in the country over the last several years, one of the strategic measures taken by the Federal Government of Ethiopia is merging the former three public enterprises that have until recently been operating separately in a rather similar and interdependent maritime sub-sector; namely, Ethiopian Shipping Lines S.C, Maritime and Transit Services Enterprise and Dry Port Enterprise. The Ethiopian Shipping and Logistics Services Enterprise (ESL for short) is the result of this merger. This newly amalgamated enterprise came into being following the issuance of Regulation by the Council of Ministers (Regulation No. 255/2011), and is vested with the huge responsibility of rendering sea-transport & logistics services to the country's importers, exporters, and investors in a more effective and efficient way, by reducing transit time, cost and handoffs. Besides, a truck operating company named Comet Transport SC has recently been transferred to ESL following a government decree issued in the mid of 2014.

According to the Regulation issued by the Council of Ministers in 2011, the enterprise is supervised by the Ministry of Transport and has a Board of Management comprised of eight higher officials from various ministries. After its establishment in Nov.2011, ESL embarked on

designing an organizational structure that could bring together the functions of the former three enterprises in to an integrated operation.

Accordingly, the enterprise put in place its own new organizational structure in Dec 2012 on the basis of which, it has one chief executive officer and four deputy chief executive officers appointed by the government to lead and direct the enterprise at top management level. By providing competitive shipping & logistics services, to become preferred and renowned African logistics company by 2025. Through building and upgrading organizational capacity, to render world class and competitive shipping & logistics services; thereby contributing towards the rapid economic growth of the country.

Ethiopian Shipping & Logistics Services Enterprise provides coastal and international marine and internal water transport services from/to Djibouti port through the ports of Gulf and Indian Sub Continent, China, Korea, Japan, Singapore, South Africa, and Indonesia. It offers multimodal/inland transport services; and marine training for sailing seafarers and those aspiring for a career at sea. It offers agency services for importers and exporters by performing customs and other formalities of air cargoes, and consolidating cargoes that could be easily damaged and needed for immediate consumption. It offers shipping agency services for shipping companies, such as making notification to port authorities whenever its principal ships call to port and processing due formalities; preparing notifications for importers and facilitates smooth flow and recollection of containers to and from the port; and booking and canvassing services for export goods. It offers stevedoring services, such as loading and discharging of import and export cargoes; bagging cargoes, such as fertilizers and wheat; shore handling services, such as safe storage of discharged cargoes from vessels in port until they have been transported to their destination in the country; customs and port clearing services; trucking services to transport freight from inland and ports, and vice versa; and travel and tourist agency services. It offers port/terminal services, such as loading and unloading import and export goods; reefer container services; stuffing and un stuffing of containers; handling non-containerized goods; providing temporary storage for containers, goods, and vehicles; and container cleaning and repair and other related services. The company was formerly known as Ethiopian Shipping Lines S.C. and changed its name to Ethiopian Shipping & Logistics Services Enterprise in November 2011.

Ethiopian Shipping & Logistics Services Enterprise was founded in 1964 and is based in Addis Ababa, Ethiopia.

World Bank (2013) stated that the main highway to Addis Ababa branches off near Ali Sabieh and then runs west-northwest to the Galafi border crossing, 217 km from Djibouti city; Since 2000 the whole highway from Djibouti city to Galafi—flat much of the way—has been paved with asphalt, which explains why it is now the route used by the vast majority of Ethiopian traffic, even though the road distance is about 65 km longer than the southern route paralleling the railway south from Ali Sabieh: i.e. 910 km via Galafi versus 844 km via Dewele.

Ethiopia's GDP (Gross Domestic Product) in 2010 was \$24.9 billion, that is, 20 times greater than Djibouti's (in other words, Djibouti's GDP is only 5% of Ethiopia's) (World Bank, 2013). According to The Economist (2014b), Djibouti heavily relies on income generated from its position as a regional shipping hub. The International Trade Centre According to The Economist (2014b) estimates that Ethiopia's foreign trade through Djibouti amounted to USD 8.4 billion in 2013. The recent improvement of the port and the highway has made the Djibouti route the most attractive to Ethiopia's traders, compared with those serving Berbera and Port Sudan (The Economist, 2014b)

2.1.7. Logistics Performance Index (LPI) components in Ethiopia

The World Bank's Logistics Performance Index (LPI), also known as the "Connecting to Compete" report, provides the most comprehensive international comparison tool to measure the trade and transport facilitation friendliness of countries. Understanding the components of trade and logistics performance can help countries improve their freight transport efficiency and identify their areas of weakness and strength in comparison to competitors. The "Connecting to Compete" report has been published in since 2007.

The LPI reflects the perspective of the global private sector on how countries are globally connected through their main trade gateways. So it might not fully capture changes at the country level. For example, a low LPI score might reflect access problems outside the country for landlocked countries and small-island states (Arvis, et al., 2014). Countries at similar performance levels may have substantially different ranks, especially in the middle and lower country income ranges. To account for potential sampling error and the LPI's limited domain of

validity, LPI scores are calculated with approximate 80 per cent confidence intervals over the standard error of LPI scores across all respondents (Arvis, et al., 2014).

Arvis et al. (2014) map the six LPI dimensions to two main categories. The first category relates to main inputs to the supply chain (customs, infrastructure, and quality of logistics services). The second category involves service delivery performance outcomes, namely timeliness, ease of arranging international shipments, and tracking and tracing. In our approach, we implement a more holistic point of view. So, poor performance in one dimension might be related to inconsistency among policy actions targeting other dimensions. Therefore, a policy program encompassing overall logistics performance improvement has a greater chance of yielding effective and sustainable results than partial reforms. Having an LPI lower by one point – such as 2.5 rather than 3.5 – implies two to four additional days for moving imports and exports between the port and a company's warehouse or e.g., it implies a rate of physical inspection that is 25 percentage points higher.

According to Arvis et al. (2014) the LPI has two main parts that is;-

- ❖ International LPI:- provides qualitative evaluations of a country in six areas through its trading partners -logistics professionals working outside the country and where up to 166 countries are benchmarked against each other. The International LPI looks at six dimensions that capture the most important aspects of countries trade logistics performance, where each dimension is rated on a 5-point scale (Arvis, et al., 2014):
- ❖ Domestic LPI:- provides both qualitative and quantitative assessments of a country by logistics professionals working there. It includes detailed information on the logistics environment, core logistics processes, institutions, and performance time and cost data. Domestic LPI provides information on particular aspects within respondents' countries of work, including imports/exports, lead times, supply chain costs, customs clearances and the percentage of shipments subjected to physical inspection. This approach looks at the logistics constraints within countries , not just at the gateways, such as ports or borders. It uses four major determinants of overall logistics performance to measure performance;
 - Infrastructure
 - Services
 - Boarder procedures and time, and
 - Supply chain reliability.

Logistics operations consist of coherent and interlocking sets of processes where policy support is essential. Identifying the obstacles that affect logistics competitiveness and taking necessary actions to alleviate them requires a comprehensive analysis of policy impacts. This section provides an overview of policies and key interventions that affect trade and logistics performance.

- ✓ **The efficiency of customs and other border agencies:-**The customs clearance component of the LPI measures the efficiency and effectiveness of customs dispatch procedures in terms of speed, simplicity and predictability. Policies targeting customs performance basically cover: efficient risk management, optimal use of information and communications technology, effective partnership with the private sector, including programs to improve compliance, increased cooperation with other border control agencies and transparency through information on laws, regulations, and administrative guidelines.
- ✓ **The quality of trade and transport infrastructure:-** Infrastructure development is essential for assuring basic connectivity and access to gateways. The average landlocked country has transport costs 50% higher than the average coastal economy. However, improving the infrastructure of the landlocked economy to the top quintile reduces this disadvantage by 12%; and improving the infrastructure of the transit economy reduces the disadvantage by a further 7% (Limao&Venables, 2001). The infrastructure dimension of the LPI covers both physical and telecommunications infrastructure. However, perceived differences in the quality of infrastructure are strongly linked to the quality of the roads and maritime facilities, which are the two major modes of freight transport. There exists a strong positive relation between a country's LPI score and the quality of their freight transport related infrastructure, particularly their port and road quality (Celebi, et al., 2014).

Keeping transport infrastructure in good condition and providing the framework to develop physical infrastructure are core responsibilities of governments. Superior transport infrastructure also supports intermodal transport systems, including access roads to terminals and seaport channels. Most intermodal facilities operate with low overall utilisation rates, but tend to suffer from occasional capacity constraints due to highly variable transport demand. Flexible systems, better resource allocation, peak flow management and higher utilisation of existing physical

infrastructure all provide avenues for improving the transport infrastructure related logistics performance.

✓ **Ease of arranging competitively priced shipments**

This dimension gives an estimate of the country's performance in arranging shipments at competitive prices. Availability of competitively arranged shipments is a significant factor in sourcing decisions and in turn has an impact on national competitiveness. Hausman et al. (2013) estimate that a 1% reduction in the 'distance' measure, which can be interpreted as shipping costs, increases trade by 1.4%. Similarly, a 1% reduction in the total trade-related processing cost would be associated with a 0.5% increase in bilateral trade (Hausman, et al., 2013).

✓ **Competence and quality of logistics services**

The LPI's indicator relating to competence and quality of logistics services measures the overall competence of the logistics services provided by parties within the logistics system. Achieving logistics excellence requires continuous improvement in reliability, responsiveness and well-functioning support services. The LPI results reveal that the quality of services indicator drives logistics performance in both emerging and developed economies (Arvis, et al., 2014). Improving logistics services (like third-party logistics, trucking, and freight forwarding) is typically a complex task for policy-making, with few success stories so far (Korinek&Sourdin, 2011). Improved human resources are a key factor when it comes to LPI performance in the competence and quality of logistics services. Human resource development in logistics is often both a public and a private sector responsibility. To secure an adequate workforce to meet future labour needs in the logistics industry, decisive political efforts are necessary in the logistics industry (International Transport Forum, 2014).

✓ **Ability to track and trace consignments**

Traceability is a product of the logistics sector as a whole, since all parties in the supply chain contribute to this component. Since most stakeholders benefit significantly from improved tracking and tracing, it can be regarded as one of the priority areas for future investments in trade logistics (Korinek&Sourdin, 2011). The development of information and communications technologies (ICT) provides a convenient way of improving LPI tracking and traceability performance by enabling cost-efficient gathering, organization and distribution of information at a global level. However, adequate traceability of shipments is still a major problem in most

developing countries. This is partially due to a lack of understanding of how to manage new technology and adjust logistics procedures.

✓ **Timeliness of shipments in reaching destination**

The timeliness of shipments in reaching destination measures the reliability of shipment delivery times. Delivery times depend on the nature of the product, planning and supply chain management, logistics services, and distance to customers and suppliers. Long lead time is not a problem if delivery is predictable and demand is stable. However, if there is uncertainty about future demand, long lead time is costly, even if the customer knows exactly when the merchandise will arrive. It has been estimated that a 1% reduction in exporter's processing time could increase bilateral trade by 0.4%, while a 1% reduction in the variability of shipping times could be associated with a 0.2% increase in bilateral trade (Hummels, 2001). In addition, the impact of an extra day spent getting across borders has a significantly greater negative impact on trade flows compared with an extra day spent at sea delivering a container of goods (Korinek & Sourdin, 2009). These results indicate that the time spent at the border and the cost of getting containers across borders has a strong impact on trade.

2.2. Empirical Literature Review

International trade is one of the most important economic activities which can make a lasting impact for the prosperity and wellbeing of a nation. It boosts development and reduces poverty through investments and job creation; enhances competition; encourages innovation; expands choices and lowers prices for consumers, strengthens relations between nations for further trust and cooperation. Most studies in developed and developing nations attempted to investigate the impact of logistics on economic development and international trade competitiveness of a country. Much of these studies show that logistics performance has strong impact on the country's economic development due to transportation and logistics improvements are critical to trade flows and the competitiveness of an economy's exports and imports through trade expansion and larger foreign direct investments.

World Bank, LPI (2010) based on a worldwide survey of global freight forwarders and express carriers and measures performance along the logistics supply chain within comparisons across 130 countries. Found trade logistics performance is directly linked with important economic outcomes, such as trade expansion, diversification of exports, and growth. The ability to connect

to the global logistics web depends on a country's infrastructure, service markets, and trade processes. Having an LPI lower by one point—such as 2.5 rather than 3.5—implies two to four additional days for moving imports and exports between the port and a company's warehouse.

Similarly World Bank, LPI (2012) based on comparisons across 143 countries. Found logistics efficiency as vital for trade and growth and the ability to connect to the global logistics web depends on a country's infrastructure, service markets, and trade processes. A country's ability to trade globally depends on its traders' access to global freight and logistics networks. And the efficiency of a country's supply chain (in cost, time, and reliability) depends on specific features of its domestic economy (logistics performance). Better overall logistics performance and trade facilitation are strongly associated with trade expansion, export diversification, attractiveness to foreign direct investment, and economic growth. In addition to these World Bank, LPI (2014), based on comparisons across 160 countries. Found reliable logistics is indispensable to integrate global value chains—and reap the benefit of trade opportunities for growth and poverty reduction. The ability to connect to the global logistics web depends on a country's infrastructure, service markets, and trade processes. Logistics performance is strongly associated with the reliability of supply chains and the predictability of service delivery available to producers and exporters. Inefficient logistics raises the costs of trading and reduces the potential for global integration. Predictable, reliable supply chains are central to good logistics performance.

