



**ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE, GRADUATE
STUDIES DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN
MANAGEMENT**

**THE CHALLENGES OF DRY PORT MANAGEMENT AND ITS EFFECT
ON IMPORT GOODS CLEARANCE: THE CASE OF MODJO DRY PORT.**

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**A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY, SCHOOL OF
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Statement of Certification

This is to certify that Elizabeth Zeleke has carried out her research work on the topic entitled ***“THE CHALLENGES OF DRY PORT MANAGEMENT AND ITS EFFECT ON IMPORT GOODS CLEARANCE: THE CASE OF MODJO DRY PORT”***.

The work is original in nature and suitable for submission for the award of Master Degree in Logistics and Supply Chain Management (M.A in LSCM).

Advisor: Busha Temesgen, PhD _____

Signature

Date

Statement of Declaration

I, Elizabeth Zeleke, declare that this study is my original work; and has not been presented for a degree in any other university, and that all sources of materials used for the study have been duly acknowledged.

Declared by:

Elizabeth Zeleke

Signature

Date

Dedication

I dedicate this thesis to God Almighty my creator, my strong pillar, my source of inspiration, wisdom, knowledge and understanding. He has been the source of my strength throughout this program; and on his wings only have I soared. I also dedicate this work to my wonderful parents; Zeleke Forsido and Worknesh Lanedabo who has encouraged me all the way and whose encouragement has made sure that I give it all it takes to finish that which I have started. God bless all.

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List of Acronyms

| | |
|--------------|--|
| ESLSE | Ethiopian Shipping and Logistics Services Enterprise |
| ICD | Inland Container Depot |
| ICT | Information and Communication Technology |
| IT | Information Technology |
| RKC | Revised Kyoto Convention |

List of Abbreviations

| | |
|----------------|--|
| SPSS | Statistical Package for Social Science |
| UNCTAD | United Nations Conference on Trade and Development |
| UNECA | United Nations Economic Commission for Africa |
| UNESCAP | United Nations Economic and Social Commission for Asia and the Pacific |

Abstract

Ethiopia as a landlocked country has started constructing dry ports in its hinterland along the transit corridors; among the planned dry ports modjo dry port is the biggest. To gain the maximum benefit from this dry port, the efficient and effective performance of the dry port is very crucial and to do that it is important to identify major challenging factors which influence the performance of dry port management. Hence, the objective of this study was to investigate challenges of dry port management and its effects on import goods clearance. To achieve the research objective, both descriptive and an explanatory research design was employed and used both qualitative and quantitative research approach. Stratified and purposive sampling technique was used as a sampling technique. Primary data were collected from importers, customs clearing agents, ESLSE employees and customs commission employees. Sample sizes of 280 questionnaires were distributed and 93.2% were filled and returned and 6.8% not returned. The data were infilled using the five point Likert-Scale while the Cronbach's Alpha was used to check the data reliability of measurement scale. The relationship between independent variables (dry port management challenges) and dependent variable (import goods clearance) are cross-checked from Pearson correlation matrix. To predict import goods clearance from dry port management challenges, the multiple linear regression models were adopted. The analysis indicated that the independent variables explained 86.3% of import goods clearance process. Staff competence, physical infrastructure, customs services, warehouse condition and ICT have the greater positive influence on import goods clearance whereas ownership of dry port, bank document process and importer behaviour have no significant impact on import goods clearance. The result of the analysis indicated that, ICT, customs service's, staff competence and importers behaviour are major challenges of modjo dry port management. Based on the findings of the study it is recommended that recruiting skilled manpower and preparing work related trainings, investing on modern dry port physical and ICT infrastructure and rising the awareness of importers to collect their containers on time. Thus, further research needs to be conducted to address other challenges of dry port management that affect dry port performance.

Key words: *Dry Port, Physical Infrastructure, Ownership, Staff Competence, Customs Services, Warehouse Condition, Importer Behaviour, Bank Document Process and Import Goods Clearance.*

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Landlockedness refers to the geographical situation of a country without direct access to the sea (Glassner, 1970). According to this definition, there are 44 landlocked countries in the world. Of these, the United Nations lists 32 as landlocked developing countries that are low and middle-income countries based on the World Bank country classification.

According to Reports of World Bank-United Nations reports (2014), landlocked countries are entirely or almost entirely enclosed by land, entailing that they have no shoreline on open seas, in contrast to closed seas or freshwater bodies. Due to this, they have inherent disadvantages compared to countries with coastlines and deep-sea ports. Trade is more difficult and costly because a landlocked country must access most foreign markets through international transport corridors connecting them to ports in neighbouring countries, here called transit neighbours.

Efficient logistics systems for transportation of goods are vital keystones in the continuous economic development of any region. Efficient logistics systems become necessary as an economy expands, becomes more diversified and globalized. For land locked countries that normally suffer less connectivity with the rest of the world, innovations must be generated and applied to increase speed and reduce costs within the supply chain. The Dry Port concept is a step stone towards such development and if managed correctly, lead to benefits on multiple levels within the transport industry (Michael, 2011).

The word dry port has been defined by many scholars and the definitions reflect the broad view of the concept from different perspectives. Important to note is that the definitions emanate from the perspective of the physical facility, function and purpose. Leveque and Roso (2002) defined a dry port as an inland inter-modal terminal directly linked to seaport with high capacity transport means, where customers can leave or pick up their standardized unit as if directly as a seaport. This definition takes into account the fact that a dry port does not only do the traditional role of transshipment as an inland terminals; but it also provides other services like; consolidation, storage (both cargo and empty containers), maintenance and repair of containers, and customs clearance. Dry port functions include distribution,

consolidation, storage, customs services and possibly equipment maintenance (Wang and Wei, 2008).

In addition, UNCTAD (1991); defines dry port as a common user facility with public authority status, equipped with fixed installations and offering services for handling and temporary storage of any kind of goods (including containers) carried under customs transit by any applicable mode of transport; that is placed under customs control and with customs and other agencies competent to clear goods for home use, warehousing, temporary admissions, re-export, temporary storage for onward transit and outright export.

Since the independence of Eritrea in 1991, Ethiopia became landlocked. As a result, the country has been compelled to use neighbour countries sea ports for its imports and exports. In order to ease some of the problems in the transit countries, Ethiopia has started constructing dry ports in its hinterland along the transit corridors. Among the planned dry ports, Modjo and Semera dry ports have become operational. The activities of the dry ports are managed and supervised by a public enterprise called Ethiopian Shipping and Logistics Services Enterprises (ESLSE) under the Ministry of transport.

Based on document obtained from the Enterprise, the Ethiopian shipping and logistics services enterprise, a state owned company, as a carrier, render to its esteemed customers sea freight transport, stevedoring (at port of Djibouti), multi-modal transport service, freight forwarding and clearing, dry ports, full-fledged services and warehousing etc. For providing all the services mentioned earlier, the enterprise spends huge amounts of money in foreign and local currency.

According to a document obtained from the Enterprise, the Ethiopian Shipping and Logistics Services Enterprise (ESLSE) is a new enterprise established in November 2011 by the Council of Ministers regulation No. 255/2011 merging the Ethiopian Shipping Lines share Company, the Ethiopian Maritime and Transit Service Enterprise and the Ethiopian Dry Port Service Enterprise. Ethiopian Shipping and Logistics Services Enterprise has its headquarters located in the heart of Addis Ababa, Ethiopia, with main branches at Djibouti, Modjo, and Kality (the former Comet) and other branches in Mekelle, Dire Dawa, Kombolcha, Semera and Gelan towns. A among the seven dry ports Modjo dry port is the biggest dry port and it is located at Modjo, nearly 75 km East of Addis Ababa.

According to a recent similar diagnostic research by Abdurezak (2016), Cargo handling equipment, customs operations and port infrastructure are very important determinants of Modjo dry port performance. However, this research will differ from the indicated research in this study mainly focuses on investigation of major challenges which influence the dry port management and how those challenges affects import goods clearance. Therefore, this study investigates the challenges of dry port management and its effects on import goods clearance at the indicated branch.

1.2 Statement of the Problem

Many landlocked developing countries continuously face the challenge of physical isolation, supply chain related barriers from the sea and the high costs of trading with the rest of the world (United Nations Economic Commission for Africa, 2011). In order to counter these challenges associated with landlockedness, the dry port concept evolved. Dry ports also evolved out of the challenges that faced existing sea ports that is, due to the increase in size and capacity of container vessels, sea ports increasingly faced the challenge of inability to handle import and export cargo in a regular manner. This regularly resulted into congestion at different sea ports due to long waiting time of trucks and haulage vehicles (Woxenious *et al.* 2004).

Quality logistics service plays an important role in facilitating international trade of goods that are transported by sea and air. Dry ports, freight stations and warehouses are important elements of logistics system (Korinek and Sourdin, 2011). The introduction of dry ports has increased seaport competitiveness by providing additional capacity to seaports to increase container throughput without any physical expansion (Roso *et al.* 2009, Ng and Gujar, 2009). However, dry ports also face challenges in operations such as difficulty in meeting different stakeholders objectives, having capacity constraints and a limited availability of transportation modes and being located at less strategic zones which has a significant impact on its operations (Black *et al.* 2013, Ng *et al.* 2013, Hanaoka and Regmi, 2011). These challenges reduce the benefit of developing dry ports.

Customers are normally willing to utilise the services provided by dry ports if good transport infrastructure and high standard and sophisticated equipment can be sufficiently provided to handle their valuable containers safely (Jarzemskis and Vailiauskas, 2007). The Poznan dry port in Poland, for example, depends greatly on its highly skilled workforce to garner and distribute all the information about the destination or origin of containers, modes of

transportation and vessels schedules at seaports (Trainaviciute, 2009). Dry ports should be developed with adequate space so as to allow efficient, reliable and economical movement of containers, in particular when they are developed to support seaport operations (Jeevan, 2015).

Private and public partnership is the combination of private and public sectors; and this increases the efficiency by providing legal and financial competence between both parties to manage and operate dry ports (FDT, 2007, Rodrigue *et al.* 2006). Additionally, information collaboration, coordination among stakeholders especially for risk sharing, asset utilisation, accurate forecasting and effective decision making are crucial for dry port operation (Christiaanse and Kumar, 2000)

Ethiopia, as a landlocked country, has established its trade route along the Ethio-Djibouti corridor. The Ethio-Djibouti corridor is a main outlet to the sea. It is the main route for Ethiopia's import and export trade which is dominated by freight transport. Ethiopia has moved to establish various inland dry ports; and this move helps the country save foreign currency by mitigating demurrage charge that is paid at Djibouti port (Yodit, 2016).