World Bank, LPI (2016) based on comparisons across 160 countries. Found logistics performance both in international trade and domestically is central to the economic growth and competitiveness of countries, and the logistics sector is now recognized as one of the core pillars of economic development. Policy makers not only in the best performing countries, but also in emerging economies, increasingly see the need to implement coherent and consistent policies to foster seamless and sustainable supply chain operations as an engine of growth. Efficient logistics connects firms to domestic and international markets through reliable supply chain networks. Conversely, countries characterized by low logistics performance face high costs, not merely because of transportation costs but also because of unreliable supply chains, a major handicap in integrating and competing in global value chains.

On the other Arvis, et al (2014) found that global production networks depend on transport operations. This dependency affects a wide array of value-added activities along supply chains, from suppliers of raw materials to the end-user, as well as the recycling of materials after use. Therefore well-functioning logistics, both domestically and internationally, is a necessary precondition of national competitiveness.

For the past fifty years, these terminologies have been widely practiced and applied in the identification of specific operating systems used in a particular operation. The principal aim of multimodal transport is to make the movement of goods from seller to buyer more efficient, through faster transit times and reduced costs. During multimodal transportation, the responsibility and liability is concentrated in one entity known as the multimodal transport operator (MTO), who organizes all transport systems in the transport chain between countries. Due to the comparative advantages that MTOs have in terms of size, ability, and financing; negotiated transport rates are much lower and service delivery more efficient. Different scholars tried to investigate multimodal transport operation system.

Cullinane, *et al*, (2005) the introduction of containers had enabled global reach through an increase in trade volume with increase of operational efficiency, which ultimately enables Multimodal Transport to be applied in most international transport operations. The 'Multimodal Transport' concept can be defined as the combination of various types of transport modes used in a national or international transport operation, which provides door-to-door services, under the responsibility of one single transport operator (UNCTAD, 2001). On the other hand according to Alderton (1995, 204) the multimodal system is 'an optimization process of the location, movement and storage of resources from the point of origin, through various economic activities, to the final consumer' Multimodal transport system helps improve trading efficiency, transforming the relation between international carriers and trading partners. According to Brewer, et.al, 2001 first the capacity of rendering multimodal transport service, particularly by developing countries, i.e., the development of multimodal transport requires globalization of production and liberalization of services which demands higher capabilities for countries to offer reliable and cost effective transport and logistics services. Similarly the MT approach can also strengthen the complementarily between transport modes, instead of creating competition. (UNCTAD Secretariat, 1994b, 23).

Multimodal transport is an increasingly indispensable element of customized logistics services, which link up both domestic and global production and market places through the interconnectivity of and between modes of transport. Improvements in multimodal connectivity are immediately enjoyed by the direct users. The potential benefits to shippers are explained by Jacoby and Hodge (2008). Similarly intermodal transport service is a system with such objectives of efficient, effective and environmental friendly freight mobility (Brewer, et.al, 2001).

Ethiopia's trade with the world has grown on average 15% annually within the years of 2005 to 2016 in both import and export trade, though the balance between the two is not even. In the years 2005 – 2013, the export share in the international trade is only 19% on average and also the trade balance is negative 5.8 billion dollar due the lower amount of export item in respect to the imported one on average as per the secondary data collected from Ministry of Trade (2014). According to the World Bank's Doing Business 2013 report, it takes 42 and 44 days to export and import in Ethiopia respectively. This is much higher compared to the 10 days in the Organization for Economic Cooperation and Development (OECD) high income countries and 31 and 37 days in Sub-Sahara Africa. And Importing a container in Ethiopia adds an additional cost of USD1,095 and USD310 compared to importing that similar container to Tanzania and Kenya respectively.

Fekadu (2013) assess the current status of logistics practices in Ethiopia with the aim of identifying the gaps, potentials and constraints for development of effective and efficient logistics system using information from secondary sources to carry out the assessment. Found that Ethiopian logistics system is characterized by poor logistics management system and lack of coordination of goods transport, low level of development of logistics infrastructure and inadequate fleets of freight vehicles in number and age, damage and quality deterioration of goods while handling, transporting and in storage. This coupled with lack of sea port resulted in poor linkage of producers (farmers) to the consumers (market) and non-competitiveness of Ethiopian goods on global market, which compromised livelihood of the people and economy of the country. There is very high rate of traffic accident (first in the world) and congestion in cities and at city inlets/outlets to which freight vehicles contribute significantly. Efficient and effective logistics system needs to be put in place to solve these socio-economic problems. According to his study

- ✓ The density and quality of transport infrastructure is very low. 70 percent of rural population is not connected to all weather roads. The freight vehicles are not adequate in number and age to meet the transport demand of the country.
- ✓ The main freight transport companies lack capacity in terms of skilled human resource, management skills and number of fleets of vehicles. They are fragmented. The main/big companies are government owned, this will result in inefficiency
- ✓ The efficiency of customs authority is very low and this causes a lot of delays at check points. The number of check points is also too much. The number of days required to get foreign currency from national bank is also very long.
- ✓ 70 percent of rural population, which is the major part (85% of the total) is not connected to all weather road which hampers marketing of the farmers produce. A significant proportion of urban population is using imported food items. Even the produce of farmers that reaches market has got inferior quality especially for export market mainly due to poor handling and transportation. There is lack of organizational and consolidation infrastructure and services also to link producers(farmers) to consumers(market).
- ✓ Multimodal transport system is used in the country: human portorage, pack animals, trucks and ship or airplane in uncoordinated fashion. A pilot Intermodal transport is begun by Ethiopian Shipping Lines SC (ESLSC) for import goods from foreign suppliers through the port of Djibouti up to dry ports in the country through one bill of lading, which has run successfully. This has reduced the cost of delays, saved transport and warehouse charges and is able to provide prompt delivery of containerized goods. The service is expected to increase in the coming years. The ESLSC is in a better position to coordinate intermodal transport for import goods in the existing situations

Therefore he concludes efficient and effective logistics system needs to be put in place to solve these socio-economic problems. So that the following had to done

- ❖ There is urgent need for research on the logistics gaps identified and human resource needs in freight transport and logistics needs of the country. EthioLog may be supported financially by government of Ethiopia and international funding agencies and technically by SLU to carry out research and human resources development in the sector.

- ❖ There is urgent need of development in the following areas to change the livelihood of Ethiopian farmers and develop the economy of the country. First is need to develop more road, rail and airfreight infrastructure to make Ethiopian export goods competitive on the international market. The second is need to develop organizational and consolidation infrastructure and services to link producers (farmers) to consumers (market) and to create managing body for efficient and effective goods flow in the network from producers to consumers.
- ❖ Transport companies need to be supported and encouraged to build their capacity in terms of human resources, number and better age of their vehicle fleets, coordination of their services, and integration of their services with the services of warehouses and terminals. Warehouses and terminals are recommended to do value adding activities like consolidation, packaging, etc.
- ❖ The development of logistics service providers, transitors, shipping agents and brokers need to be encouraged in terms of technical skills, human resources and finance because they add so much efficiency to goods flow at lower costs.
- ❖ Customs authority and national bank of Ethiopia need to overhaul the way they give services to exporters/importers and align their services to expedite freight movement for the benefit of the country.
- ❖ Ethiopian government, as the infrastructure provider, better invest the limited resources prudently on road, railway, dry ports and terminal infrastructures in line with intermodal transport requirements. I especially strongly disagree with single height container freight train wagons because the whole world is developing double stacked container wagons for competitiveness of their goods on the global market.

Tadesse and Girma (2015) evaluate the “multimodal” freight transport performance of Ethiopian Shipping and Logistics Service Enterprise (ESLSE) and to identify major constraints in Ethiopian import-export freight transport logistics that need due attention from stakeholders. The study made based on data collected by using structured questionnaire from randomly selected customers and multimodal freight transport section employees of Ethiopian Shipping and Logistics Service Enterprise on the two stages. Found that majority of customers were either dissatisfied or very dissatisfied with many of the performance indicators. On the other hand the

employees evaluated their organization as well performing relatively on more performance indicators. Both customers and employees evaluated the documentation performances as satisfying but cost and convenience as dissatisfying performances. Customers identified repetitive custom checking and waste of time in custom inspections process as the most severe problem in freight transport logistics in Ethiopia. The implementation of intermodal freight transport system to bring better change in import-export freight transport logistics of Ethiopia was in bitter challenge for customers due to a number of problems, except documentation performance that showed betterment.

Tadesse (2015) evaluate the multimodal freight transport service performance of Ethiopian Shipping and Logistics Service Enterprise (ESLSE) by its customers and employees. The specific objectives were to evaluate: delivery performance, transportation documentation performance, liability and insurance performance during damage or loss of goods while in transit, transport service price and associated costs & convenience, and administrative/facilitation support service performances of Ethiopian Shipping and Logistics Service Enterprise for multimodal customers using the literature review and case study approaches. Found freight transport practices in general and the implementation of multimodal freight transport system in Ethiopia have been hindered by various problems. These problems include poor existing infrastructure and lack of basic infrastructures, inefficient and ineffective freight vehicles, and long and repetitive custom checking points. The case study on multimodal freight transport performance of Ethiopian Shipping and Logistics Service Enterprise showed that majority of customers were either dissatisfied or very dissatisfied with many of the performance indicators. The employees evaluated the organization relatively more positively. Overall, the enterprise was doing well in terms of transport documentation performance indicators but in terms of cost and convenience the performance was unsatisfactory.

The study identified, on many performance indicators majority of the customers were not satisfied, Majority customers responded that they were very dissatisfied and/or dissatisfied with service provided to them under the multimodal transport system. Though employees relatively better evaluated the company positively, employees' evaluations also indicate that on some performance indicators the company did not meet their expectation.

In general, documentation performance of the company seems good as it fulfills the expectations of both customers and employees. On the contrary, Cost and Convenience was the very difficulty area of the company that resulted in high portion of customers and employees who did not meet their expectations. High proportion of very dissatisfied and/or dissatisfied customers and strongly disagreed and/or disagreed employees was recorded under the evaluation of cost and convenience.

To sum up, it is worth mentioning that the ESLSE though it has faced big challenges in implementation of multimodal freight transport system, with the opportunities at hand and working with all concerned may bring the desired intention of the multimodal transport system for Ethiopia which is not an option rather a must to proceed if Ethiopia has to benefit from international trade and development. To this end, the role of research studies to identify knowledge gap and solutions to the problems are critical & timely issues.

The following points were believed for further detailed study.

1. To what extent can the planned railways in Ethiopia contribute to improvement of freight transport in Ethiopia? What can be done to optimize the use of the railways in terms of food logistics and supply chain management?
2. Analysis of possible ports that Ethiopia can use to avoid complete dependence on Djibouti port,
3. Does the trade system in the country contributed to the freight transportation problems?
4. Why costs of multimodal freight transport in Ethiopia is high? What can be done; can privatization of the intermodal service work in this regard?
5. An assessment of custom terminal checking procedure and process at port Djibouti, Ethiopia boarder terminal, and all the ways to dry ports in Ethiopia: what can be done in this regard?

Similarly according to (Debela, 2012; Tadesse, 2006) Ethiopia's freight transport practice is characterized by a number of problems including underdeveloped and fragmented management system, inadequate and inappropriate fleets of vehicles and other means of transportation, poor and lack of transport and logistics infrastructure /roads warehouses and cold chains, etc/, very high accidents which is ranked among the worst in the world and congestion in cities at inlets/outlets of cities, lack of coordination of goods transport, damage of goods and quality deterioration due to inappropriate storage, packaging, and transpiration. In addition, the study

made by Tadesse and Girma (2015) on the evaluation of multimodal summarized: majority of the customers were not satisfied with many of the service performances. In contrast, employees evaluated their organization positively on many performance indicators. The comparative analysis made with “uni-modal” approach for customers indicated that the “multimodal” system which was supposed to improve the service performance did not even satisfied customers as much as the “uni-modal” approaches on majority of the performance indicators.

On the other hand Ethiopian Shipping Lines & Logistics Services Enterprise (ESLSE) reported a successful 2014/15 fiscal year when it transported more containers than it had planned. It also announced that it reduced rent charged for containers starting on October 12, 2015. The Enterprise used own and rented vessels last year to carry 142,724 twenty-foot equivalent unit (TEU) containers, up from the 137,823 it had planned. The previous year it had carried 129,628 containers. Its use of loading and off-loading sites for both import and export items was also 46pc for the Europe and Africa route, 81.1pc for the China and Far East route, 66.2% for the Middle East and India route, which it called a successful achievement. Osman Ali, Corporate Communication manager at ESLSE argues “With the implementation of the newly introduced transport system, the Multimodal Transport System (MTS), the voyage which used to take 60 days to transport a shipment from Djibouti to destinations in Ethiopia has been minimized to six days.” The directive set by the government of Ethiopia (Fortune, 2012) indicated that multimodal transport system in Ethiopia targets for seamless, low cost, and maximum customer convenient transporting of imported goods from Djibouti to dry ports in Ethiopia and the reverse flow in case of exported goods. With the aim of improving the flow of goods between Djibouti port and dry ports in Ethiopia, Ethiopia implemented “multimodal” transport system since January 2011.