A study by Addis (2017), clearly shows that the major problems observed in logistics performance practices of Ethiopian shipping and logistics enterprise are the overall design of the warehouse is still poor to access items and not convenient to load and unload, inefficient utilization of computer and other technologies to perform.

Unpublished document of Ethiopian shipping and logistics services enterprise shows that Modjo dry port is the first dry port in Ethiopia and started operation in the first half of 2009 G.C. Before the construction of dry port, the country pays 700 million USD dollar annually for demurrage at Djibouti port. After the construction of modjo dry port the average staying time of containers at the Djibouti port has also been brought down from 45 to 10 days and also annually pays 354 million USD dollar for demurrage.. The port has a capacity to handle 950 containers, measuring 20-ft (six meters), in 2009, currently handle 15,594 container 20-ft and the throughput of Modjo dry port is 78.8% of total throughput of the country and the enterprise standard time for clearance of one container from Modjo dry port is one day. However, according to the enterprise document, still there is a congestion in the dry port and the major factor for these congestion are the importers do not timely collect their container and documents required for good clearance not available on time. This is confirmed by more than 2000 container at modjo dry port, their dwell time is more than two months. The dwell

time from September 1, 2018 G.C to December 30,2018G.C on average 10 days, this implies that containers deliver above from the standard time set by enterprise.

According to Seid (2014), service quality at Modjo dry port using the five dimensions of SERVQUAL model and its subsequent effect on customer satisfaction indicated that in the overall, Modjo Dry Port is not providing the level of service quality demanded by customers. The findings suggest that Modjo Dry Port need to improve all the five dimensions of service quality. In addition, Modjo dry port customers complained about inefficiency and poor services delivered by Modjo dry port that also leads to delay in clearance of goods from the dry port. To improve capacity utilisation and operational efficiency of Modjo dry port and to investigate the reason behind containers deliver above the standard time, it is crucial to identify the challenges facing at Modjo dry port management and factors influencing its operations. Thus, the purpose of this study is to investigate the challenges of dry port management and its effects on import goods clearance at Modjo Dry Port with a framework of dry port physical infrastructure, ownership, information and communication technology, staff competence, customs services, warehouse condition, importer behaviour and bank document process.

1.3 Research Questions

1. What are the major challenges of dry port management at Modjo Dry port?
2. How dry port management challenges affect import goods clearance at Modjo dry port?
3. What are the possible opportunities that improve the performance of dry port management and import goods clearance?

1.4 Objectives of the Study

1.4.1 General Objective of the Study

The main aim of this study is to investigate the major challenges of dry port management and its effects on import goods clearance at Modjo dry port

1.4.2 Specific Objective of the Study

- To identify the challenges of Modjo dry port management
- To investigate the effect of dry port management challenges on import goods clearance at Modjo dry port
- To recommend the possible opportunities that improve performance of dry port

management and import goods clearance

1.5 Significance of the Study

First and for most the study benefits Ethiopia Shipping and Logistics Service Enterprise modjo dry port in the following aspects: it helps to identify major challenges of dry port management and also helps to examine service delivery performance of the dry port. Based on the findings, the enterprise can take corrective actions to improve performance of dry port. It also helps students and other scholars to gain knowledge in terms of information attained during this study. Finally, the study can also be use as a stepping-stone for the enterprise as well for other researchers who would like to conduct further studies at similar topics.

1.6 Scope of the Study

The objective of the study was to investigate major challenges of dry port management in Modjo Dry Port of Ethiopian Shipping and Logistics Service Enterprise, for the period 2012-2018 and its effects on import goods clearances. The study was examined only challenge from physical infrastructure, ownership of dry port, information and communication technology, competence of staff members, customs services, warehouse condition, importer behaviour, bank document process and their effects on import goods clearance. For the purpose of this study, physical infrastructures include only sufficient equipment for loading/unloading, modern and sophisticated crane, fork lift and container handling equipment, adequate roads and sufficient space for current and future container storage and strategic location of dry port. For this study purpose, ownership of dry port examines only investment policy. Information and communication technology part include only ICT based information sharing system between dry port and dry port customers, ICT based dry port management and ICT based operation management, staff competence include only sufficient workforce with dry port operations knowledge. For this study, customs services include only clearance time, tariff and valuation issue, in the warehouse part address only cleanness and size. Importers behaviour part include only on time collection of container. Finally, in the bank part address only on time document delivery.

1.7 Limitations of the Study

The limitations of this study are, it mainly focuses on dry port management challenges only at modjo dry port. In addition, respondents were reluctant to give response and to fill questionnaires particularly in open ended questions because of lack of time and willingness.

1.8 Organization of the Research Paper

This research paper has five chapters. The first chapter details the basic concept, background information, statement of the problem, research questions, objectives of the study, significance of the study, scope of the study, limitation of the study and operational definitions of key terms and terminologies was presented. The second chapter presented review of both theoretical and empirical literature on challenge of dry port management. In the third chapter, the research methodology, techniques of data collection and analysis was presented. The fourth chapter explained data analysis and presentation. Lastly, the fifth chapter contained the conclusions and recommendations based on the findings.

1.9 Definitions of Key Terms

The definitions of the following terms are as per Revised Kyoto Convention (RKC, 1999) and (Leveque and Roso, 2002).

Challenge: difficulties that countries, institutions, and individuals facing in the process of doing some activities to achieve pre specified objectives in different levels.

Customs: The Government Service which is responsible for the administration of Customs law and the collection of duties and taxes and which also has the responsibility for the application of other laws and regulations relating to the importation, exportation, movement or storage of goods.

Clearance: The accomplishment of the Customs formalities necessary to allow goods to enter home use, to be exported or to be placed under another Customs procedure.

Dry Port: An inland inter-modal terminal directly linked to seaport(s) with high capacity transport means, where customers can leave or pick up their standardized unit as if directly as a seaport.

Dwell time: The duration of stay of containers in the port from the time of discharge from ship up to the time of delivery to the owner in the case of import.

CHAPTER TWO

RELATED LITERATURE REVIEW

The emergence of dry ports is considered as a key outcome of the containerization trend and the increasing integration between seaports and hinterland networks. This section deals with theoretical and empirical literature related with the research topic.

2.1 Definition, Objective, Function, Type and Advantage of Dry Port

2.1.1 Definition of Dry Port

Landlocked countries lack of direct access to the sea, landlocked developing countries are marginalized from major transportation and services (logistics, information technology) networks. Their international trade depends on transit through other countries (World Bank, 2014). In addition, long distance to world markets, cumbersome transit procedures and inadequate infrastructure contribute to high transport and trade costs thereby reducing external trade and subsequent economic growth (World Bank, 2014). Access to major markets is one of the biggest constraints to poverty reduction and economic integration of landlocked developing countries (Faye, McArthur, Sachs and Snow, 2004). Companies in landlocked developing countries are struggling to get the goods to their destination without major delays and increases in cost (Faye et.al. 2004). In order to counter these challenges associated with landlockedness the dry port concept evolved.

High-quality trade logistics service in terms of infrastructure, customs procedures, logistics competence and tracking and tracing enhance country's export by reducing cost and delay. This is especially important for countries that are geographically disadvantaged that is, landlocked countries and countries far from major markets (Korinek and Sourdin, 2011). And also logistics infrastructure consists of roads, railways, airports, sea ports, ICT and energy production (Srivastava, 2006). Dry ports and freight stations and warehouses are important elements of logistics system.

The definition suggested by United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP, 2006), Dry Port refers to a defined inland location for the consolidation and distribution of goods that has functions similar to those of a seaport and which includes customs clearance services. Seaport functions that could be expected to be typically present at these Dry Ports include container handling facilities, inter-modal

infrastructure connections, a geographical grouping of independent companies and bodies dealing with freight transport (including: freight forwarders, shippers and transport operators) and the provision of accompanying services such as customs inspections, tax payment, storage, maintenance and repair, banking and ICT connections (UNESCAP, 2006).

Tsilingiris and Laguardia (2007), Dry Port is an inland inter-modal terminal that is directly connected via rail and/or truck to one or more water ports and which can substitute certain port services in certain areas. Dry port is an inland inter-modal terminal that is directly connected to seaports with high capacity transport means, where customers can leave or pick up their standardized units as if directly to a seaport (Leveque, 2002, Roso, 2005, Roso *et al.* 2009).

According to Ng and Gujar (2009), Dry port can be understood as an inland setting with cargo handling facilities to allow several functions to be carried out for example: consolidation and distribution, temporary storage, customs clearance and connections between transport modes allowing for the agglomeration of institutions both private and public, which facilitates the interactions between different stakeholders along the supply chain. Dry Ports might be considered as extended gates for seaports, through which transport flows can be better controlled and adjusted to match conditions in the port itself. Thus, the terminals can help to improve land access to ports in both physical and psychological terms. This means that a dry Port is more related to the organisation and the service and business needs of the transport system than related to a physical plant (InterBaltic, 2008).

Moreover, Dry port is a logistics node which improves cost-efficiency, environmental performance and the quality of hinterland network connections (Woxenius and Bergqvist, 2011; Cullinane and Wilmsmeier, 2011). The various definitions indicate that the purpose of dry ports is to support seaport operations in order to enhance its competitiveness in a complex system. Dry ports assist container seaport systems by transforming seaports static supply chains into the adaptive business networks, which increases seaport competitiveness, robustness and facilitates the supply chain given the constant change in the global transport system (Vervest and Li, 2009).

2.1.2 Objective of Dry port

According to Trainaviciute (2009) the main objectives of a Dry Port are:-

- To function as an extra hinterland space for the port/ports and a terminal, where the port can outsource its functions;
- To act as a high quality terminal while improving the efficiency and effectiveness of the logistics chain;
- To promote a modal shift

2.1.3 Functions of the Dry Port

Basic functions of the dry port should be able to provide handling services, custom control and a temporary area for loading and unloading of an empty container (UNESCAP, 2006). Additionally, The following function should be performed in dry port:-

✧ **Transshipments of cargo between different transportation:** means it requires having special equipment in a terminal to be able to transfer units from one mode to another. Good coordination of transshipment operations is necessary in order to make the operations less time-consuming. In the dry port case it is most often the shift from rail to road or vice versa. In exceptional cases a dry port may also include a waterway connection, when the cargo from port to the dry port is shipped by barge (Beresford and Dubey, 1990).

✧ **Sorting**

When the goods are transported by a ship, containers have to be sorted in the receiving port since a number of supply chains, which have different points of destination, are concentrated in one ship (Notteboom and Rodrigue, 2009). However, in order to have more space in the port area, which is sometimes very congested, distribution functions of port can be outsourced to the inland terminal dry port. In this way ports are enabled to limit the possible port-related dis-economies of scale appearing from the growing volume of maritime transshipment (Notteboom and Rodrigue, 2009).

✧ **Storing**

The space in a dry port hinterland can be used for the long term storage of empty containers and waiting units. When the goods are transhipped from one transport mode to another in a dry port, or the goods are supported by other services, they are stopped for a shorter period of time, short term storing is used. Storing service is very important for the transport networks as some regions naturally receive more containers than they send and vice versa. Dry ports

can, thus be connected and used to regulate the imbalance of containers flows (Beresford and Dubey, 1990).

✧ **Management of container flows to different ports**

This function is relevant when a dry port has the connections and communication with several relatively close and the same type of ports (Beresford and Dubey, 1990).

✧ **Consolidation of individual container flows**

The containers from different shippers can be transported to a dry port, loaded on one shuttle train and transported to the port or far inland destination (Beresford and Dubey, 1990).

✧ **Reduction of pre and post haulage of road transport and expansion of rail transport**

Dry ports are usually linked to the ports by rail that brings the possibility to consolidate the goods from different shippers at a dry port and transport them further to the port by rail. In this way dry ports are promoting traffic on railways rather than roads which could bring significant environmental benefits (Beresford and Dubey, 1990).

✧ **Offering special and extra Services**

One of the most important special services is customs clearance when it is done in a dry port instead of the seaport; the waiting time is reduced in the port (Beresford and Dubey, 1990).

2.1.4 Type of Dry Port

The location of a Dry Port depends on the needs of the ports and the concentration areas of the shippers or receivers of the goods (Trainaviciute, 2009).

According to Woxenius et al. (2004) and Roso *et al.* (2006), Dry Ports can be divided into close, midrange and distant Dry Ports.

Distance Dry port: is a dry Port at a large distance (over 500 km) from a port when this place is near large areas of consumption and many manufacturers. Then the distant Dry Port has a potential to receive large volumes of goods as it can function as distribution centre for further areas or the consolidation node for shippers located around (Woxenius *et al.* 2004 and Roso, *et al.* 2006). Moreover, it can offer a variety of services related not only to the distribution and consolidation (Woxenius *et al.* 2004 and Roso, *et al.* 2006).

Midrange Dry port: is a Dry port a distance is from around 70 km to 500 km and Close Dry Port is around 50 km or less distant from a port are chosen when the port is lacking the storage area and its capacity cannot be increased, especially when there are no possibilities for the port to expand due to inhabited areas around or environmental aspects (Roso, *et al.* 2006).

2.1.5 Advantage of Dry Port

According to Trainaviciute (2009) when sea ports are facing congestion and efficiency problems appear, expanding the port area by the water may not be the only solution possible. With the implementation of the dry port concept ports can obtain a great benefit due to the possibility to expand its hinterland into the inland areas, further away from the water and hereby outsource some of the services to another terminal, for example, container storage and distribution or customs clearance. With such a solution, ports are able to send out the freight from their territory quicker and thus emptying space for the newly incoming cargo (Trainaviciute, 2009).

2.2 Theoretical Literature Review

Maritime logistics is generally preferred to transport trade cargoes, because it can provide cheap and high volume transport for customers (Tseng *et al.* 2005; Lagoudis *et al.* 2006). Being capital intensive, technology intensive and high value-added, ports have a top priority for trade and economic improvement, as ports are in the transportation interface between land and water. They are in a special position in the integrated logistics service chain and play an increasingly important role in supply chains and logistics processes to cope with trade (Bichou and Gray, 2004; Zhang, 2005; Bryan *et al.* 2006). Ports have become the core strategic resource to drive the regional economy within the context of globalization and the trade boom.

Container deliveries at most ports are becoming more concentrated as larger container ships are increasingly deployed in pursuit of economies of scale. Increase in container volumes causes increased pressure on entire logistics network resulting into congestion; high dwell time and higher logistics costs (Japan International Cooperation Agency, 2009; Arvis, 2010; UNCTAD, 2009). Ports are particularly affected by ever increasing container volumes as their operational capability becomes highly constrained.

Additionally, Cullinane and Wilmsmeier (2011); Lack of sufficient container storage space is one the critical challenges facing ports today. Consequently, consistent lack of capacity may cause port customers to shift to competing ports. Traffic volume growth entails a mismatch between port resources that is yard capacity, handling facilities and gate capacity and ability to handle those volumes. This situation leads to congestion as port user end up interfering with each other in the utilization of port resource (Talley, 2009). In light of these constraints ports have embarked on implementation of inland container depots (ICDs) as operational and capacity enhancement strategy for easing pressure at congested maritime terminals (Haralambides and Gujar, 2011).

2.2.1 Challenges of Dry port Management

Dry port challenges have arisen from inefficient transport infrastructure planning, the disintegration of container formation, competition with other transport nodes, being located at non-strategic zones as well as there being high infrastructure pressures on the city that result in impacting on the role of dry port operations (Jeevan *et al.* 2015). The availability of space, availability of labour, establishment of adequate communications systems, purchase of various types of equipments, design of an operating method and maintenance of handling equipments and container are dry port performance influencing factors (UNECFA, 1992). In this study, eight key dry port management challenges are proposed based on the existing literature. These challenges include: physical infrastructures, ownership of dry port, and information and communication technology, competency of workforce, Customs services, warehouse condition, importer behaviour and bank document process.

2.2.1.1 Physical Infrastructure of Dry port

Container handling equipments are viewed as the main machines for dry ports as well as seaports and they can greatly influence both the container handling capacities and in turn, the performance of the dry port (Gujar, 2011). Dry ports should be developed with adequate space so as to allow efficient, reliable and economical movement of containers in particular when they are developed to support seaport operations (Black *et al.* 2013) and the size of a dry port is taken as one of the factors when we consider its performance (Gujar, 2011).

In addition, Dry port development is highly dependent on the location and good connections with the railway, so the dry port location can be evaluated based on economic, technical and theoretically aspects (Rutten, 1998). In order to make successful development of a dry port, dry port should have access to a major container seaport, an inter-modal facility serviced by

Class rail or road, customs clearance services, Foreign Trade Zone status, strong local market access, nearby access to north/south and/or east/west interstate highways and access to a strong local labour pool (Thuermer, 2008).

The location of dry ports to seaports and industrial zones affects how they can support the capacity of seaports to accommodate container traffic and help shippers reduce their transportation costs (Jarzemskis and Vailiauskas, 2007, Bergqvist *et al.* 2010). For example, in Sweden dry ports are located adjacent to industrial development zones to assist the shipper in maximising their profits by reducing the cost of transportation from the hinterland to seaports (Bergqvist *et al.* 2010). Transport connectivity is important for the operation of dry ports (Roso, 2008, Padilha and Ng, 2012) because dry ports, as an important node in transport network, should possess high transport frequency as well as sufficient transport infrastructure for effective container distribution to and from seaports (Langen and Lugt, 2007, Roso, 2008). For example, in India the combination of road and rail transportation substantially increases container flow from manufacturers to the inland container depot (ICD) as well as to the Chennai seaport (Hanaoka and Regmi, 2011).

Similarly, the availability of the freight market from the production zone to seaports via dry ports importantly supports dry ports' operations. In Brazil, low freight flow from the Santos seaport through Dry Port Sao Paulo resulted in the de-concentration of freight and decreased the operational efficiency when compared to other dry ports (Padilha and Ng, 2012).

2.2.1.2 Ownership of Dry port

Dry Ports can have different forms of management, depending on the initiator of the project. Rodrigue *et al.* (2006), differentiates two main components of terminal governance: ownership and execution of operations. Ownership defines the owner of the terminal site and facilities. Dry Port can be owned by either public or private organization.

Public ownership dry port is the most usual form for a dry Port due to its economic and strategic importance for the ports, which are most often owned by public authorities and for the countries. Under public ownership, the public authority is carrying out investment in infrastructure and plans future expansions. Afterwards the leasing opportunities are offered for the private sector which terms and duration can be negotiated (Rodrigue *et al.*, 2006). And also Private ownership is less popular in the dry Port cases and other kind of transport terminals.

The public ownership provides the shipping lines and foreign organizations with the assurance of greater security and fairness due to minimization of negligence, for example, profiteering, unreasonable tariffs, discrimination among user companies, etc. (UNCTAD, 1991). Private governance brings the significant advantage by investing private resources in the national transport infrastructure. Private management, implied by private investments, can sometimes provide with such benefits as greater flexibility and faster response to trade, especially concerning changes in tariff structure, quick response to changing patterns of operations and the supply of special needs on every day basis (UNCTAD, 1991). However, such drawbacks of private arrangement are known as larger risk of failure of a project and lack of control over prices.

On the other hand, Rodrigue *et al.* (2006), explains that public facilities are sometimes having characteristics of slow response to market, tendency to over-invest in non-economic developments and with high costs to the users. In contrary, Public-private partnership provides greater flexibility in development of a dry Port in comparison with totally private governance.

2.2.1.3 Information and Communication Technology

At present information flow play a very important role in the supply chain and make an influence in its successful operations. Lee *et al.* (1997) emphasise the importance of information flow among members of the supply chain, where it acts as a mechanism for coordination. These information flows are important due to their direct impact on production scheduling, inventory control and delivery plans of individual members in the supply chain (Lee *et al.* 1997). Information and communication technologies have become a crucial element in logistics. Dry Ports must be an integral part of a logistics chain; therefore they should be incorporated into the networks and linked to other transport terminals by implementing information and communication technologies. Moreover, not only the links from a dry Port to other nodes should be based on ICT, but also dry Port management as that would significantly contribute to the implementation of lean operations and creation of efficiency in a dry Port (Trainaviciute, 2009).

Information technology based management systems would be undoubtedly valuable in a dry Port implementation and could bring significant improvements in the whole transport chain; therefore it should be an incorporated element of fundamental equipment in a dry port (Trainaviciute, 2009). Additionally, inter-modal terminals like a dry Port, it is crucial to have

very smooth data organization and transfer, because part of the freight passing through the dry Port is being cleared under customs. The quick and effective data management can be implemented with the help of electronic data interchange (Trainaviciute, 2009).