The practices and developments trying to maximize or optimize the benefits of multimodal transport system vary in different parts of the world, both developed and developing countries. intermodalism is considered the solution for congestion and environmental problems, and to attain competitiveness of European economy in the global market. For Ethiopia Multimodal Transport is considered the solution for, coastal access to Djibouti port, import and export, technology transfer, infrastructure development, employment opportunity, development of other sector, human capital, and others but much is not done physically on the ground.

Therefore, this study seek to analyze the contribution of Multimodal transport since 2011, due to logistics is an input to much of the economy, that is, industry, commerce, and so on. The

performance of logistics impacts productivity in other sectors. Finally, the researchers recommended undertaking of further research focusing on benefits of Multi Modal Transport.

International trade is one of the most important economic activities which can make a lasting impact for the prosperity and wellbeing of a nation. It boosts development and reduces poverty through investments and job creation; enhances competition; encourages innovation; expands choices and lowers prices for consumers, strengthens relations between nations for further trust and cooperation. Well-functioning logistics, both domestically and internationally, is a necessary precondition of national competitiveness (Arvis, et al., 2014). According to World Bank, LPI (2014), Logistics performance is strongly associated with the reliability of supply chains and the predictability of service delivery available to producers and exporters.

The multimodal system is ‘an optimization process of the location, movement and storage of resources from the point of origin, through various economic activities, to the final consumer’ (Alderton, 1995, 204). Multimodal transport system helps improve trading efficiency, transforming the relation between international carriers and trading partners. According to Brewer, et.al, 2001 first the capacity of rendering multimodal transport service, particularly by developing countries, i.e., the development of multimodal transport requires globalization of production and liberalization of services which demands higher capabilities for countries to offer reliable and cost effective transport and logistics services.

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To summarize According to Fekadu (2013), Ethiopian logistics system is characterized by poor logistics management system and lack of coordination of goods transport, low level of

development of logistics infrastructure and inadequate fleets of freight vehicles in number and age, damage and quality deterioration of goods while handling, transporting and in storage. Similarly according to (Debela, 2012; Tadesse, 2006) Ethiopia's freight transport practice is characterized by a number of problems including underdeveloped and fragmented management system, inadequate and inappropriate fleets of vehicles and other means of transportation, poor and lack of transport and logistics infrastructure /roads warehouses and cold chains, etc/, very high accidents which is ranked among the worst in the world and congestion in cities at inlets/outlets of cities, lack of coordination of goods transport, damage of goods and quality deterioration due to inappropriate storage, packaging, and transpiration. In addition, the study made by Tadesse and Girma (2015) on the evaluation of multimodal summarized: majority of the customers were not satisfied with many of the service performances. In contrast, employees evaluated their organization positively on many performance indicators. The comparative analysis made with "uni-modal" approach for customers indicated that the "multimodal" system which was supposed to improve the service performance did not even satisfied customers as much as the "uni-modal" approaches on majority of the performance indicators.

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Therefore, this study seek to analyze the contribution of Multimodal transport since 2011, due to logistics is an input to much of the economy, that is, industry, commerce, and so on. The performance of logistics impacts productivity in other sectors. Finally, the researchers recommended undertaking of further research focusing on benefits of Multi Modal Transport.

CHAPTER THREE

3. RESEARCH METHODOLOGY

The basic objective of this study is to assess the contribution of multimodal transport operation system to logistics performance of Ethiopian Shipping and Logistics Services Enterprise in particular its impact on Ethiopian economy. To meet this objective, the following research methodology was followed in the course of conducting the research.

3.1. Research Approach and Design

In this research, both qualitative and quantitative research approach was used to study contribution of multimodal transport operation system to logistics performance which was intended for reliable, efficient, maximum customer convenient transport system under one billing and liability since January, 2011 or 2004 E.C. The research was intended to assess the key contribution of multimodal transport system operation for undertaking on trade in case of Ethiopia. Quantitative approach was used to collect data from secondary source of Ethiopian Shipping and Logistics Services Enterprise annual report since implementation of MMTO. Qualitative approach was used to collect data from primary sources from target populations. Accordingly, the research purposes were to investigate and assess contribution and hence, the researcher used descriptive research design since it emphasize on answering basic research questions.

3.2. Sample and Sampling Procedures

The total numbers of ESLSE's workers were 3770 but they are working in the head office of ESLSE in found in Addis Ababa, in seven dry ports of ESLSE branch offices of ESLSE within our country and Djibouti port branch office of ESLSE. Therefore, sampling formula was not applied. Instead, the data was collected from workers from ESLSE head quarter in Addis Ababa. A total of 95 questioners were distributed to workers in the three sectors of Ethiopian shipping and logistics services enterprise which have a direct relation with the operation and customers. Out of 95 questioners distributed, 95 were returned back to the researcher. In these regard their response are used to measure logistics and multimodal transport operation system contribution to

ESLSE logistics performance and Ethiopian economy. Due to the homogeneity in the population I used simple random sampling method to collect data from Ethiopian Shipping and Logistics services Enterprise Head Office workers.

3.3. Data Sources and Data Collection Methods

To conduct this study both primary and secondary sources were used. The study also used structured observation, interviews and self-administered questionnaires to obtain primary information from respondents. Secondary data also collected from annual reports, visiting different libraries, procuring relevant documents from the respective institutions, from journals, websites and so on.

To conduct this study both primary and secondary data were used in this study. For primary data collection purpose, survey questionnaire, interview and observation were used. Secondary data also collected from annual reports, visiting different libraries, procuring relevant documents from the respective institutions, from journals, websites and so on. Employees were approached personally and asked to fill the questionnaire;

3.4. Data Analysis Method

This research aim was to answer basic research question and uses descriptive research design therefore in order to analyze data, appropriate descriptive tools and techniques was used. Analysis of data collected from primary sources are made using SPSS by coding qualitative data. Statistical tools like average were used. Tables, charts and graphs also used whenever required to exhibit and analyze the data.

CHAPTER FOUR

4. RESULT AND DISCUSSION

4.1 Shipping Services

Ethiopian Shipping and Logistics Services Enterprise (ESLSE) is the only vessel owned multimodal transport operator in Ethiopia. ESLSE was formed by merging the former four public enterprises in January 2011G.C that had been till recently operating separately in the maritime and logistics sub sector; namely, Ethiopian shipping line S.C, Maritime & transit services enterprise, Dry port services enterprise and Comet transport S.C. Now the ESLSE has restructured itself with four different but interlinked sectors; shipping service sector, freight forwarding sector, port & terminal sector and corporate service sector all having their own responsibilities under ESLSE.

The shipping sector of the enterprise has more than 52 years of experience. The main focus of this sector is to provide coastal & international marine transport to and from Djibouti port. The shipping sector provides uninterrupted sea transport services between ports with own ships & slot chartering of ships of major carrier. It carries cargoes from 220ports. The major services provided by this sector are:-

- ❖ **Sea Transport Services:** ESLSE provide Coastal and International Marine Transport services to and from Djibouti Port. Shipping service uses three business modalities namely own vessel, slot carriers and chartered vessels. Accordingly, ESLSE provides shipping service in three major trade routes: Indian & Gulf, Europe & Africa, and Far East routes. In these countries service is provided from more than 220 international sea ports.
- ❖ **Agency Services:** ESLSE's Shipping Sector branch office, at city and port of Djibouti makes prompt notification to port authorities, whenever its own ships as well as other principal ships call to port and process all due formalities. It makes all the necessary provisions available for the ships and their crew. It prepares timely notifications for importers, and facilitates seamless flow and recollection of containers at Djibouti port.

- ❖ **Stevedoring:** ESLSE is one of the major stevedoring companies at port of Djibouti. It provides efficient loading and discharging service of import and export cargoes, by making use of modern port equipment. In this case, ESLSE discharges various types of import cargoes from ships. It also renders stuffing service to facilitate the loading of cargoes for shipment.
- ❖ **Shore handling:** This service includes safe storage of discharged cargoes from vessels in Djibouti Port and delivery to the customer. ESLSE's Djibouti Branch offers coordinated and efficient shore handling services with its CLT (Container Lifting Trucks), trucks, truck trailers, tractors and forklifts of various capacities.

In order to provide the sea transport services ESLSE uses own vessel, slot carriers and chartered vessels. The number of vessels and their total capacity is provided in table 4.1 here under. Table 4.1 shows ESLSE has 15 vessels with a total carrying capacity of 16,566 TEU for containers cargo or 312,495 Tons of Dead Weight and 83,000 Metric Ton of liquid cargo. From these 15 vessels 9 of them are multi-purpose vessels, 4 of them are general container ship cargo vessel and the remaining two are liquid cargo vessels with 83,000 metric tons of dead weight.

Table 4.1: The numbers of vessels owned by ESLSE and their total capacity.

Vessel Name	Year acquired	Type of vessels	Measurement	Capacity	
				Dead Weight	Container in TEU
Andinet	1985	Multi-purpose	Ton	14895	367
Netsanet	1985	Multi-purpose	Ton	14895	367
Admas	1995	Multi-purpose	Ton	13593	302
Tekezze	1999	General cargo container ship	Ton	18,145	930
Shebele	2006	General cargo container ship	Ton	27,391	1,364
Gibe	2007	General cargo container ship	Ton	27,391	1,364
Assosa	2013	General cargo container ship	Ton	27,926	1,696
Harar	2013	Multi-purpose		28,000	1,696
Finfine	2013	Multi-purpose	Ton	28,140	1,696
Gambella	2013	Multi-purpose	Ton	28,119	1,696
Jigjiga	2013	Multi-purpose	Ton	28,000	1,696
Mekelle	2013	Multi-purpose	Ton	28,000	1,696
Semera	2013	Multi-purpose	Ton	28,000	1,696
				312495	16566
Bahirdar	2013	Tanker/ Liquid cargo	Metric Ton	41,500	-
Hawassa	2013	Tanker/ Liquid cargo		41,500	-
				83,000	

Source;- Ethiopian Shipping and Logistics Services Enterprise annual report

The shipping services of ESLSE are transporting export and import trade of the country. Ethiopia is one of the few African countries which do not have Oil and mineral resources for export. So that the country exports trade is highly dependent on agricultural products. Ethiopia major export is Coffee, Oil Seeds, Pulses, fruits and vegetables and live animals. In transporting this export items the share ESLSE is lower and insignificant.

Table 4.2: Total export from Ethiopia and share of ESLSE in Tons

Year(in E.C)	Total export	Export by ESLSE	Export share of ESLSE
2004	1,205,502	492	0.04
2005	2,285,934	1,082	0.05
2006	1,227,796	1,351	0.11
2007	1,498,206	10,706	0.71
2008	1,608,902	734	0.05

Source; Ethiopian Shipping and Logistics Services Enterprise report

Table 4.2 above shows the total export of Ethiopia through sea transport and the share of ESLSE. As indicated in table 4.2 the export trade share of ESLSE are less than one percent of the total share even if the export trade of the Ethiopia also low compared to other countries and its import. The share of ESLSE reached its highest amount in 2007 E.C which is 10,706 Tons that is 0.71 percent of the total export this highest amount then falls in 2008 E.C to 734 Tons that is 0.05 percent of the total share. Therefore from the table 4.2 we can conclude the export trade of Ethiopia is low and the shares of ESLSE are also insignificant and very low. Ethiopian shipping and logistics services enterprise has not implemented multimodal transport operation in the export trade services. Our study concentrated in multimodal transport system but the data shows the export trade of our country is transported through Unimodal transport system.

On the other hand major shipping services of the enterprise are transporting import cargoes from more than 220 international ports to Djibouti port in three major trade routes. The following table 4.3 shows total import through shipping services and imported through ESLSE shipping services.

Table 4.3: Total import through Shipping Services and imported by ESLSE Shipping Services

Year in E.C	Total import cargoes Imported through Shipping Services (in Tons)	Imported through ESLSE Shipping Services (in Tons)	Shipping Services by Own vessels (in Tons)	Import through slot and chartered vehicles (in Tons)
2004	6,264,168	3,062,330	483,858	2,578,472
2005	5,066,832	3,018,969	579,416	2,439,553
2006	5,391,234	2,767,053	1,104,813	1,662,240
2007	10,444,594	3,657,055	998,597	2,341,538
2008	14,643,341	4,966,265	952,628	4,013,63
2009	-	4,538,722	603,237	3,935,485

Source:- Ethiopian Shipping and Logistics Services Enterprise

The above table 4.3 shows total import through Shipping Services and imported by ESLSE Shipping Services data. Table 4.3 shows that the cargoes imported to the country are increasing from time to time both in volume and in kind. Accordingly, ESLSE is increasing its import cargo transportation service capacity by adding the number of own ships. Apart from its own ships, the enterprise uses slot carriers arrangement and chartering. Accordingly, the total imported cargo into the country in the year 2004 E.C was 6,264,168 tons, out of which 3,062,330 tons were transported by ESLSE, and the ESLSE share from the total imported cargo were 49%. As indicated in table 4.3 in the year 2008 E.C the total amount of imported cargo to the country increased to 14,643,341 tons as compared to that of 2004 E.C. from which 6,264,168 tons was imported by sea. Moreover, the total transported cargo by ESLSE has also increased to 4,966,265 tons. However, even though the total import cargo transported by ESLSE has increased, the enterprise's share from the total imported cargo by sea in the year 2008 has been still at 35.2%.

The main focus of the Shipping services of ESLSE is to provide Coastal and International Marine Transport services to and from Djibouti Port. Shipping service uses three business modalities namely own vessel, slot carriers and chartered vessels. Accordingly, ESLSE provides shipping service in three major trade routes: Indian & Gulf, Europe & Africa, and Far East routes. In these countries service is provided on 220 ports.

Generally, as it can be seen from the table 4.3, the imported cargoes shipped by ESLSE are slightly in an increasing trend from the year 2004 E.C to 2008 E.C. The import cargoes transported by the own vessels of enterprise generally are in fluctuating even if the highest amount are in year 2006 E.C which is more than half of total import. If we compare more of our imported cargoes are shipped by slot carriers rather than enterprise vessels although the enterprise obtained bought nine new vessels in 2014 G.C and reached 15 ships by increasing its operation and caring capacity.

On the other hand one of the main functions of ESLSE is to support the import activities of investors, producers and distributors through transporting cargoes from different countries. The own ships available at 2000 were 9, now reached 15 in number and make a significant contribution to strengthening the nations maritime transport capacity and will help increase the amount of cargo carried by Ethiopian vessels. The import cargoes transported are four types that

are break bulk cargo, steel, vehicle and containers. The table below presents the import cargo shipped by ESLSE by cargo type.

Table 4.4: Total import cargo ESLSE shipped by cargo type

Year in E.C	Break bulk cargo in Ton	Steel in Ton	Vehicles in number	Container in TEU
2004	246,908	626,303	18,389	128,692
2005	347,129	490,942	20,165	117,238
2006	295,259	553,971	20,839	130,638
2007	576,675	374,509	22,207	142,724
2008	441,792	814,141	21,384	176,749
2009	485,272	317,635	20,108	185,832

Source;- Ethiopian Shipping and Logistics Services Enterprise annual report

As it is shown on the table 4.4 above the break bulk cargo transportation was increased from 246,908 in 2004 E.C Tons to 347,129 Tons in 2005 E.C and decreased to 295,259 Tons in 2006 E.C. The break bulk cargoes reached its highest amount in 2007 E.C which is 576,675 Tons and gradually become low. This indicates that the cargoes become containerized in the modern and recent shipping industry in the favor of the advantage of containerizing the cargoes. Because break bulk shipping requires more resources at both ends of the transport longshoremen, loading cranes, warehouses, transport vehicles and often takes more dock space due to multiple vessels carrying multiple loads of break bulk cargo as a result the break bulk cargo become decreasing. Also steel cargo transportation as it can be seen from the table 4.4, the steel cargo shipped in Ethiopia by ESLSE was high (626,303 units) in the year 2004 E.C, on the other hand since 2005 E.C up to 2007 E.C it diminished and in 2008 E.C reached its highest amount (814,141 Tons) and then after in 2009 E.C decreased to 317,635 Tons. On the other hand as it can be seen from the table 4.4, the number vehicles shipped in Ethiopia by ESLSE was increased from 2004 E.C (18,389 units) to 2007 E.C (22,780 units) for consecutive year and then after decreased.

Due to containers and operation multimodal transport all types of cargo transportation is changing into container cargo. TEU represents twenty equivalent units or one 20 feet container. One TEU represents 20 Tons of cargoes. The table 4.5 below presents total containers and vehicles imported and the amount of container and vehicles cargoes transported through multimodal.

Table 4.5:- Total containers and vehicles imported and transported through Multimodal

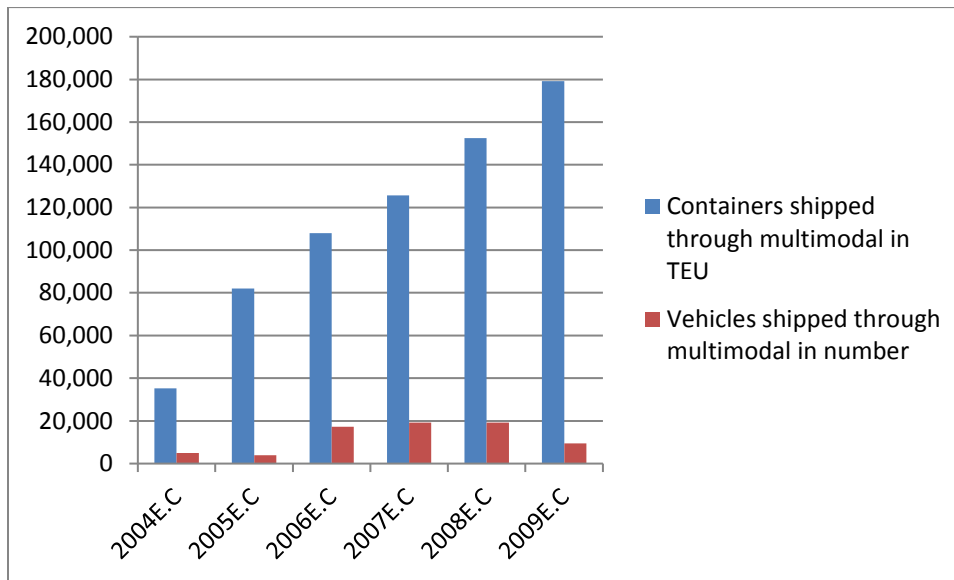
Year	Total container shipped in TEU	Containers shipped through multimodal in TEU	Total Vehicles shipped in number	Vehicles shipped through multimodal in number
2004	128,692	35,222	18,389	4,917
2005	117,238	82,067	20,165	3,931
2006	130,638	107,968	20,839	17,220
2007	142,724	125,581	22,207	19,153
2008	176,749	152,509	21,384	19,184
2009	185,832	179,170	20,108	9,464

Source;- Ethiopian Shipping and Logistics Services Enterprise annual report

The above table 4.5 indicates the total container and vehicles shipped and the amount of containers and vehicles shipped through multimodal transport operation system. As it can be seen from the table 4.5 the number of containers transported through multimodal transport operation system from the total container shipped is increasing at increasing rate since 2004 E.C. From total containers shipped through multimodal by ESLSE increased generally from the year 2004E.C to 2009 E.C. Accordingly from the year 2004 E.C to 2009 E.C the total number of containers shipped by ESLSE rose each year and reached at 185,832 TEUs in the year 2009 but in 2005 E.C decreased to 117,238TEU from 128,692 TEU in 2004 E.C. The number of vehicles as the table 4.5 above indicates the number of vehicles shipped generally increase 18,389 in 2004 E.C to 20,165 in 2005 E.C, 20,839 in 2006 E.C and reached its highest unit of 22,207 in 2007 E.C. then after decreased and reached 20,108 units in 2009 E.C. The number of vehicles transported or shipped through multimodal transport operation system are 4,917 units in 2004 E.C but it is decreased to 3,931 units in 2005 E.C and it increased again for consecutive years and reached its highest 19,184 units in 2008 E.C and then decreased to 9,464 units in 2009 E.C.

The total number of vehicles transported through multimodal system is decreasing due to the containerization of vehicles cargo. The figure 4.1 below presents containers and vehicles shipped through multimodal operation.

Figure 4.1 Container and Vehicles cargo shipped through Multimodal



Source:- Source;- Ethiopian Shipping and Logistics Services Enterprise annual report

The figure 4.1 above indicates the number of vehicles and containers shipped through the multimodal transport operation system. And the figure 4.1 shows containers shipped through multimodal transport system are increased from 35,222 TEU in 2004 E.C to 179,170 TEU in 2009 E.C. And vehicles shipped through multimodal transport system are increased from 4,917 numbers in 2004 E.C to 19,184 TEU in 2008E.C and then decreased to 9,464 TEU in 2009 E.C. The numbers of vehicles transported through multimodal are not increased when compared to containers and also the total vehicles shipped trough multimodal was decreased in 2009 E.C. This is due to containerization of vehicles cargo.

4.2 Freight Forwarding Services

The freight forwarding services of the enterprise has more than 47 years of experience but multimodal transport operation system has been implemented since January, 2011 G.C or 2004 E.C. This service is concerned with clearing & forwarding of import and export using two

business modalities namely multimodal & Uni-modal. The Freight Forwarding Sector of the Enterprise is mainly concerned with multimodal and uni-modal service provisions of import and export cargoes. The major services provided by this sector are:- Customs and port clearing: Introducing time saving and reliable documentation process, ESLSE accomplishes, with utmost care, port and customs formalities and enables imported/exported cargoes to arrive at appropriate destination. And Trucking: ESL is equipped with modern heavy trucks with the objective of speeding up transportation of freight from Djibouti to inland ports or other designated destinations and vice versa. In this regard, ESL originally had 60 heavy duty trucks with a total lifting capacity of 2400 tons of dry cargo at a time. Its recently transferred company, Comet Transport SC, runs around 205 heavy duty trucks of its own. With Comet now merging with ESLSE, the Enterprise's (ESLSE's) present fleet size has risen to 478.

Freight forwarding services of ESLSE provided using two business modalities that is Multimodal and Unimodal. The table 8 below presents freight forwarding services of ESLSE through multimodal.

Table 4.6:- Containers and Vehicles Freight Forwarded from Djibouti port to our dry port.

Year (in EC)	Container shipped through multimodal in TEU	Container Freight Forwarded through MMT services	Vehicles shipped through multimodal in number	Vehicles Freight Forwarded through MMT services
2004	35,222	27084	4,917	2788
2005	82,067	67389	3,931	3931
2006	107,968	88559	17,220	4225
2007	125,581	120,404	19,153	10,636
2008	152,509	175,672	19,184	14,736
2009	179,170	179,170	9,464	9,464
Total	682,517	658278	73,869	45780

Source;- Ethiopian Shipping and Logistics Services Enterprise annual report

The above table 4.6 indicates the total container and vehicles Freight Forwarded from Djibouti to inland Dry port through multimodal transport operation system. As it can be seen from the table the multimodal transport operation system are implemented only for containerized cargo and vehicles. As indicated in table 4.6 the number of containers freight forwarded through multimodal transport operation system in 2004 E.C are 27084 TEU or 78 percent of a total of

35,222 TEU shipped then after by increasing at increasing rate in 2009 E.C reached 179,170 TEU or 100 percent of a total of 179,170 TEU shipped through multimodal. On the other hand from the total number of vehicles shipped the vehicles freight forwarded by multimodal operation are 2788 units or 56 percent in 2004 E.C from 4,917 units then after by increasing in consecutive year reached 14,736 units or 77 percent in 2008 E.C from 19,184 units. But after 2008 E.C the number of vehicles shipped through multimodal transport is decreased and all the vehicles shipped was freight forwarded through MMTS. The vehicles freight forwarded through MMTS in 2009E.C decreased to 9,464 units. This is due to the containerization import vehicles cargo through operation of multimodal transport system because of advantage of containerization. On the other hand the table 4.7 below indicates the average dwell time of import cargoes of containers and vehicles at Djibouti port.

Table 4.7: Average Dwell time of MM cargoes at Djibouti ports at the end of the year.

Djibouti Ports	2004	2005	2006	2007	2008	2009
Multimodal containers at Djibouti	45	7	9.7	8.74	9.5	6.92
Multimodal vehicles at Djibouti	45	7	9.7	7.9	12.1	13.94

Source;- Ethiopian Shipping and Logistics Services Enterprise annual report

The above table 4.7 shows the average dwell time of containers and vehicles. The container and vehicles cargo are decreasing compared to 2004 E.C and before. The containers cargo average dwell time in Djibouti port in 2004 E.C it was 45 days but in 2009 E.C reached 6.92 days this is due to the multimodal transport operation system implementation which leads to decreasing the average dwell of containers at Djibouti port this means the payment of demurrage and storage cost to Djibouti port are decreased and foreign currency are saved to our country. From table 4.7 the average dwell time of vehicles cargo also decreased at fluctuating rate and reached 13.94 days in 2009 E.C compared to 45 days in 2004 E.C. Therefore the implementation of multimodal transport operation system has decreased the average dwell time of containers at Djibouti port this means the demurrage and storage cost payment to Djibouti port are decreased and foreign currency are saved to our country.

4.3 Port and Terminal Services

This service is the point of destination to Ethiopia's import & export trade where goods are loaded, customs formalities are completed; goods are temporarily stored; stuffing & un-stuffing activities take place and made ready for transport; and distributed to their final destinations. In this sector the enterprise has around 7 years of experience and the major services provided by this sector are:-Receiving and delivering cargoes, cargo loading and unloading, Stuffing and un-stuffing of container goods, Temporary storage for import and export cargoes, Container cleaning and maintaining, Weigh bridge, Customs control and clearance and Banking and Insurance.