2.2.1.4 Competency of Work force

The numbers of staff or the labour costs are also considered as a potential factor that may influence the performance of dry port (Guar, 2011). The number of employees is usually taken as a critical factor influencing businesses of dry ports as more staffs can handle the inbound and outbound containers or bulk cargos more efficiently especially in peak hours (Trainaviciute, 2009). Dry ports should have sufficient middle-level and front line managers as well as workers to handle the businesses.

2.2.1.5 Customs Services

According to Revised Kyoto Convention (1999), Customs means the government Service which is responsible for the administration of Customs law and the collection of duties and taxes and which also has the responsibility for the application of other laws and regulations relating to the importation, exportation, movement or storage of goods. As per (Widdowson, 2007), the customs has been described for a century as one of ‘gate keeper, with customs authorities representing a barrier through which international trade must pass, in an effort to protect the interests of the country. The essence of this role is reflected in the traditional customs symbol, the portcullis, which is a symbolic representation of a nation’s ports the gates through which international trade must pass. (McLinden, 2005) stated that: “Customs is the oldest of governmental institution established to generate income for government in the form of taxation.” Nevertheless, the role of customs becomes more important and more complicated due to:-Tax base become widened, the prevalence of illegal trade, and the need for balance between trade facilitation and control. All countries have in place some customs controls for revenue generation, domestic economic interests, and national security purposes.

The development in customs can be described in three stages. In the first, the customs authority concentrates on physical inspection and paperwork, in the second, the customs authority works to reduce fraud and maximize revenues, and in the third, the customs works to facilitate trade through internal checks, process management and the development of electronic data exchange (Appels and Henry, 1998).

2.2.1.6 Warehouse Condition

Warehouses are a substantial component of logistic operations, and an important contributor to speed and cost in supply chains. While there are widely accepted benchmarks for individual warehouse functions like order picking (Andrew Johnson and Leon McGinnis, 2010). Warehousing refers to the activities involving storage of goods on a large scale in a systematic and orderly manner and making them available conveniently when needed. In other words, warehousing means holding or preserving goods in huge quantities from the time of their purchase or production till their actual use or sale. Being an essential component of logistics; warehouse is a key aspect of modern supply chains and plays a critical role in the success or failure of business today (Frazelle, 2002). Customs warehouse is a warehouse, where imported goods are stored under customs control until they are released upon completion of customs formalities or they are transferred to bonded customs warehouse or government customs warehouse (Customs Regulation 859/2014).

According to Revised Kyoto Convention(2010), Customs warehousing procedure means, the Customs procedure under which imported goods are stored under Customs control in a designated place (a Customs warehouse) without payment of import duties and taxes. A national legislation shall provide for Customs warehouses open to any person having the right to dispose of the goods (public Customs warehouses) and to be used solely by specified persons (private Customs warehouses) when this is necessary to meet the special requirements of the trade. The Customs shall lay down the requirements for the establishment, suitability and management of the Customs warehouses and the arrangements for Customs control.

Admission to Customs warehouses should be allowed for goods which are entitled to repayment of import duties and taxes when exported, so that they may qualify for such repayment immediately, on condition that they are to be subsequently exported. Any person entitled to dispose of the warehoused goods shall be allowed, for reasons deemed valid by the Customs: to inspect them; to take samples, against payment of import duties and taxes wherever applicable; to carry out operations necessary for their preservation and to carry out such other normal handling operations are necessary to improve their packaging or marketable quality or to prepare them for shipment, such as breaking bulk, grouping of packages, sorting and grading, and repacking. The Customs shall fix the authorized maximum duration of storage in a Customs warehouse (Revised Kyoto Convention, 2010).

2.2.1.7 Importer Behaviour

Import refers to a type of foreign trade in which goods or services are brought into the home country from a foreign country, for the purpose of reselling them in the domestic market. The party bringing in the good is called an importer. According to Habtesilase (2018), the ESLSE is facing various challenges in multi-modal transport service. One of the main problems is the lack of integrated information systems that enable a smooth flow of information among stakeholders. This lack of coordination leads to inefficient utilization of resources like trucks. To coordinate the information in relation to multi-modal shipments the steering committees from the custom office, transport minister, road authority, maritime authority, and truck owner's association have a great responsibility, especially the operator of the multi-modal operation (ESLSE) should takes the initiatives to coordinate the stakeholders and solving the problems in the logistics chain.

Habtesilase (2018), the weighted and destination error is one of the challenges of multi-modal transport operation. This challenge would affect the network partners as well as the operation at large. This is one of the challenges and the inefficient service of multi-modal transport operation. Through this problem, the customers cannot clear the documents and collect freights on time, paid demurrage and storage costs due to the wrong consignee name and final destination.

In addition, pre-shipment inspections reported by Ethiopian importers often refer to clearance delays of their products is due to office's lack of technical expertise the numerous windows to visit for procedures, changes in rules that are not properly disseminated, the in existence of electronic means to facilitate clearance such as electronic signature and issues related to coordination with other agencies in charge of conformity assessments. Importers also refer to limited facilities in some customs offices and dry port (International Trade Centre, 2018). A total of 94 companies report facing difficulties when importing. All burdensome non-tariff measures reported by Ethiopian importers result from Ethiopian regulations most of the non-tariff measures are reported by importers of manufactured products (International Trade Centre, 2018).

2.2.1.8 Bank Document Process

Nowadays, just about all companies large or small are affected by global trade and international competition. Hill (2004) indicated that a typical international trade transaction may involve 30 parties, 60 original documents, and 360 documents copies, all of which have

to be checked, transmitted, re-entered into various information systems, processed, and filed quoted by The United Nations report on Trade and Development. The United Nations had calculated that the time involved in preparing documentations, along with the costs of common errors in paperwork, often amounts to 10 percent of the value of goods export (Hill, 2004). The major financial institutions that facilitate international trade are insurance companies and banks. Insurance companies give cover to risk of loss or damage to the goods in transit to buyer's premises while banks facilitate payment for merchandise shipped and services rendered, lay out funds for buyer and seller, and give professional advice to traders.

Lord Wright described the letter of credit as a bridge between the period of the shipment and the time of obtaining payment against documents. The letter of credit permits the beneficiary to rely on the banks instead of the importer's credit worthiness. Additionally, it gives a payment guarantee, provided the exporter produces the required documentation. Regardless of its costs and complex formal requirements the letter of credit plays a leading role in international sales transactions.

As to any developing country, Ethiopian companies have a common problem such as failure to present proper trade documents for payment, a failure to produce goods and services offering to the needs of foreign countries, and a failure in collecting payment and financing. There could be any other major issues on documentary credit, payment facilitation, document handling, voluminous paper work, complex formalities, and many potential delays and errors. To sum up, trade transaction facilitation and exploring new opportunities through international trade financing are always a burning issue in the assessment of developing countries import and export achievement (Banchalem, 2017).

2.3 Import Clearance

Expedite Customs clearance relates to Article VIII of GATT 1994, in particular Art.VIII.1(c): "The contracting parties also recognize the need for minimizing the incidence and complexity of import and export formalities and for decreasing and simplifying import and export documentation requirements". Release in the Customs context means the action by Customs to permit goods undergoing clearance to be placed at the disposal of the persons concerned. Clearance means the accomplishment of the Customs formalities necessary to allow goods to enter home use, to be exported or to be placed under another Customs procedure. The key measures proposed aim to expedite the clearance and release of goods at the borders. These measures include, inter alia, pre-arrival clearance, separate release from clearance, authorized

trader schemes, risk management, and post-clearance audit. Customs modernization through automation and ICT use is a useful step in implementing such procedures (UNCTAD, 2008). Likewise, the WCO revised Kyoto convention also defines customs clearance as “the accomplishment of the customs formalities necessary to allow goods to enter the home as to be exported or to be placed under another customs procedure”. And release as “the action by the customs to permit goods undergoing clearance to be at the disposal of the person concerned (UNCTAD, 2006).

2.4 Dry port challenges and Trade

The importance of logistics, trade facilitation and other non policy barriers has increased in significance mainly because trade policy barriers have increasingly accounted for a smaller proportion of overall trade costs (Anderson and Van Wincoop, 2004). More recently, logistics, trade facilitation and infrastructure have been found to be significant determinants of trade and there are a number of papers that have examined the influence of these factors on trade volume and costs. The main motivation has been to find answers to the obvious question of why countries like China and India have seen tremendous growth in trade, whereas developing countries (mainly in Africa) have had limited trade growth in this era of globalization (Festus, 2006). Trade can be facilitated by substantially reducing trade costs by using a well established logistics, physical infrastructure and more generally trade facilitation (Behar and Manners, 2008).

Dry ports as part of logistics centres have become fundamental elements of local, national and international transportation systems in regions with a high volume of trade (Rodrigue *et al.* 2010). Dry ports are playing an increasingly pivotal role in the multi-modal transport network that sustains economic activity by delivering key inputs to local enterprises and facilitating their exports of raw materials, semi-manufactured products and finished goods (Sanchez *et al.* 2003; Notteboom and Rodrigue, 2005).

The efficiency of the whole logistics supply chain largely depends on dry ports as they act as the integrating and coordinating mechanism between different components, e.g., shipping lines, inland transportation and warehousing (Bichou and Gray, 2004). The challenges of dry port and its effects on trade discusses in this section are derived from existing literatures. Facilities, transport infrastructure and space are major factors determining dry port capacity and affect their operations (Jarzemskis & Vailiauskas 2007; Black *et al.* 2013).

Dry ports should have sufficient facilities to ensure efficient trans-loading activities. According to UNESCAP (2010) a tractor-trailer system, a lift-truck system, a rubber-tired gantry crane system and a rail-mounted gantry crane system are the basic forms of equipment needed in dry port operations for container handling activities. Most customers are attracted by the high standard and sophisticated equipment used at dry ports for handling their valuable containers and reduces the risk of container damage and consequently leads to on time shipment (Jarzemskis & Vailiauskas, 2007). For example, modernised facilities, implemented information and communication technology for container tracking facilitated the freight task between New Delhi-Mumbai Kolkata and have improved container volume from 1.5 million TEUs in 2000 to 2.2 million TEUs in 2010 at Dadri ICD in India (UNESCAP, 2010).