According to Debela (2013) dry ports could handle many activities such as customs clearance, temporary storages, transshipment of goods, stuffing and unstuffing of containers, consolidation of less than container loads and maintenance and repair of containers. Also the full implementation of Modjo and other dry ports like Comet (Kality Branch office), Gelan, Kombolcha, Mekele, Dire Dewa and Semera will have big impact in reducing sea port and transit costs like the storage cost incurred in foreign currency at Djibouti ports (Debela, 2013). The Enterprise endeavors to make these services more efficient and convenient to importers and exporters and play a crucial role in the logistics value chain. The table 4.8 below presents containers and vehicles received Dry port and bonded warehouse services.

Table 4.8 Containers and Vehicles received inland Dry port and Bonded warehouse services

Year (in EC)	Container freight forwarded by multimodal in TEU	Multimodal Container received dry port services in TEU	Containers received bonded warehouse services in TEU	Vehicles freight forwarded by multimodal in unit	Multimodal vehicles received dry port services in unit	Vehicles freight forwarded through multimodal in unit
2004	27084	19629	7455	2788	2776	12
2005	67389	60799	6590	3931	3840	91
2006	88559	84869	3690	4225	4183	42
2007	120,404	114,369	6035	10,636	8,275	2361
2008	175,672	162,047	13625	14,736	13,224	1512
2009	179,170	169,241	9929	9,464	8,507	957

Source;- Ethiopian Shipping and Logistics Services Enterprise annual report

The above table 4.8 indicates the import cargo containers and vehicles transported through multimodal transport system and received dry port and bonded warehouse services. As shown in the above table 4.8 multimodal containers freight forwarded through multimodal operation and received dry port services are 19,629 TEU in 2004 E.C the number of container received dry port services. Since 2004 E.C the number of containers received dry port services at seven dry port with in our country increased at increasing rate for consecutive year and reached 169,241 TEU in 2009 E.C. On the other hand the numbers of vehicles freight forwarded through multimodal transport operation system and received dry port services are 2776 units in 2004 E.C. by increasing for consecutive years reached its highest value of 13,224 units in 2008 E.C and fall to 8,507 units in 2009 E.C this is due to containerization of vehicles transport.

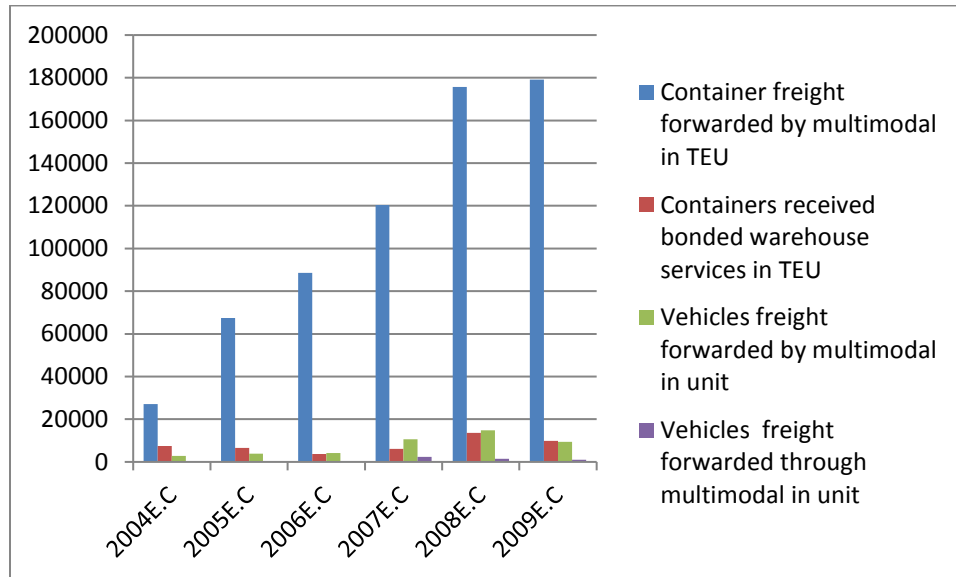
Therefore we can conclude from the above table the number of vehicles and containers receiving the dry port services after the implementation of multimodal transport operation by ESLSE are increasing year after year. Dry port is a place where the delivery of goods are made and its one of the major services provided by ESLSE and a source of income to the enterprise.

On the other hand the above table 4.8 shows the multimodal containers and vehicles received bonded warehouse services. In 2004 E.C 7455 TEU containers and 12 units of vehicles received bonded warehouse services but then after containers received bonded decreased until 2008 E.C and reached its highest amount of 14,736 TEU in 2008 E.C and again in 2009 E.C decreased to 9,464 TEU. Accordingly vehicles transported through multimodal transport and received bonded warehouse increased to 91 units in 2005 E.C and decreased in 2006 E.C to 42 then after reached its highest value of 2,361 units in 2007 E.C but after 2007 E.C by decreasing for two consecutive years reached 957 units in 2009 E.C. Therefore we can conclude one of the advantages of multimodal transport system is door to door services of bonded warehouse services to authorized economic operators of our country also without container deposit services also benefited these importers.

The Bonded warehouse services are provided by ESLSE to AEO these services benefit the importers because they receive services in credit. The performance of ESLSE also increased as it shown in the above table 4.8 the number of containers and vehicles received bonded warehouse system increased this shows the financial performance of ESLSE is improved because the credit services of the ESLSE increased.

The figure 4.2 below shows the number of containers and vehicles receive bonded warehouse services. In order to present the amount containers and vehicles received bonded warehouse services.

Figure 4.2: number of containers and vehicles received bonded warehouse services



Source;- Ethiopian Shipping and Logistics Services Enterprise

The above figure 4.2 shows the number of vehicles and containers freight forwarded through multimodal operation system and received bonded warehouse services. Figure 4.2 indicates in 2004 E.C 7455 TEU containers and 12 units of vehicles received bonded warehouse services but then after containers received bonded decreased until 2008 E.C and reached its highest amount of 14,736 TEU in 2008 E.C and again in 2009 E.C decreased to 9,464 TEU. Accordingly vehicles transported through multimodal transport and received bonded warehouse increased to 91 units in 2005 E.C and decreased in 2006 E.C to 42 then after reached its highest value of 2,361 units in 2007 E.C but after 2007 E.C by decreasing for two consecutive years reached 957 units in 2009 E.C. The advantages of dry ports are the lowest storage cost and safety. Due to this importers are using dry ports of our country as storage. The table 4.9 below presents the average dwell time of containers at dry ports within our country.

Table 4.9: Average dwell time (days) of multimodal cargos at dry ports at the end of the year.

Year	2004	2005	2006	2007	2008	2009
Average dwell time Inland dry ports	17	16	71	67	55.8	42.7

Source;- Ethiopian Shipping and Logistics Services Enterprise annual report

The table 4.9 above indicates the average dwell time of multimodal containers at dry ports with in our country. As shown in the tables 14 the multimodal container average dwell time at dry port is 17 days in 2004 E.C and 16 days in 2005 E.C. but in 2006 E.C it increased to 71 days then after decreased from year to year and reached 42.7 days in 2009 E.C. Therefore from this table we can conclude average dwell time at dry port with in our country are high due to low storage cost of dry port cost. The number of vehicles receives dry port services are decreased due to container advantage of transporting vehicles.

Table 4.10:- Dry port and terminal services container throughput in multimodal transports

Year/EC/	full in(TEU)	full out (TEU)	empty in(TEU)	empty out (TEU)	Container Throughput
2005	60,799	59,968	49,956	74,701	245,424
2006	82,890	80,842	75,018	74,701	313,451
2007	114,369	115,739	112,433	112,182	454,723
2008	159,051	154,022	152,761	151,324	617,158
2009	169,241	171,346	170,682	170,503	681,772

Source;- Ethiopian Shipping and Logistics Services Enterprise annual report

The above table 4.10 shows the container throughput at dry port. As indicated in the table 4.10 total import through ESLSE received dry ports and their container throughput. From the table 4.10 in 2005 E.C container through put are 245,424 TEU and then after increased at consecutive year and reached 681,772 TEU in 2009 E.C. Therefore from the table 4.10 we will found full in, full out, empty in and empty out containers are increase since 2005 E.C. One of the reason dry port services are provided is due to implementation of multimodal transport.

The present Ethiopian logistics set-up has dry ports in the form of Container Freight Stations and Inland Container Depots. They are equipped with fixed installations and offer services for handling and temporary storage of import / export laden and empty containers carried under customs control. Transshipment of cargo also takes place from such stations. Currently in seven dry ports are under implementation of multimodal transport operation and fully functional. The below table 4.11 presents the seven dry port terminal area in hectare and terminal capacity.

Table 4.11 dry port terminal area in hectare and terminal capacity in TEU

Dry port name	Dry port terminal area in hectare		Dry port terminal capacity in TEU	
	2004	2009	2004	2009
Modjo	3.5	23.67	2688	12675
Kality	3.2	3.2	2500	1260
Gelan	0	4	0	2352
Kombolcha	0	8	0	3776
Mekele	0	3.05	0	1439
Diredawa	0	0.8	0	288
Semera	2	2.5	980	980

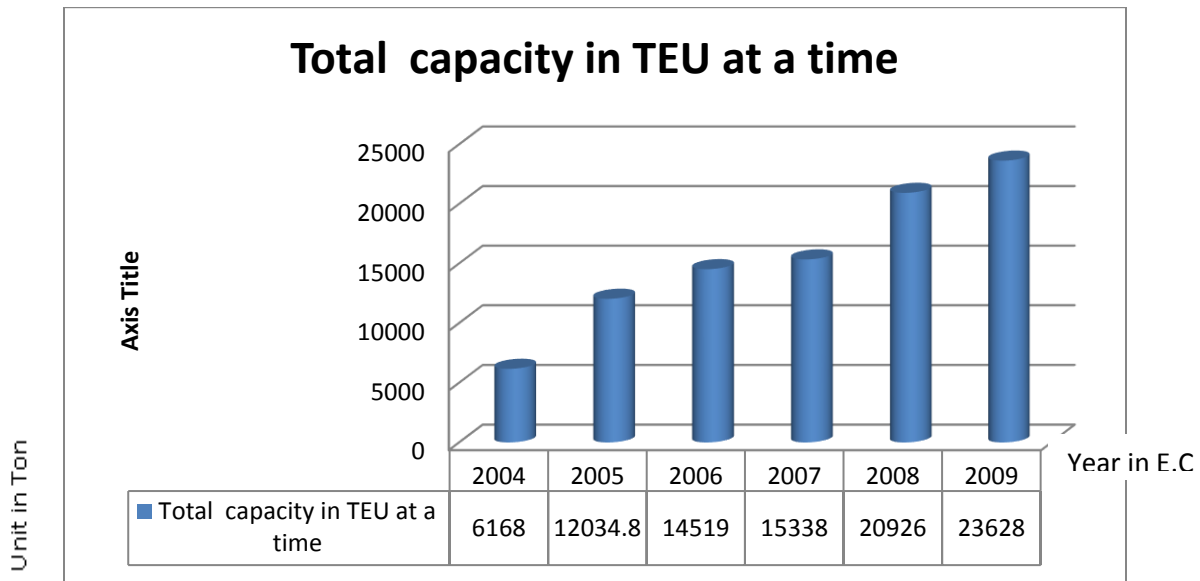
Source;- Ethiopian Shipping and Logistics Services Enterprise annual report

The above table 4.11 indicates the terminal area and terminal capacity of all dry ports are increased and reached their highest value and still expanding. Ethiopia currently has 7 major dry ports and 187 minor ports. Port traffic grew at 7.66% p.a. between 2005-06 & 2010-11. While non-major ports registered a double-digit growth at 13.55%, traffic at major ports grew only at 5.37. In addition to their role in cargo transshipment, dry ports may also include facilities for storage and consolidation of goods, maintenance for road or rail cargo carriers and custom clearance services. At the beginning Modjo dry port was established in 2001 with terminal carrying capacity of 1,152 TEU containers at a time. Now in 2007 its capacity reached at 12,675 TEU containers carrying capacity at a time. Then semera dry port was established in 2003 and now the number of dry ports has reached 7 as it can be seen on the above table.

The figure 4.3 below shows the total terminal capacity in TEU and area in hectare. The terminal capacities of dry ports of our country are 6,168 TEU in 2004 E.C but then after the terminal capacity of dry ports within our country are increased from year to year and reached 23,628 TEU in 2009 E.C. In addition to the terminal capacity of dry ports the total area of the dry port terminal are increased to 40.41 hectare from 8.7 hectare in 2004 E.C.

Therefore we can conclude that the terminal capacity at a time and areas of dry port terminal increased after the implementation of the multimodal transport operation system. One of the major contributions of the implementation of multimodal transport operation system by ESLSE is expansion of dry ports in hectare and capacity. The figure below presents terminal capacity of dry ports.

Figure 4.3:- Total dry port terminal capacities at a time



Source;- Ethiopian Shipping and Logistics Services Enterprise

The figure 4.3 above indicates the terminal capacity dry ports at a time. The terminal capacities of dry port are increased from 6116 TEU in 2004 E.C to 23,628 TEU in 2009 E.C.

Therefore we can conclude the MMTS operation has contributed to Containers and Vehicles cargo through storage at dry port at a lower cost, bonded warehouse services to AEO, decrease average dwell time at Djibouti port and expansion of inland dry port terminal capacity and area.

4.4 Corporate Services

This sector is concerned with giving supportive services to the other three main sectors: like purchasing and providing office equipment, ICT service financial services, fulfilling human resources requirements: generally it is involved in supporting the enterprise’s operational activities rather than doing operational activities.

Table 4.12:- Annual financial operational implementation of ESLSE

Types	Measurement	2006	2007	2008
Revenue	Birr in Thousands	10,903,805	12,907,159	15,094,546
Cost	Birr in Thousands	10,143,479	12,112,753	13,893,889
Profit	Birr in Thousands	760,326	794,406	1,200,657

Source;- Ethiopian Shipping and Logistics Services Enterprise

The table 4.12 above shows the financial operation of ESLSE since 2006 E.C up to now. As it shown from the table 4.12 the financial operation of ESLSE increased from 10,903,805,000 in 2006 E.C to 15,094,546,000 in 2008 E.C.

Table 4.13:- ESLSE employment opportunity and Freight forwarders and custom clearing

	2003	2004	2005	2006	2007	2008	2009
Employees	1414	1523	1544	2049	3134	3367	3770
Freight forwarders	45	65	79	136	180	213	-

Source;- Ethiopian Shipping and Logistics Services Enterprise Annual Report

The table 4.13 above shows the number of workers ESLSE since 2004 E.C up to now. As it shown from the table 4.13 the numbers of ESLSE workers are 1414 in 2004 E.C but after 2004 E.C the ESLSE increased from year to year and reached 3770 in 2009 E.C. Therefore multimodal transport operation system implementation has increased the employee of ESLSE. On the other hand the table 4.13 above shows the number of freight forwarders and custom clearing since 2002 E.C up to now. The table 4.13 shows the numbers of freight forwarders and custom clearing increased from 45 in 2003 E.C to 213 in 2008 E.C.

4.5 Logistics Performance Index

Table 4.14:- LPI components of customs and other border agencies.

Year	LPI rank	LPI score	LPI components					
			Custom	Infrastructure	International shipment	Logistics quality and competence	Tracking and tracing	Timeliness
2010	123	2.41	2.13	1.77	2.76	2.14	2.89	2.65
2012	141	2.24	2.03	2.22	2.35	2.16	2.1	2.54
2014	104	2.59	2.42	2.17	2.5	2.62	2.67	3.17
2016	126	2.38	2.6	2.12	2.56	2.37	2.18	2.37

Source:- World Bank LPI Report

The above table 4.14 shows after the implementation of multimodal transport operation system the LPI performance is improved from 2.13 LPI score in 2010 to 2.60 in 2016. The quality of

trade and transport infrastructure LPI rank and score are deteriorating since 2010 according to the LPI report of the World Bank connecting to compete reports. And the ease arranging competitively priced shipment LPI rank and score are decreased in 2012 and then increased since 2012 according to the LPI report of the World Bank connecting to compete report. The implementation of multimodal transport operation system the LPI performance component of quality and competence score is improved from 2.14 LPI score in 2010 to 2.16 and 2.62 respectively in 2012 and 2014 but in 2016 LPI quality and competence components score are decreased to 2.37 from 2.37 which is in 2014. The above table shows after the implementation of multimodal transport operation system the LPI performance components of ability to truck and trace consignments score is decreased 2.89 in 2010 to 2.10 in 2012 and then increased to 2.67 in 2014. But in 2016 the LPI component score of ability to truck and trace consignments decreased to 2.18. The above table 4.14 shows after the implementation of multimodal transport operation system the LPI performance components of timeliness of shipments in reaching destination score is decreased from 2.65 in 2010 to 2.54 in 2012. But in 2014 the LPI components of timeliness of shipments in reaching destination reached 3.17 which is the highest score attained when we compared to all others components and years even though in 2016 the score is declined to 2.37.

4.6 Results from primary Sources of Data

4.6.1 Demographic characteristics of the respondents

The study was undertaken to assess the contribution of multimodal transport to performance of Ethiopian shipping and logistics services enterprise. To identify the contribution of multimodal transport system, 95 questionnaires was developed and distributed to the ESLSE Head office workers at a three sectors. Furthermore the researcher also used secondary data to consolidate the findings. In this study descriptive analysis were used to analyze the data. The descriptive statistics utilized in this research, describe the respondent's characteristics with average and percentages. Furthermore, based on the findings recommendations were forwarded. Analysis of the data is presented below:

Table 4.15 Background information of the respondents

Items	Respondent type	Frequency	Percent	Valid percent	Cumulative percent
Respondents Service Sector	Shipping sector	27	28.4	28.4	28.4
	Freight Forwarding sector	28	29.5	29.5	57.9
	Port and Terminal sector	40	42.1	42.1	100
Respondents Gender	Male	53	55.8	55.8	55.8
	Female	42	44.2	44.2	100
Respondents Services Year	1 up to 4 years	41	43.2	43.2	43.2
	4 up to 6 years	16	16.8	16.8	60
	6 up to 8 years	7	7.4	7.4	67.4
	Above 8 years	31	32.6	32.6	100
Respondents Educational Background	4	4.2	4.2	4.2	4.2
	73	76.8	76.8	76.8	81.1
	18	18.9	18.9	18.9	100

Sources: Own computation using survey data

As it is mentioned in the table 4.15, the total number of respondents is 95 all the questioners distributed were returned. This makes the response rate 100%. The time of data screening for accuracy and completeness no questionnaire was found to be unusable, the reason behind was the respondents were given enough time to reply all parts and items completely. From the table 4.15 the categories of the respondents by services sector in percent are 28.4% from Shipping services sector, 29.5% from Freight Forwarding services sector and 42.1% from Port and Terminal services sector. On the other hand the characteristics of the respondents' such as Gender, Services years and Education level also presented. The gender variable indicates 53(55.8%) are male and 42(44.2) are female. And services years of respondents indicate 41(43.2%) respondents are less than or equal to 4 years of work experience in this sector, 31(32.6%) respondents are 8 years and above work experience and the remaining 23(24.2%) are 4 up to 8 years of work experiences.

Multimodal transport fully implemented in Ethiopia by rule and regulation in 2004E.C. And as indicated in table 4.15 the number of respondents less than or equal to 1 up to 6 years of service year are 57(60%) this means respondents are employed after the implementation of multimodal transport. From this we can conclude there are employees that hired after the implementation of the MMTS. The rest 40 percent of the respondents worked for more than 6 years. Since, there are significant numbers of workers less than 6 years' experience of working, which shows there is new employment opportunity. It has been about 6 years since the multimodal transport system

adopted. In respect to educational level of respondents as shown in the above table 4.15 the 4.2% are diploma, 18.9% are master and 76.8% of respondents are first degree graduate. Therefore, from the above information, we can deduce that the majority of the respondents have good academic background and long time work experience. This entails that the feedback obtained from respondents on the contribution of multimodal transport operation system valuable and well known about the benefits. Addition to this observation is made to check the reliability.

4.6.2 Analysis of Descriptive Statistics

Table 4.16 Logistics relation with Economic Development

Question	Response	Frequency	Percent	Valid Percent	Cumulative Percent
Logistics improvements are critical to trade flows and the competitiveness of an economy.	strongly agree	64	67.4	67.4	67.4
The cost and quality of transport has impact on the development of national production and foreign trade.	strongly agree	77	81.1	81.1	81.1
Logistics performance has a direct and indirect impact on the economic growth and development of a country	strongly agree	75	78.9	78.9	78.9
MTOS reduce the cost of being land locked and its economic impact	strongly agree	63	66.3	66.3	66.3
	Agree	14	14.7	14.7	81.1
	Neutral	4	4.2	4.2	85.3

Sources: Own computation using survey data

The above table 4.16 shows the logistics relation with economic development. From the table 4.16 of the total respondents 64 (67.4%) of them replayed that they were strongly agree transport and logistics is critical to economic development through expansion and foreign direct investment. On the other hand 27(28.4%) are agree and 4(4.2%) are neutral. Therefore about

95.8% respondents are in favor of positive relation between logistics improvement and economic development. Well-functioning logistics, both domestically and internationally, is a necessary precondition of national competitiveness (Arvis, et al., 2014). Therefore multimodal transport system helps improve trading efficiency, transforming the relation between international carriers and trading partners.

On the other hand in the above table 4.16 the majority of respondents 89(93.7%) reported that cost and quality of transport has impact on development and foreign direct investment. The remaining 6 (6.3%) of respondents are neutral about the cost and quality of transport impact on the development and foreign trade. The cost and quality of transport services will have considerable impact on the development of national production as well as foreign trade activities. These are key arrangements to development as no country can develop without trade and transportation is central gravity of effective and efficient trade. From the above table 4.16 clearly indicates that 75(78.8%) of respondents strongly agree with logistics performance has direct and indirect impact on the economic growth and development. On the other hand 9(9.5%) of respondents agree and 11(11.6%) of respondents neutral about logistics performance direct and indirect impact on country's economic growth and developments. Therefore majority of respondents 84(88.3%) has reported logistics performance direct and indirect impact on the economic growth and development. The World Bank's LPI (2010: III) indicates that 'countries at the same level of per capita income with the best logistics performance experience additional growth of 1% in Gross Domestic Product (GDP) and 2% in trade'.

As shown in the above table 4.16 the 63(66.3%) of respondents strongly agree, 14(14.7%) of respondents agree, and 4(4.2%) of respondents are neutral. Therefore 77(81%) of respondents reported multimodal transport operation implementation has more advantage than unimodal transport operation in reducing the cost of landlockedness of Ethiopia in supporting our economic development activity. On the contrary 10(10.5%) of respondents reported strongly disagree and 4(4.2%) of respondents disagree; totally 14(14.7%) of respondents reported disagree with multimodal transport operation implementation has more advantage than unimodal transport operation in reducing the cost of landlockedness of Ethiopia in supporting our economic development activity. Therefore from the total of 95 respondents 77(81%) agree and 14(14.7%) of respondent disagree. According to World Bank, LPI (2014) through widespread reforms of their transit transport policies, border delays and inefficiencies are being reduced and trade flows made smoother. Between 2005 and 2010, the average time taken by an LLDC to

complete export formalities was remarkably reduced by nine days or 16%. The time to import dropped from 60 to 52 during the same period, indicating a 13% reduction. However, importing into an LLDC typically takes at least a week longer than for its coastal neighbors and times can vary widely, especially in Africa and Central Asia. Therefore, Multimodal transport system helps improve trading efficiency, transforming the relation between international carriers and trading partners. And Multimodal transport system is considered a game changer as it is quite effective in solving a major part of cargo mobility issues. And an effective multimodal transport system will bring short-term benefits to local traders and transport operators, as well as longer-term consequences in the structural changes of a country's transport and international trade development.

Table 4.17:- Major contribution of Multimodal Transport Operation System

Questions	Respondents response in percent					
	S.A	A	N	DA	S.D A	Cumul ative
MTS solving a major part of import cargo mobility issues by combining state and private transportation modes.	85.3	14.7	-	-	-	100
Authorized economic operators of our country are benefited from multimodal transport operation by taking advantage of bonded warehouse and without container deposit MT operations in their investment activity and production process of international trade transactions.	62.1	27.4	4.2	6.3	-	100
MTO has improved financial performance of importers by providing warehousing and container storage services at lower cost at inland dry port with in our country.	51.6	36.8	9.5	2.1	-	100
MTO implementation of ESLSE in our country has increased expansion and performance of inland dry ports and dry port services in our country.	61.1	25.3	11.6	2.1	-	100
Multimodal transport system is supporting foreign direct investors in our country through faster deliveries of industry inputs at lowest cost	36.8	45.3	15.8	2.1	-	100
MTO of ESLSE is supporting our country investment activity by providing stable and pre agreed price for door to door transport operation at reduced transport costs to importers.	17.9	61.1	14.7	6.3	-	100

Our payment of demurrage cost of containers to Djibouti government has decreased due to multimodal transport operation implementation by ESLSE.	60	16.8	23.2	-	-	100
MTO is effective in saving foreign currency to our country through optimization process of location and storage of import cargoes at inland dry ports in our country by reducing transit time.	53.7	21.1	23.2	2.1	-	100
MTO has simplified border crossing process, physical inspection time, red tape and compulsory warehousing and a source of revenue for cargo that importers neglect to pick from dry port for custom authority.	38.9	35.8	23.2	2.1	-	100
MTS create employment opportunity and source of income.	51.6	23.2	16.8	8.4	-	100
MTO implementation helped ESLSE as a source of income for its port and terminal sector services by making the delivery of imported cargoes at inland dry ports within our country.	34.7	38.9	22.1	2.1	2.1	100
MTO implementation has improved cargo transport operation and reduced handling cost of ESLSE by economies of scale.	50.5	21.1	28.4	-	-	100
The MTO has increased availability of empty container and provision for our country exporters to their export trade activity	30.5	41.1	22.1	6.3	-	100
Multimodal transport by Ethiopian government and ESLSE have contributed to the expansion of infrastructure development to our country	22.1	18.9	15.8	38.9	4.2	100
MTO has introduced ESLSE with new technology by introducing with modern logistics information communication technology system.	22.1	16.8	42.1	8.4	10.5	100

Sources: Own computation using survey data

Ass summarized in table 4.17 above, respondents were asked to rate the level of contribution of Multimodal Transport System based on its degree of agreement by using a five point Likert scale ranging from Strongly Agree to Strongly Disagree. According to the responses given by the sample respondents shown in the summary table above, the ranks of the variables are identified from higher to lower in decreasing order.