As an important node in the transport network, dry ports must possess a high frequency of transport services (Roso, 2008) and a high quality of transport infrastructure such as rail, road or inland waterways (Horst & Langen, 2008) for container distribution to and from the seaport. Transport efficiency and a high capacity of transport modes increase the speed of movement of containers without excessive dwelling times, which subsequently minimises overall transport costs (Ahamed, 2010). For example, In Africa poor connections of land transport systems have increased container dwelling times from 12 to 15 days, well exceeding the international best practice time of seven days. This kind of slow movement of containers due to poor transport connectivity is the main reason for the failure of the dry port in Egypt (Government of Egypt, 1999). These examples show the importance of a high level of transport connectivity between dry ports and to seaports because they affect the performance of dry ports and the efficiency of the container transportation system.

In addition, Dry ports are expected to be developed with adequate space so that they can allow efficient, reliable and economical movement of containers. The space in dry ports is determined by reasonable forecasts of anticipated volumes of containers. Usually, dry ports should have provision for future expansion (UNESCAP, 2010). Space capacity at dry ports can assist in solving space restrictions at seaports so as to reduce seaport congestion, promote economic development and enhance logistic integration at the seaport (Andersson and Roso, 2016).

The location of dry ports in relation to seaports and industrial zones affects how they can support the capacity of seaports in accommodating container traffic and helping shippers to reduce their transportation costs (Jarzemskis & Vailiauskas, 2007; Bergqvist et al. 2010).

Rodrigue *et al.* (2006) investment policy which allows an agglomeration between private and public partnerships in dry port operations has been widely adopted, involving the private sector in financing dry port development, while the public sector provides land for development and plays a regulatory role in their operations. Therefore, private and public partnership is the combination of both sector and increases efficiency by providing legal, technical and financial competence between both parties to manage and operate dry ports (Rodrigue *et al.* 2006; FDT, 2007). This policy also increases transparency and information sharing; it tightens security in dry ports and strengthens experience and knowledge for the smooth operation of the dry ports (FDT, 2007).

In contrary, the lack of participation by the public sector can affect the firm regulation of dry port operations (Rodrigue *et al.* 2006). Dry ports without the influence of the public sector hardly ever receive recognition from manufacturers because of their concern with containers safety and security. For example, in China Kunming dry port is a border-based dry port which handles containers from South East Asian countries such as Laos, Myanmar and Vietnam. Kunming city municipality showed insufficient progress in upgrading market regulation and faced issues of insufficient systematic planning and lack of regulation. The participation of the public and private sectors is important in ensuring that dry ports operate effectively with sufficient support financially and also from a regulatory perspective. According to Beresford *et al.* (2012), Kunming dry port suffers from limited fund allocations from the central government and this has lead to its poor development in logistic development projects.

Panayides and Song (2009), Argue that information sharing between seaports, dry ports and other stakeholders leads to a high level of integration in the supply chain and improve reliability, dependability and speed. In addition to this argument, information sharing through a Port Community System between players can also reduce total distribution costs and increase efficiency in supply chain performance (Bichou & Gray, 2004). A Port community system is an electronic network enabling an intelligent and secure exchange of information between seaports, dry ports, freight forwarders, shippers, shipping lines, rail operators, hauliers, government bodies and other related stakeholders in a single network to execute efficiency in a supply chain (Horst & Langen, 2008). And also Coordination from the entire seaport community including from dry ports, is necessary for enhancing the efficiency of dry port operations (Horst & Langen, 2008). For example, Valencia dry port faced many issues in

regard to an inconsistency of information from stakeholders and a lack of standardised procedures as well as misinterpretation over the roles of various stakeholders. By adopting the Port community system which integrated different stakeholders into a single administration the above mentioned issues were overcome (Dotoli *et al.* 2010).

Furthermore, a research conducted by Roso and Lumsden (2009) and Ng and Cetin (2012) indicated that services provided by dry ports including customs clearance, container storage, maintenance and transfer between modes and value-adding activities influence their attractiveness to users. For example, in Tanzania the Isaka Dry Port provides a cross border transportation service and documentation clearance for landlocked countries, which decreases their transportation costs, enhances the speed of container delivery and reduces congestion and delays in the Darer Salaam seaport (Arvis *et al.* 2010).

2.5 Dry Port Challenges and Import Clearance

The development of dry port networks demonstrates a competency to streamline the transportation process. Provisions for customs clearance and cargo inspections help shippers and manufacturers to gain immediate access to the international market (UNESCAP, 2010). Notteboom (2005), indicated that seaports are the central nodes driving the dynamics in a large logistic pole, but at the same time they rely heavily on dry ports for preserving attractiveness. Stakeholders believe that dry ports play an important part in ensuring the efficient transit of goods from a factory in their country to retail distribution points in the country of destination (Beresford *et al.* 2012).

Dry ports play a very important role in the African maritime industry because there are many landlocked countries in Africa and the establishment of dry ports is crucial to inland regions (Arvis *et al.* 2010). Forward-Port is a general term given to African dry ports because most of the dry ports act as cargo delivery stations with high speed and security. These forward ports not only execute the role of inter-modal terminal but also balance the traffic between rail and road transportation, providing customs and border management services (Ahamed, 2010). However, Raballand *et al.* (2008) indicated that many dry ports are not well operated because of insufficient logistics infrastructure, which have led to poor connectivity to seaports and delays in container clearance. For example: - a dry port in Egypt was unable to provide sufficient infrastructure, maintenance, and systematic legislative and institutional processes to optimize their involvement in the seaport system (Vandervoort and Morgan, 1999).

Therefore, governments in African countries, especially in Nigeria, South Africa and Tanzania, have initiated a strategy of upgrading the logistics infrastructure to improve dry port operations, aimed at enhancing the connectivity to seaports and reducing container dwelling time from 15 days to an international standard of 7 days (World Bank, 2008; Ahamed, 2010). This strategy increases the connectivity of seaports to their clients, smooths cross border trade, and allows investment from private sectors to enhance trade competitiveness in Africa (Raballand *et al.* 2008).

In India, dry ports are known as container freight stations and inland container depots. The emergence of Indian dry ports has enhanced seaport competitiveness by reducing traffic congestion, improving Logistics Performance Index (LPI) and increasing capacity (UNESCAP, 2006). The challenges of Indian dry ports include insufficient interactions between the stakeholders which provoke extra costs, overlaps in the schedules which can create bottlenecks in infrastructure planning.

Hence, the strategies of information sharing between stakeholders, integrated facility sharing and coordination of facility development have been proposed to assist Indian dry ports in reducing unnecessary costs and generating a smooth flow in the daily schedule (Sahay and Mohan, 2009).

2.6 Empirical Literature Review

2.6.1 Dry port in Europe

According to Roso and Lumsden (2010), Dry Port Azuqueca de Henares, situated 30 km from Madrid, is jointly owned by the private sector and the state since 1995. The facility has daily rail connections to the ports of Barcelona (600 km), Bilbao (400 km) and Santander (400 km). In 2007 the facility handled 18000 TEU, which is a significant improvement compared to approximately 3000 TEU handled in 2006. The area of the terminal is 6 ha, of which 1.1 ha are designated for the storage of loaded containers and 1.3 ha are for depot. The units are handled by 1 gantry crane, 3 reach stackers/counterbalanced trucks for loaded containers and one forklift for empty containers. The dry port with its 5 employees offers a wide range of services, such as customs clearance, maintenance of containers, consolidation, road haulage and the previously mentioned transshipment and storage. The biggest impediments to its success were the condition of the existing rail infrastructure, as well as regulations (monopoly of the rail) which were eventually overcome. Advantages resulting

from the implementation of the dry port are increased volume, better customer service, and new jobs in the area due to establishment of new customers and finally lower environmental impact.

2.6.2 Dry Port in Asia

Faisalabad Dry Port is the biggest privately owned dry port in Pakistan considering volume and value. The dry port was implemented and opened for operation in 1994 by a board of trustees whose main intention was to facilitate export for the local textile industry (Roso and Lumsden, 2010). There are daily road and rail connections to Karachi Port. Annually there are about 33000 TEU for export and 7000 TEU for import handled by 4 reach stacker's and forklifts for empty units. The dry port significantly contributed to the development of the industry and trade in the area. Apart from this the facility enabled lower transport costs and better customer service by offering customs clearance and storage (Roso and Lumsden, 2010).

2.6.3 Dry Port in Africa

Roso and Lumsden (2010) Matsapha Dry Port located in landlocked Swaziland, funded by Swaziland Railway, started operation in 1993 as a response to the growth of country's containerized exports. The dry port has a daily rail connection to the 500 km-distant seaport of Durban and the 400 km-distant Richards Bay Ports in South Africa and the 200 km-distant Maputo Port in Mozambique. It offers all the services a seaport should offer, such as transshipment by a reach stacker, tracking, storage and depot and road haulage; the emphasis is on customs clearance for faster throughput. The main advantage provided by the dry port since its inception is better customer service that is, reduced delivery time and reduced transport cost; consequently the area is more attractive for new businesses/customers. The main obstacle was financing, which was secured from foreign investors.

2.6.4 Dry Port in Ethiopia

The dry port services enterprise was established by the council of ministers Regulation No.136/2007 with the objective of facilitating the country's import/export and to minimize the congestion at the port of Djibouti. The significance is not only for reduction of costs, but also helps reduce foreign currency paid at the port of Djibouti. Nowadays, there are seven dry ports, these are Modjo, Kality, Gelan, Semera, Dire Dawa, Kombolcha and Mekelle. Modjo dry port is located at Modjo, nearly 75 km East of Addis Ababa. It is the first dry port in Ethiopia and it started operations in the first half of 2009 and it is the biggest dry port of

multi-modal cargoes destination in Ethiopia. Modjo dry port has significantly expanded from 1.5 hectare in 2009 to 63 hectare in 2018/2019. It has a capacity to handle 950 containers, measuring 20-ft (six meters), in 2009, currently handle 15,594 containers 20-ft and the throughput of Modjo dry port is 78.8% of total throughput of the country. Another dry port, in Semera, 580 Km north of Addis Ababa, also started operations at the same time, although it is not used quite as regularly. The ESLSE set up satellites at Comet (Addis Ababa); Gelan, in Oromia Special Zone, 25 Km east of the capital; Dire Dawa, 452 Km east of Addis Ababa; Mekelle, 780 Km north of Addis Ababa and Kombolcha, 380 Km north of Addis Ababa, to ease the congestion at Modjo dry port.