Table 4.17 indicates from the total of 95 respondents the variable identified, the top three variables were rated as the key contribution of multimodal transport system. These are first, MTS is solving a major part of import cargo mobility issues by combining state and private transportation modes with 100% of respondents agree as MTS solving a major part of import cargo mobility issues by combining state and private transportation modes. From this 81 (85.3) of respondent reported strongly agree and the remaining 14(14.7) respondent reported agree. Therefore multimodal transport system has helping in solving a major part of import cargo mobility issues by combining state and private transportation modes into one transport system, the best rates and transit time can be capitalized at stable transport price.

Second, MTS is supporting Authorized economic operators of our country by taking advantage of bonded warehouse and without container deposit services of Multimodal Transport operations in their investment activity and production process of international trade transactions. As the above table 4.17 indicated 89.5% agree as AEO benefited from MTO bonded warehouse and without container deposit services advantage. From which 59 (62.1%) of respondents strongly agree and 26 (27.4%) of respondents reported agree that is a total 85(89.5%) of respondents. On the other hand 4(4.2%) of respondents are neutral and 6(6.3%) of respondents reported disagree. Therefore majority of respondents reported AEO of our country are benefited from multimodal transport operation by taking advantage of bonded warehouse and without container deposit MT operations in their investment activity and production process of international trade transactions.

Third, MTS is contributed by providing warehousing and container storage services at inland dry port. As presented in the above table 4.17 the 88.4% agree as implementation of MTO has improved financial performance of importers by providing warehousing and container storage services at lower cost at inland dry port with in our country and 86.3% agree as MTO implementation of ESLSE in our country has increased expansion and performance of inland dry ports and dry port services in our country. Therefore implementation of multimodal transport has improved financial performance importers by providing warehousing and container storage services at lower cost at inland dry port with in our country and also Multimodal transport operation implementation by ESLSE in our country has increased expansion and performance of inland dry ports and dry port services in our country. On the other hand 11(11.6%) of

respondents are neutral and 2(2.1%) of respondents reported disagree about Multimodal transport operation implementation of ESLSE in our country has increased expansion and performance of inland dry ports and dry port services in our country. Therefore, the identified key contribution of a Multimodal Transport System as per the respondents are contribution for solving import cargo mobility issues by combining state and private transportation modes, bonded warehouse and without container deposit services to AEO, warehouse and container storage at inland dry ports .

On the other hand as the above table 4.17 the remaining identified contribution presented as follows:- Accordingly, the above table 4.17 clearly indicates that 58(61.1%) of respondents strongly agree and 24(25.3%) of respondents reported agree that is a total 82(86.3%) of respondents reported that Multimodal transport operation implementation of ESLSE in our country has increased expansion and performance of inland dry ports and dry port services in our country. On the other hand 11(11.6%) of respondents are neutral and 2(2.1%) of respondents reported disagree about Multimodal transport operation implementation of ESLSE in our country has increased expansion and performance of inland dry ports and dry port services in our country. Therefore majority of respondents 82(86.3%) has reported Multimodal transport operation implementation of ESLSE in our country has increased expansion and performance of inland dry ports and dry port services in our country. The multimodal system is ‘an optimisation process of the location, movement and storage of resources from the point of origin, through various economic activities, to the final consumer (Alderton, 1995).

As the above table 4.17 indicate 35(36.8%) of respondents strongly agree and 43(45.3%) of respondents reported agree that is a total 78(82.1%) of respondents reported that Multimodal transport system is supporting foreign direct investors in our country through faster deliveries of industry inputs at lowest cost. On the other hand 15(15.8%) of respondents are neutral and 2(2.1%) of respondents reported disagree about Multimodal transport system is supporting foreign direct investors in our country through faster deliveries of industry inputs at lowest cost.

As the above table 4.17 indicate 17(17.9%) of respondents strongly agree and 58(61.1%) of respondents reported agree that is a total 75(78.9%) of respondents reported that Multimodal transport operation of ESLSE is supporting our country investment activity by providing stable and pre agreed price for door to door transport operation at reduced transport costs to importers.

On the other hand 14(14.7%) of respondents are neutral and 6(6.3%) of respondents reported disagree about Multimodal transport operation of ESLSE is supporting our country investment activity by providing stable and pre agreed price for door to door transport operation at reduced transport costs to importers. Reliability, capacity and safety advantages of multimodal leads Shippers have more access to equipment and standardized transit schedules. As companies move their freight to intermodal, there is also the opportunity to streamline their reverse logistics, providing additional saving.

The above table 4.17 clearly indicates that 51(53.7%) of respondents strongly agree and 20(21.1%) of respondents reported agree that is a total 71(74.7%) of respondents reported that Multimodal transport operation is effective in saving foreign currency to our country through optimization process of location and storage of import cargoes at inland dry ports in our country by reducing transit time. On the other hand 22(23.2%) of respondents are neutral and 2(2.1%) of respondents reported strongly disagree about Multimodal transport operation is effective in saving foreign currency to our country through optimization process of location and storage of import cargoes at inland dry ports in our country by reducing transit time. Therefore majority of respondents 71(74.7%) has reported Multimodal transport operation is effective in saving foreign currency to our country through optimization process of location and storage of import cargoes at inland dry ports in our country by reducing transit time.

The above table 4.17 clearly indicates that 57(60%) of respondents strongly agree and 16(16.8%) of respondents reported agree that is a total 73(76.8%) of respondents reported that our payment of demurrage cost of containers to Djibouti government has decreased due to multimodal transport operation implementation by ESLSE. On the other hand 22(23.2%) of respondents are neutral about our payment of demurrage cost of containers to Djibouti government has decreased due to multimodal transport operation implementation by ESLSE. The ‘Multimodal Transport’ concept can be defined as the combination of various types of transport modes used in a national or international transport operation, which provides door-to-door services, under the responsibility of one single transport operator (UNCTAD, 2001). The multimodal system is ‘an optimization process of the location, movement and storage of resources from the point of origin, through various economic activities, to the final consumer’ (Alderton, 1995, 204).

The above table 4.17 clearly indicates that 37(38.9%) of respondents strongly agree and 34(35.8%) of respondents reported agree that is a total 71(74.7%) of respondents reported that

Multimodal transport has simplified border crossing process, physical inspection time, red tape and compulsory warehousing and a source of revenue for cargo that importers neglect to pick from dry port for custom authority. On the other hand 22(23.2%) of respondents are neutral and 2(2.1%) of respondents reported disagree about Multimodal transport has simplified border crossing process, physical inspection time, red tape and compulsory warehousing and a source of revenue for cargo that importers neglect to pick from dry port for custom authority. Therefore majority of respondents 71(74.7%) has reported Multimodal transport has simplified border crossing process, physical inspection time, red tape and compulsory warehousing and a source of revenue for cargo that importers neglect to pick from dry port for custom authority.

The above table 4.17 clearly indicates that 49(51.6%) of respondents strongly agree and 22(23.2%) of respondents reported agree that is a total 71(74.6%) of respondents reported that Multimodal transport implementation has created more employment opportunity and source of income to our citizens in private and government sectors. On the other hand 16(16.8%) of respondents are neutral and 8(8.4%) of respondents reported disagree about Multimodal transport implementation has created more employment opportunity and source of income to our citizens in private and government sectors. Therefore majority of respondents 71(74.6%) has reported Multimodal transport implementation has created more employment opportunity and source of income to our citizens in private and government sectors. Human resource development measures also need to be taken to secure the adequate training of nationals from both public and private sectors to improve management of transport operations and reorganisation of transport enterprises. (UNCTAD Secretariat, 1994b).

The above table 4.17 clearly indicates that 48(50.5%) of respondents strongly agree and 20(21.1%) of respondents reported agree that is a total 68(71.6%) of respondents reported that Multimodal transport operations implementation has improved cargo transport operation and reduced handling cost of ESLSE by economies of scale. On the other hand 27(28.4%) of respondents are neutral. Therefore majority of respondents 68(71.6%) has reported Multimodal transport operations implementation has improved cargo transport operation and reduced handling cost of ESLSE by economies of scale.

As the above table 4.17 indicate 29(30.5%) of respondents strongly agree and 39(41.1%) of respondents reported agree that is a total 68(71.6%) of respondents reported that The ESLSE multimodal transport operation has increased availability of empty container and provision for

our country exporters to their export trade activity. On the other hand 21(22.1%) of respondents are neutral and 6(6.3%) of respondents reported disagree about The ESLSE multimodal transport operation has increased availability of empty container and provision for our country exporters to their export trade activity. Therefore, the introduction of containers had enabled global reach through an increase in trade volume with increase of operational efficiency, which ultimately enables Multimodal Transport to be applied in most international transport operations (Cullinane, *et al*, 2005).

As the above table 4.17 indicate 21(22.1%) of respondents strongly agree and 18(18.9%) of respondents reported agree that is a total 39(41.1%) of respondents reported that arrangements of multimodal transport by Ethiopian government and ESLSE have contributed to the expansion of infrastructure development to our country. On the other hand 15(15.8%) of respondents are neutral, 37(38.9%) of respondents reported disagree and 4(4.2) of respondents strongly disagree. Therefore about arrangements of multimodal transport by Ethiopian government and ESLSE have contributed to the expansion of infrastructure development to our country majority of respondents reported disagree. Infrastructure development is essential for assuring basic connectivity and access to gateways. The average landlocked country has transport costs 50% higher than the average coastal economy. However, improving the infrastructure of the landlocked economy to the top quintile reduces this disadvantage by 12%; and improving the infrastructure of the transit economy reduces the disadvantage by a further 7% (Limao&Venables, 2001).

The above table 4.17 clearly indicates that 21(22.1%) of respondents strongly agree and 16(16.8%) of respondents reported agree that is a total 37(38.9%) of respondents reported that Multimodal transport operation has introduced ESLSE with new technology by introducing with modern logistics information communication technology system. On the other hand 40(42.1%) of respondents are neutral, 8(8.4%) and 10(10.5%) of respondents reported disagree and strongly disagree about Multimodal transport operation has introduced ESLSE with new technology by introducing with modern logistics information communication technology system. Therefore majority of respondents has reported disagree with Multimodal transport operation has introduced ESLSE with new technology by introducing with modern logistics information communication technology system.

Factors that affect implementation of multimodal transport

- ✓ Absence of competition
- ✓ Inadequate dry port expansion and lack of transport infrastructure development
- ✓ Inefficiency in cargo lifting operation performance from Djibouti port
- ✓ Landlockedness and not starting rail way services
- ✓ Document and TIN problem
- ✓ Foreign currency problem and lack of good governance
- ✓ Inefficient transport and inadequate capital investment
- ✓ Lack of ICT
- ✓ Incompetent managers that are politicians rather than professionals with adequate knowledge and skill about multimodal

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary

This study understands that multimodal transport operation system of Ethiopian shipping and logistics services enterprise is at infant stage compared to global best practices. The cost and quality of transport services will have considerable impact on the development of national production as well as foreign trade activities. These are key arrangements to development as no country can develop without trade and transportation is central gravity of effective and efficient trade. An effective multimodal transport system will bring short-term benefits to local traders and transport operators, as well as longer-term consequences in the structural changes of a country's transport and international trade development. There are three key players involved in the multimodal transport operation, viz. service providers, transport users and the Government.

The multimodal system is 'an optimization process of the location, movement and storage of resources from the point of origin, through various economic activities, to the final consumer'.(Alderton, 1995, 204). Multimodal transport system is considered a game changer as it is quite effective in solving a major part of cargo mobility issues. By combining state and private transportation modes into one transport system, the best rates and transit time can be capitalized. Arrangements of multimodal transport are very serious issue which requires relevant knowledge, experience and professional competence. Ethiopian Shipping and logistics services enterprise implemented multimodal transport system since January 2011 with the aim of improving the flow of goods between Djibouti port and dry ports in Ethiopia.

This assessment tries to look at the key contribution of multimodal transport operation system to logistics performance of Ethiopian shipping and logistics services enterprise and Ethiopian economy. As it can be seen from the assessment made, Multimodal transport operation of Ethiopian shipping and logistics services enterprise is not implemented for export trade it implemented only for import trade of containers and vehicles cargo. Accordingly, the numbers of vehicles shipped through multimodal system from 2004 E.C up to 2008 E.C increased and in 2009 E.C decreasing this is due to containerization of vehicles cargo. On the other hand import cargos of container through multimodal transport are increasing at increasing rate since

implementation of multimodal transport. The numbers of containers and vehicles received freight forwarding services of ESLSE multimodal operation system are increasing. The average dwell time of containers and vehicles at Djibouti port are decreased. This means the cost of storage and demurrage payment to Djibouti government are also decreased.