2.7 Literature Gaps

Transport efficiency and a high capacity of transport modes increase the speed of movement of containers without excessive dwelling times, which subsequently minimizes overall transport costs (Ahamed, 2010). For example, In Africa poor connections of land transport systems have increased container dwelling times from 12 to 15 days, well exceeding the international best practice time of seven days. Raballand *et al.* (2008), indicated that many dry ports in Africa are not well operated because of insufficient logistics infrastructure, which have led to delays in container clearance.

According to unpublished document of ESLSE the Ethiopian dry ports also suffer from highest dwell time. However, the study did not indicate what the major causes of delay in container clearance are and the researcher can't find any other formal research studies that have been conducted in the challenges of dry port management and its effects on import goods clearance. Due to this study gap the researcher try to focus on investigating major challenges of dry port management and its effects on import goods clearance.

2.8 Conceptual Framework

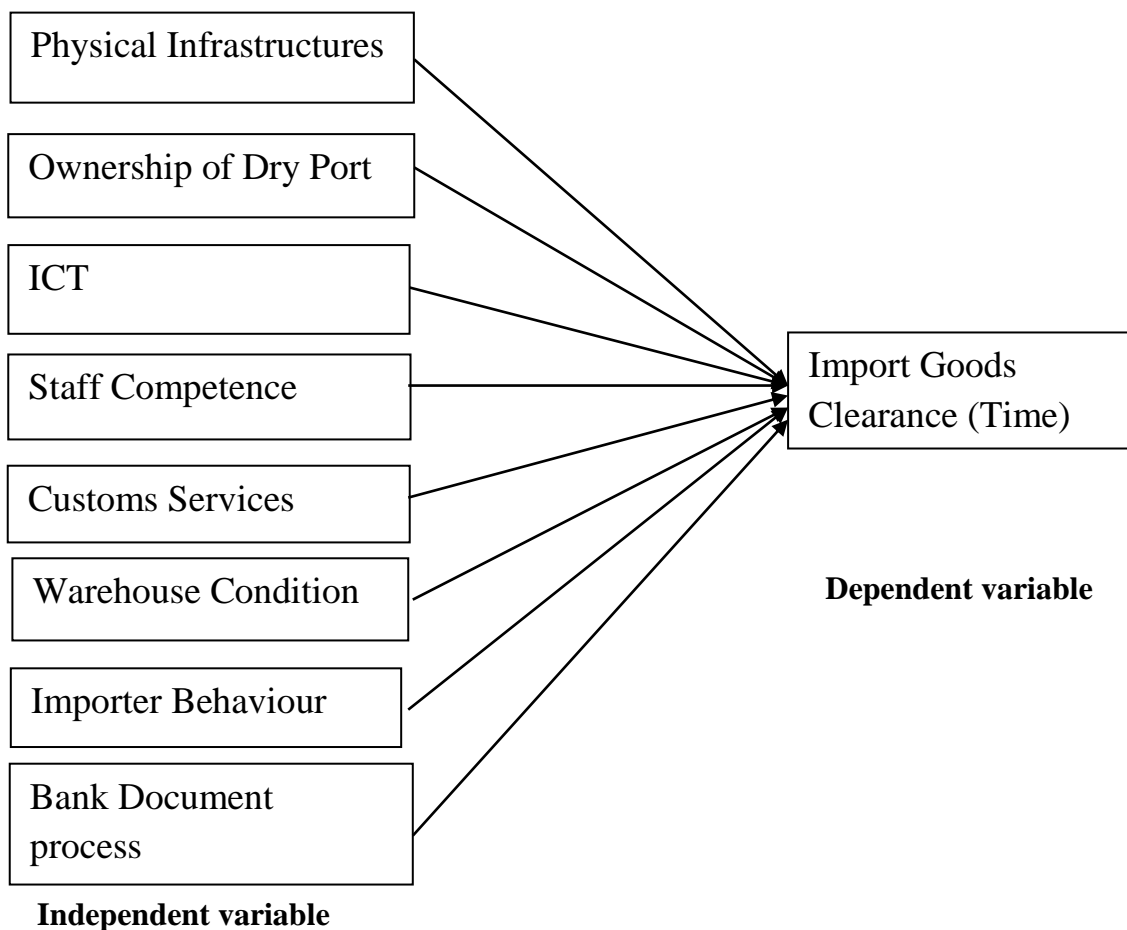
A conceptual framework is a structure which the researcher believes can best explain the natural progression of the phenomenon to be studied (Camp, 2001).

Well-functioning logistics both domestically and internationally is a necessary precondition of national competitiveness (Arvis, 2014). According to De Souza *et al.* (2007), define logistics as part of the value chain which plans, implements and controls the efficient flow of goods, services and information from source to consumer. Efficient logistics services facilitate the mobility of products, ensuring their safety and speed as well as reduction in cost

when trading them among countries. In the opposite, inefficient logistics raises the costs of trading and reduces the potential for global integration. Dry port is important element of logistics system (De Souza *et al.* 2007). Therefore, identifying challenges of dry port management and its effects on import goods clearance is crucial. For the purpose of this study, the conceptual framework is developed based on the research works of Gujar (2011), Jeevan *et.al* (2015), Rodrigue *et al.* (2006) and Roso and Lumsden (2010).

Hence, the research was guided by the conceptual framework that is indicated in below diagram. The variables in the left sides that are; physical infrastructure, ownership of dry port, Information and communication technology, staff competence, customs services, warehouse condition, importer behaviour and bank document process are challenges of dry port management which are identified from the literature. The challenge variables are believed to influence the dry port management either directly or indirectly and that challenge also affects import goods clearance.

Figure 2.1 Conceptual Framework of the study



Source: own construction

As depicted in Figure 2.1 above, the major aim of any dry port is to reduce trade cost and improve competitiveness of that country trade in international market. Therefore, physical infrastructure, ownership of dry port, information and communication technology, staff competence, customs services, warehouse condition, importer behaviour and bank document process are the major performance improving factors for a dry port management and also facilitate international trade of that country.

CHAPTER THREE

RESEARCH METHODOLOGY

INTRODUCTION

This part describes the methodologies that used in this study. The choice of particular research designs, type and source of data, research approach, data gathering technique and instruments, sample and sampling techniques and data analysis techniques along with an appropriate justification associated with each approach.

3.1 Description of the Study Area

This study was conducted at Modjo dry port. It is located at Modjo, nearly 75 km East of Addis Ababa. Modjo dry port is the first dry port in Ethiopia and it started operations in the first half of 2009 and it is the biggest dry port of multi-modal cargoes destination in Ethiopia. The study focused on investigating challenges of dry port management and its effects on import goods clearance.

3.2 Research Approach

The three research approach that are commonly implemented in a research are quantitative, qualitative and mixed research approach, where one of them is not better than the others, all of this depends on how the researcher want to do a research of study (Creswell, 2005). Creswell (2005), asserted that quantitative research is a type of educational research in which the researcher decides what to study, asks specific, narrow questions, collects numeric (numbered) data from participants, analyses these numbers using statistics, and conducts the inquiry in an unbiased, objective manner. Qualitative approach is concerned with subjective assessment of attitudes, opinions and behaviours (Kothari, 2004). The study applied both quantitative and qualitative research approach to address the research questions.

3.3 Research Design

The research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data (Kothari, 2004). Explanatory (Causal) research design is concerned with the study of how one or more variables affect changes in another variable (Kothari, 2004). Descriptive research design is employed in those studies which are concerned with describing the characteristics of a

particular individual or of a group. It describes the nature of situation as it exists at the time of study as well as to explore the cause of particular phenomena (Kothari, 2004). The researcher adopted both descriptive and explanatory research design. A descriptive research design was used to describe existing challenges of dry port management at Modjo dry port, because descriptive research designs use to describe existing situation. An explanatory research design was used to show cause-effect relationship between challenges of dry port management on import goods clearance, because explanatory research designs use to show cause and affect relationships.

3.4 Target Population of the study

According to Hair *et al.* (2010), target population is said to be a specified group of people or object for which questions can be asked or observed made to develop required data structures and information. Therefore, for this study the target population were Ethiopian Shipping and Logistics Services Enterprise; Modjo dry port operation employees, Modjo Customs Commission import goods clearance section employees, importers and customs clearing agents. The target population that the researcher undertakes were 2080 people, from these 1000 were importers, 700 were customs clearing agents, 250 were Ethiopian shipping and logistics services enterprise Modjo dry port operation employees and 130 were Modjo Customs Commission import goods clearance section employees (ESLSE data and Modjo customs branch human resource department).

3.5 Sampling Technique

A sample is a subset of the population that is taken representative of the entire population. The two common sampling techniques are probability sampling and non probability sampling. A probability sample is selected according to mathematical guidelines where by the chance for selection for each unit is known. A typical example of such a probability sampling technique is random probability sampling. The guiding principle behind this technique is that each element must have an equal and non zero chance of being selected. A non-probability sampling does not follow the guidelines of mathematical probability (Tayie, 2005).

According to Kothari (2004) if the population from which a sample is to be drawn does not constitute a homogeneous group, then stratified sampling technique is applied so as to obtain a representative sample. For the purpose of this study the researcher used both probability and non-probability sampling technique. Probability particularly stratified sampling

technique was used to select sample from each strata, because target population were heterogeneous. Then, simple random sampling technique was used to select the representative from each strata. The sample from management members' was selected using purposive sampling technique in order to capture more relevant and greater depth of information. The researcher selected a sample of 4 members out of the 6 management members to semi-structured interview questions. The target population for the study were classified into four strata those were Ethiopian Shipping and Logistics Services Enterprise Modjo dry port operation staff, Customs commission Modjo dry import goods clearance section staff, importers at Modjo dry port and customs clearing agent.

3.6 Sample Size

According to data obtained from the Ethiopian Shipping and Logistic Services Enterprise head office dry port and terminal department in 2018, the number of customers that were served at Modjo dry port terminals were 12,964; of these, 11,964 importers and 1000 were clearing agents. Of these 12 months data, the average value of one month data and the study population were 1000 importers and 700 were clearing agents. Based on ESLSE Modjo dry port human resource department information Modjo dry port operation employees are 250. And also based on Modjo customs branch human resource department import clearance section employees are 130.

According to Kothari, (2004) Sample size determine for finite population by the following formula

$$n = \frac{z^2 p * q * N}{e^2 (N-1) + z^2 * p * q}$$

$$n = \frac{(1.96)^2 * .7 * .3 * 2080}{(.05)^2 (2080-1) + (1.96)^2 * .7 * .3} = 280$$

N= Size of population (Modjo dry port staff, Modjo customs commission import goods clearance section staff, importers and customs clearing agents) = 2,080

n= Size of sample

e= Sample (acceptable) error at 5%

z= value of confidence level 95%= 1.96

$p =$ the proportion of success = 0.70

$q = 1 - p = 0.30$ proportion of defective (fail)

According to Patric (2003) the success rate 50% is adequate, 60% response rate is good and 70% rate or higher is very good. In this research, 70% success rate had chosen because it is very good. Then, substitution of the given values in the above formula yields, $n = 280$; then proportional stratified sampling applied.

Table 3.1 Number of Target Population

| No | Strata to be sampled | Sampling unit (N) | Sample ratio |
|-----------|--------------------------------|--------------------------|---------------------|
| 1. | Importers | 1000 | 134 |
| 2. | Clearing Agents | 700 | 94 |
| 3. | Modjo ESLSE Employees | 250 | 34 |
| 4. | Modjo Customs Employees | 130 | 18 |

Source: data from ESLSE and Customs, 2018

3.7 Data Collection Method

In order to achieve the objective of this research both primary and secondary source of data used. Primary data is the information that the researcher finds out by him/herself regarding a specific topic. Secondary sources were written by people within indirect knowledge. The instruments used in order to collect primary data was structured close-ended questionnaires and semi-structured personal interviews. The questionnaires developed by researcher based on discussed literature. Prior to primary data collection, a structured close-ended questionnaires and semi-structured interview guides developed based on the literature. Secondary data collected from reports of the Enterprise, books, articles and journals.

The procedure for the data that was collected using questionnaires, first the respondents were communicated to get their consent. Once their consent was known, the prepared questionnaires were distributed to each participant by appreciating their participation and devoting their precious time for the research. The questionnaires were collected by checking the completeness of the data. Finally, the activities were accomplished by appreciating the respondents. The data that was collected using semi-structured interviews; first the interviewee's were communicated and arrange appointment to carry out the interview. The interviews were started by appreciating the interviewees for giving their precious time. When

the respondent got ready, questions were forwarded accordingly. If there is misunderstanding of the question, questions were elaborated accordingly. Finally, the interview was finished by appreciating the respondents for the participation. In addition, secondary data was collected from reports of the Enterprise, books, articles and journals.

3.8 Methods of Data Analysis

In this specific study both descriptive and inferential statistical methods was applied through SPSS software. Descriptive statistics were used to describe, present and summarize quantitative data in the form of measures of central tendency (mean was used to describe the central position) and measures of spread (standard deviation was used to describe the spread of score). Furthermore, tabulated description (that is, tables), graphical description (that is, charts) and frequency distribution was used to analyze preliminary data. Inferential statistics correlation was used to measure the direction and strength of relationship between the research variables. Moreover, Pearson test was used to test significance (effect) of such relationship of the dependent variable (import goods clearance) from independent variables (challenges of dry port management). Finally, to predict import goods clearance from dry port management challenges, the multiple linear regression models were adopted.

Model Specification

The statistical regression model of the study was based on the theoretical regression model as indicated as follows.

Where:

- $Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + e$
- a = the y intercept
- x_1 = Physical infrastructure
- b_1 = the regression coefficient of Physical infrastructure
- x_2 = Ownership
- b_2 = the regression coefficient of Ownership
- x_3 = Information and communication
- b_3 = the regression coefficient of Information and communication
- x_4 = Staff competence
- b_4 = the regression coefficient of Staff competence

- x_5 = Customs
- b_5 = the regression coefficient of Customs
- x_6 = Warehouse
- b_6 = the regression coefficient of Warehouse
- x_7 = Importer
- b_7 = the regression coefficient of Importer
- x_8 = Bank
- b_8 = the regression coefficient of Bank
- e = error term

3.9 Validity

Validity explains how well the collected data covers the actual area of investigation (Ghauri and Gronhaug, 2005). Validity basically means measures what is intended to be measured (Field, 2005). Validity is ensured through multiple sources of evidence including documentation, interview and direct observation and also it can be increased through the uses of multiple sources and methods. In this study, a data collection instrument is developed by researcher based on literature and content validity was checked. As a result, pre-testing of the questionnaire was conducted on six customers of the dry port and four Ethiopian shipping and logistics services enterprise staff members. Based on the feedbacks obtained from pre-testing the questionnaire was amended.

3.10 Reliability

Reliability deals with the consistency, dependability and repeatability of the results obtained from a piece of research (Nunan, 1999, p. 14). According to Lewis, Ritchie and Yin (2003) cited in Wunwimon (2010, p59), reliability is concerned with the consistency of research findings and the extent to which the same results are repeated when the same or similar methods are applied to the same group under the same conditions. To measure the reliability of the data collection instruments, an internal consistency technique Cronbach's alpha was used in this study. Cronbach's alpha is a coefficient of reliability that gives an unbiased estimate of data generalization (Zinbarg 2005). Coefficient alpha ranges in value from 0, meaning no consistency, to 1, meaning complete consistency. Generally speaking, scales with a coefficient α between 0.80 and 0.95 are considered to have very good reliability. Scales with a coefficient α between 0.70 and 0.80 are considered to have good reliability, and α value between 0.60 and 0.70 indicates fair reliability. When the coefficient is below 0.6, the

scale has poor reliability. Most statistical software packages, such as SPSS, will easily compute coefficient (Zikmund et al, 2011).

In Table 3.2 presented the result of the reliability scale test of this study. This table showed that the reliability test based on each dimension and the overall reliability test. In this study, it was found that each dimension scale had a coefficient alpha more than 0.70. It shows as each had good reliability and considered as adequate to determine reliability. The following table shows the SPSS result on the Cronbach's Alpha

Table 3.2 Reliability Test by Dimension

| Dimensions | Cronbach's Alpha | N of Items |
|--|------------------|------------|
| Physical infrastructure | 0.81 | 7 |
| Ownership of dry port | 0.71 | 3 |
| Information and communication technology | 0.788 | 4 |
| Staff competence | 0.84 | 4 |
| Customs services | 0.717 | 3 |
| Warehouse condition | 0.746 | 2 |
| Importer behavior | 0.711 | 3 |
| Bank document process | 0.779 | 3 |
| Import goods clearance | 0.713 | 4 |
| Overall test | 0.815 | 34 |

Source: Own survey, 2019

3.11 Ethical Consideration

According to Leedy and Ormrod (2010), most ethical issues fall into one of the following four categories; informed consent, confidentiality, security and honesty. Therefore, the researcher considered all these issues in the questionnaire guidelines in the following manner:

Informed consent: all participants were briefly informed about the reason of conducting such study therefore enabled them to join with full consent.

Right to privacy (confidentiality): the researcher kept the nature and quality of participants' performance strictly confidential. No information was recorded to link respondents with their responses.

Security: the researcher did not expose the participants to unusual stress, embarrassment, or loss of self-esteem.

Honesty: the researcher reported the findings in complete honesty

Finally, the research was used numerous works of others and appropriate acknowledgement was made.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 INTRODUCTION

This chapter deals with analyzing and presenting the data collected using questionnaires and interviews concerning challenges of dry port management and its effect on import goods clearance. The analysis of the study was structured and conducted to address the research questions by addressing the objective of the research. In this chapter the response rate, the demographic information of the respondents, findings of the survey with its detail interpretation and discussion was presented. Therefore, this section of the study contains data and information about the challenges of dry port management and its effects on import goods clearance.

As indicated in chapter three, the respondents are from four groups such as Ethiopian Shipping and Logistics Services Enterprise Modjo dry port employees, modjo Customs commission import goods clearance section employees, importers and customs clearing agents. Data related to their profile was collected and analyzed to know the respondents level of education, work experience, and job position.

4.2 Response Rate

To collect required data about challenges of dry port management and its effects on import goods clearance, 280 questionnaires were prepared both in Amharic and English language, from these 228 were in Amharic and 52 were in English language. A total of 280 questionnaires were distributed and 261 (93.2%) were returned and 19 (6.8%) not returned. From the collected questionnaire 11 (3.93%) discarded because the data on the questionnaires were not correctly filled. Hence, the analysis and interpretation of the respondents opinion were carried out based on 250 (89.30%) of the returned questionnaires.

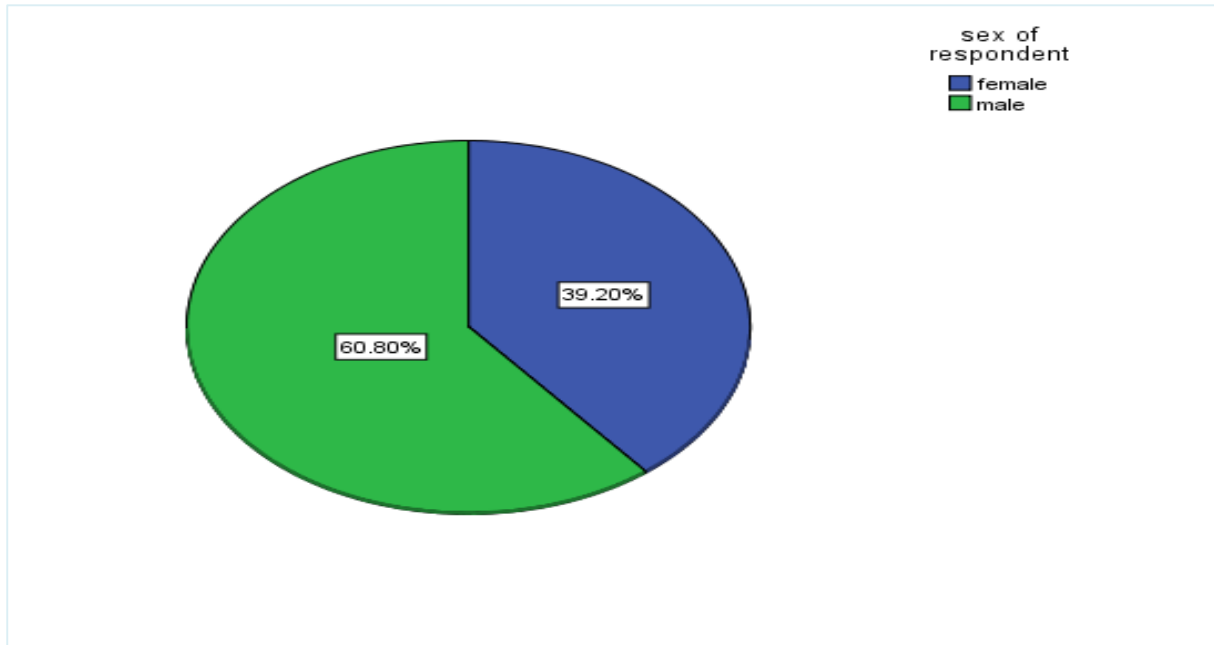
4.3 Demographic Characteristics of the Respondents

4.3.1 Sex and Age of the Respondents

As figure 4.1 below shown a total of 250 respondents were participated in the study. Out of this 152 (60.8%) were male and 98 (39.2%) were female. The respondents were also categorized into different age groups. As shown in table 4.1 below the ages of most of the respondents were between 26-35 years which constitute 98 (39.2%) of the respondents. 78

(31.2%) of the respondents were between 36-45 years, 36 (14.4%) of the respondents were between 18-25 years and 34 (13.6%) of the respondents were between 46-55 years. Those greater than 55 years each accounts about 4 (1.6%) of the respondents.