On the other hand the number of containers and vehicles received freight forwarded through multimodal transport system and received dry port services within our country are increasing. The terminal capacity and area of dry port within our country is increased. The number of containers and vehicles that freight forwarded through multimodal transport system and received bonded warehouse services are also increased. The average dwell time of containers and vehicles at dry port within our country are high due to dry port cost are low compared to private warehouse. ESLSE workers are increased and multimodal transport operation has increased employment opportunity at private and government sector. The LPI score of Ethiopia has increased from 2012 to 2014 and decreased in 2016.

In addition to this as it can be seen from the assessment made on primary source of data. About 95% of respondents agree with Transport and logistics is critical to economic development. Also a respondent rating 93.7 % report cost and quality of has impact on development and foreign direct investment. And the respondent rating 78.8 % agree as logistics performance has direct and in direct impact on the economic growth and development. Finally about 81% respondents agree with MTO has advantage in reducing cost of Ethiopian landlockedness.

On the other hand on assessments related to the contribution. All respondents agree as multimodal transport is solving import cargo mobility by combining state and private transport. And 74.6 % respondents agree as MTO create employment and income opportunity to Ethiopian citizens. Although about 82.1 % respondents agree MTO is supporting FDI through fast delivery of input to industry. And MTO increased availability of empty containers to exporters agreed by 71.6 % respondents. The 88.4 % of respondents agreed with MTOS improved financial performance of importers by providing warehousing and container storage services at lower cost at inland dry port. And also 74.7 % respondents agree as MTO is saving foreign currency through optimization process of location and storage of import cargoes in dry port at reduced transit time. Although 76.8 % of respondents agree as MTO reduced demurrage cost payment to Djibouti government. On the contrary only 41.1 % respondents agree with the expansion of infrastructure development to our country is due to MTO.

The 89.5 % of respondents agree as bonded warehouse and without container deposit services of MTO benefited investment and production of AEO of our country. And 78.9 % of respondents agree as MTO supporting our country investment activity by providing stable and pre agreed price for door to door transport operation at reduced transport costs to importers.

The 86.3 % respondent agrees as MTO increased expansion and performance of inland dry ports and dry port services in our country. And 71.6 % of respondents agree with MTO has improved cargo transport operation and reduced handling cost of ESLSE by economies of scale. On the other hand only 38.9 % of respondent agree MTO introduced ESLSE with new technology by introducing with modern logistics information communication technology system.

The 87.5 % of respondents agree as MTO has more advantage than unimodal transport system interims of reliability, capacity, cost, transit time and cargo security to service providers and transport users. And 74.7% of respondents reported that MTO has simplified border crossing process, physical inspection time, red tape and compulsory warehousing and a source of revenue for cargo that importers neglect to pick from dry port for custom authority. On the other hand 83.2% of respondents reported that the implementation multimodal transport operation by ESLSE is reduced theft, informal/corrupt/ payment, false cargo composition and wrong documentation.

Therefore we can conclude the assessment made on multimodal transportation operation contribution as follows. Multimodal transport contributed to ESLSE and Ethiopian economy by solving import cargo mobility through combining state and private transport, investment and production of AEO through bonded warehouse and without container deposit services, improved financial performance of importers by providing warehousing and container storage services at lower cost at inland dry port, increased reliability, capacity, cost, transit time and cargo security to service providers and transport users, increased expansion and performance of inland dry ports and dry port services in our country, reduced theft, informal/corrupt/ payment, false cargo composition and wrong documentation, supporting FDI through fast delivery of input to industry, reduce cost of Ethiopian land lockedness, provide stable and pre agreed price, reduced demurrage cost payment to Djibouti government, save foreign currency through optimization process of location and storage of import cargoes in dry port at reduced transit time, simplified border crossing process, physical inspection time, red tape and compulsory warehousing and a source of revenue for cargo that importers neglect to pick from dry port for custom authority,

create employment and income opportunity to Ethiopian citizens, increased availability of empty containers to exporters, has improved cargo transport operation and reduced handling cost of ESLSE by economies of scale. On the contrary multimodal has not contributed to expansion of infrastructure development to our country and introduce ESLSE with new technology by introducing with modern logistics information communication technology system.

5.2. Conclusion

When the country's economy is growing the international trade that is import and export will also grow therefore logistics services have to be reliable and effective. Logistics services are not one organization task rather customs system, shippers, shippers agents, transporters, Banks, freight forwarders, ports and dry ports has higher impacts. The cost and quality of transport services will have considerable impact on the development of national production as well as foreign trade activities. These are key arrangements to development as no country can develop without trade and transportation is central gravity of effective and efficient trade. An effective multimodal transport system will bring short-term benefits to local traders and transport operators, as well as longer-term consequences in the structural changes of a country's transport and international trade development.

This study aimed to identify key contribution of multimodal transport operation system contribution to Ethiopian shipping and logistics services enterprise and Ethiopian economy and factors that affect multimodal transport operation. With these regards the assessment finds out major contribution of multimodal transport operation system and factors that hinder its operation. First, the major contribution are solving import cargo mobility through combining state and private transport, increasing investment and production of AEO through bonded warehouse and without container deposit services, improved financial performance of importers by providing warehousing and container storage services at lower cost at inland dry port, increased reliability, capacity, cost, transit time and cargo security to service providers and transport users, increased expansion and performance of inland dry ports and dry port services in our country, reduced theft, informal/corrupt/ payment, false cargo composition and wrong documentation, supporting FDI through fast delivery of input to industry, reduce cost of Ethiopian land lockedness, provide

stable and pre agreed price, reduced demurrage cost payment to Djibouti government, save foreign currency through optimization process of location and storage of import cargoes in dry port at reduced transit time, simplified border crossing process, physical inspection time, red tape and compulsory warehousing and a source of revenue for cargo that importers neglect to pick from dry port for custom authority, create employment and income opportunity to Ethiopian citizens, increased availability of empty containers to exporters and has improved cargo transport operation and reduced handling cost of ESLSE by economies of scale.

Second, the factors that hinder operation of multimodal transport operations are foreign currency problem, lack of modern ICT and transportation infrastructure in size and number, letter of credit problem and inadequate machinery, lack of competent professionals in the organization, document and TIN number problem and custom rule and regulation and awash weight of cargo problem, lack of good governance, absence of competition, inadequate dry port expansion and lack of transport infrastructure development, Inefficiency in cargo lifting operation performance from Djibouti port, Landlockedness and not starting rail way services, Foreign currency problem and lack of good governance, inefficient transport and inadequate capital investment and incompetent managers that are politicians rather than professionals with adequate knowledge and skill about multimodal.

Hence, international trade is one of the most important economic activities which can make a lasting impact for the prosperity and wellbeing of a nation. It boosts development and reduces poverty through investments and job creation; enhances competition; encourages innovation; expands choices and lowers prices for consumers, strengthens relations between nations for further trust and cooperation. And Logistics is the collective of all the activities involved in the movement of goods from one point to another, both within and across borders and it's the absolute foundation of any economy. In addition to this the delivery of efficient and effective logistics and transport services is essential for economic development and competitiveness of any country. Also Logistics performance is strongly associated with the reliability of supply chains and the predictability of service delivery for producers and exporters. Better overall logistics performance and trade facilitation are strongly associated with trade expansion, export diversification, attractiveness to foreign direct investment, and economic growth.

Therefore, Multimodal is a door to door service delivery, service economic sector which has a strong impact on the national GDP because it's a transport economy sector that has impact on consumption, investment, import and export and government. For Ethiopia Multimodal Transport is considered the solution for, coastal access to Djibouti port, import and export, technology transfer, infrastructure development, employment opportunity, development of other sector, human capital, and others but much is not done physically on the ground. So that multimodal transport operation system has need higher consideration by both ESLSE and Ethiopian government to maximize its benefit and solve its problem that hinder its effectiveness and efficiency to support the growth and development process of our country.

5.3. Recommendation

This analysis recommends the following measures to maximize the benefit of multimodal transport operation system and develop the logistic service that increase trade competitiveness of the country for achieving its development program. The country should develop a strategy that create harmonization/synergy among the key stakeholders including those that emerge as new institutions in the sector such as rail transport to avoid fragmented activities and set up logistic governance that develops a clear framework that governs all stakeholders. It is also necessary to invest on infrastructural development including on ICT and human resource so as to create a well equipped professional and skilled workforce. the country should also necessary to share experience and adopt modern logistic systems from other similar countries, develop a reliable system for corridor performance monitoring and analysis, develop/strengthen sea port facilities and port service utilization, dry port/terminal facilities to match the current demand in line with best practices. In addition to these, the country's trade finance system should be improved for increased predictability and availability of foreign exchange reserves. Creating collaboration for joint activities with local/foreign universities, research and training institutions and developing other options in the use of port that could minimize the current dependence on Djibouti (port diversification) should be done. The following recommendation can also be done with in short period of time to maximize the benefit of multimodal transport operation system:-

- ✓ Professionals has to replace politicians
- ✓ Modern technology
- ✓ Infrastructure development and coordination among participants
- ✓ Solving L/C problem and giving higher government attention
- ✓ Increasing transport performance and starting rail ways
- ✓ Expansion of dry port infrastructure and services in size and number
- ✓ Training to workers and competent worker hiring
- ✓ Renting or buying sea port and increasing sector budget
- ✓ Policy support and education at higher international institution
- ✓ Reforming internal work system and team building system
- ✓ Transfer to competitive system from monopoly and outsourcing services to private sector by participating private institution

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Appendixes

Questioner

1. Transportation and logistics improvements are critical to trade flows and the competitiveness of an economy's exports and imports through *trade expansion and larger foreign direct investments*:

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

2. The cost and quality of transport services will have considerable impact on the development of national production as well as foreign trade activities.

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

3. Logistics performance has a direct and indirect impact on the economic growth and development of a country.

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

4. Multimodal transport operation system has more advantage in supporting Ethiopian economic development activity than unimodal transport system by reducing the cost of being land locked and its economic impact?

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

5. Multimodal transport system has helping in solving a major part of import cargo mobility issues by combining state and private transportation modes into one transport system, the best rates and transit time can be capitalized at stable transport price.

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

6. Multimodal transport implementation has created more employment opportunity and source of income to our citizens in private and government sectors.

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

7. Multimodal transport operation has increased a foreign direct investment in our country?

- A. Strongly agree C. Neutral
 B. Agree D. I don't agree E. I strongly disagree
8. Multimodal transport system is supporting foreign direct investors in our country through faster deliveries of industry inputs at lowest cost?
- A. Strongly agree C. Neutral
 B. Agree D. I don't agree E. I strongly disagree
9. The ESLSE multimodal transport operation has increased availability of empty container and provision for our country exporters to their export trade activity?
- A. Strongly agree C. Neutral
 B. Agree D. I don't agree E. I strongly disagree
10. Implementation of multimodal transport has improved financial performance importers by providing warehousing and container storage services at lower cost at inland dry port with in our country.
- A. Strongly agree C. Neutral
 B. Agree D. I don't agree E. I strongly disagree
11. Multimodal transport operation is effective in saving foreign currency to our country through optimization process of location and storage of import cargoes at inland dry ports in our country by reducing transit time.
- A. Strongly agree C. Neutral
 B. Agree D. I don't agree E. I strongly disagree
12. Our payment of demurrage cost of containers to Djibouti government has decreased due to multimodal transport operation implementation by ESLSE.
- A. Strongly agree C. Neutral
 B. Agree D. I don't agree E. I strongly disagree
13. Arrangements of multimodal transport by Ethiopian government and ESLSE have contributed to the expansion of infrastructure development to our country?
- A. Strongly agree C. Neutral
 B. Agree D. I don't agree E. I strongly disagree
14. Authorized economic operators of our country are benefited from multimodal transport operation by taking advantage of bonded warehouse and without container deposit MT operations in their investment activity and production process of international trade transactions.

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

15. Multimodal transport operation of ESLSE is supporting our country investment activity by providing stable and pre agreed price for door to door transport operation at reduced transport costs to importers.

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

16. Multimodal transport operation implementation helped ESLSE as a source of income for its port and terminal sector services by making the delivery of imported cargoes at inland dry ports within our country.

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

17. Multimodal transport operation implementation of ESLSE in our country has increased expansion and performance of inland dry ports and dry port services in our country?

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

18. Multimodal transport operations implementation has improved cargo transport operation and reduced handling cost of ESLSE by economies of scale?

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

19. Multimodal transport operation has introduced ESLSE with new technology by introducing with modern logistics information communication technology system?

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

20. Multimodal transport system has more advantage than unimodal transport system interims of reliability, capacity, cost, transit time and cargo security to service providers and transport users?

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

21. Multimodal transport has simplified border crossing process, physical inspection time, red tape and compulsory warehousing and a source of revenue for cargo that importers neglect to pick from dry port for custom authority.

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

22. The implementation multimodal transport operation by ESLSE is reduced theft, informal/corrupt/ payment, false cargo composition and wrong documentation.

- A. Strongly agree C. Neutral
B. Agree D. I don't agree E. I strongly disagree

Part 2:- questions that filled by respondents

1. What are factors that hinders multimodal transport operation for export trade?

2. What is the key benefits contributed by multimodal transportation to ESLSE?

3. What are the key benefits contributed by multimodal transport operation to our countries?

4. What is the factor that hinders to meet the objectives of multimodal transport operation system?

5. To optimize the benefits of multimodal transport operation what has to be done?