Figure 4.1 Sex of the Respondents



Source: Own survey, 2019

Table 4.1 Age of the Respondents

| Age of Respondents | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------------|-----------|---------|---------------|--------------------|
| 18-25 | 36 | 14.4 | 14.4 | 14.4 |
| 26-35 | 98 | 39.2 | 39.2 | 53.6 |
| 36-45 | 78 | 31.2 | 31.2 | 84.8 |
| 46-55 | 34 | 13.6 | 13.6 | 98.4 |
| >55 | 4 | 1.6 | 1.6 | 100 |
| Total | 250 | 100 | 100 | |

Source: Own survey, 2019

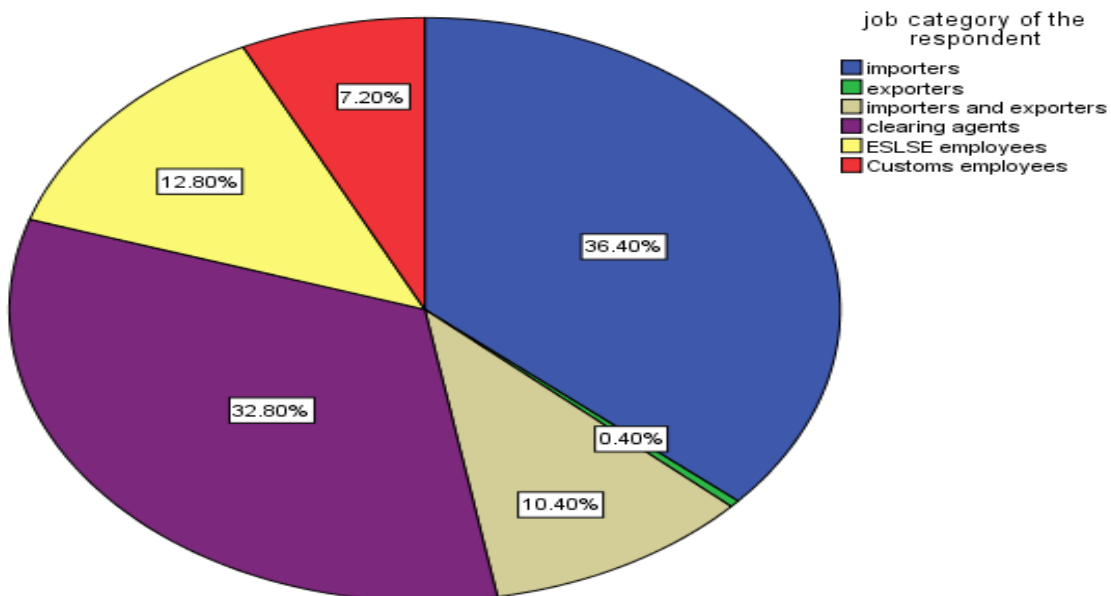
4.3.2 Educational Level, Job Position and Work Experiences of the Respondents

Table 4.2 Educational Level and Work Experiences of the Respondents

| Educational Level of respondents | Frequency | Percent | Work Experiences | Frequency | Percent | Served | Frequency | Percent |
|----------------------------------|-----------|---------|------------------|-----------|---------|----------------------|-----------|---------|
| | | | | | | | | |
| Grade 5-8 | 7 | 2.8 | < 3 years | 39 | 15.6 | Once | 0 | 0 |
| Grade 9-12 | 24 | 9.6 | 3-6 years | 102 | 40.8 | Twice | 2 | 0.8 |
| Certificate | 32 | 12.8 | 7-10 years | 73 | 29.2 | Three times and more | 198 | 79.2 |
| Diploma | 83 | 33.2 | > 10 years | 36 | 14.4 | Total | 200 | 80 |
| Degree | 92 | 36.8 | Total | 250 | 100 | | | |
| Master | 12 | 4.8 | | | | | | |
| Total | 250 | 100 | | | | | | |

Source: Own survey, 2019

Figure 4.2 Job Categories of the Respondents



Source: Own survey, 2019

A table 4.2 and figure 4.2 above showed that the educational level, work experiences and job category of the respondents. Regarding work experiences 40.8 percent of the respondents have between 3 and 6 years, 29.2 percent of respondents have between 7 and 10 years, 15.6 percent of the respondents have less than 3 years and 14.4 percent of the respondents have more than 10 years work experiences. This shows that more than 84.4 percent of the respondents have more than 3 years work experiences. This implies that customers, Customs employees and Modjo dry port employees are fairly experienced. In respect of educational background of the respondents, 36.8 percent of them have bachelor degree, 33.2 percent of them have diploma, 12.8 percent of them have certificate, 12.4 percent of them less than grade 12 and the remaining 4.8 percent are masters degree holders. This means 74.8 percent of the respondents have more than diploma which will contribute for the best understanding of the business nature and dry port operation. Concerning their job category, 36.4 percent of the respondents were importers, 32.8 percent of the respondents were customs clearing agents, 12.8 percent of the respondents were Modjo dry port Ethiopian Shipping and Logistics Services Enterprise employees, 10.8 percent of the respondents were importers and exporters and remaining 7.2 percent of the respondents were modjo dry port Customs commission employees. As expected, 80 percent of the respondents were customers of dry port.

4.4 Descriptive Analysis

In this part of the study, it is tried to analyze primary data that was collected from participants. To improve capacity utilization and operational efficiency of modjo dry port in import goods clearance, there are enabling factors such as physical infrastructure, ownership of dry port, information and communication technology, staff competence, warehouse condition, importers behaviour and bank. Customs facilitate trade through internal checks. In order to collect data on dry port management challenges on import goods clearance, questionnaires were prepared for ESLSE modjo dry port employees, modjo customs commission employees, customs clearing agents and importers that focuses on particular areas like physical infrastructure, ownership of dry port, information and communication technology, staff competence, customs services, warehouse condition, importer behaviour and bank document process. To achieve this objective, five point likert scale where 1=Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree was used to collect data from the respondents.

The rule of thumb pertaining to the intervals for breaking the range in measuring variables that are captured with the five-point likert type scale (that ranges from strongly disagree to strongly agree) is calculated by $(5-1=4)$ then divided by five as it is the greatest value of the scale ($4/5=0.8$). Afterwards, number one which is the least value in the scale is added in order to identify the maximum of this cell. Hence, a calculated composite mean value that ranges from 1 to 1.80 implies strong disagreement, whereas the remaining ranges of 1.81 to 2.6, 2.61 to 3.4, 3.41 to 4.2 and 4.21 to 5.00 representing the respondents' perceptions of disagreement, neutrality, agreement and strong agreement respectively. And also, a standard deviation of 1 implies a significant difference on the variable among the respondents. These composite mean score and standard deviations was applied on eight independent and one dependent variable.

4.4.1 Physical Infrastructure

The research study of Sanchez *et al.* (2003), Yeo *et al.* (2008) and Balci *et al.* (2014) also confirmed that port infrastructure is an important determinant of port performance. In this part of the study report, analysis conducted on data gathered to identify challenges of physical infrastructure at modjo dry port management based on the seven dimension of dry port physical infrastructure performance indicator.

According to table 4.3 below, 48.4 percent and 4.4 percent of the respondents agreed and strongly agreed on availability of sufficient loading/unloading equipment, forklift, crane and container handling equipment respectively whereas 27.2 percent of the respondents were neutral on availability of sufficient loading/unloading equipment, forklift, crane and container handling equipment at Modjo dry port. The rest 14.4 percent and 5.6 percent of the respondents disagreed and strongly disagreed respectively. Regarding sufficient loading/unloading equipment, forklift and container handling equipment mean score of 3.32. According to the benchmarking scale for interpretation of mean value, most of the respondents were expressed their consent as neutral and 0.965 standard deviation indicting that the respondents were agreeing to the same idea. Here, the result of the survey shows that there are moderate level of loading/unloading, forklift; crane and container handling equipment are existing at modjo dry port. This is supported by the interview made with terminal coordination manager that the current number of forklift, crane and cargo handling equipment are not sufficient compared with volume of transaction, because there is still taking long time to bring container from terminal to physical inspection place when the volume of transaction increases. This implies that inadequate number of forklift, crane and

cargo handling equipment influence performance of a dry port. This was also supported by Gujar (2011), Container handling equipments' are viewed as the main machines for dry ports as well as seaports and they can greatly influence both the container handling capacities and in turn, the performance of the dry port.

The respondents were also asked to express their degree of consent on the availability of modern cargo handling equipment at Modjo dry port. Accordingly, 47.6 percent and 9.6 percent of the respondents were expressed their consent as disagreed and strongly disagreed respectively while 20 percent of them neutral. The remaining 19.2 percent and 3.6 percent were expressed their consent as agreed and strongly agreed respectively. This implies that majority of the respondents were expressed their consent as disagreed. This is also confirmed by mean score of 2.60 and score standard deviation value of 1.02 indicating that the respondents were agreeing to the same idea. This is supported the interview made with terminal coordination manager that the modernity level of forklift, crane and container handling equipment is low compared with neighbour country dry port. This indicating that the dry port is not well equipped with modern forklift, crane and container handling equipment. Thus, the Modjo dry port still faces challenge on dry port management.

The respondents were also asked to express their degree of consent on availability of adequate road access which connects the dry port with different directions. Accordingly, 38 percent and 4.8 percent of the respondents expressed their consent as agreed and strongly agreed while 35.6 percent of them neutral. The remaining 13.2 percent and 8.4 percent were expressed their consent as strongly disagreed and disagreed respectively. This implies that majority of the respondents were expressed their consent as neutral. This is also confirmed by mean score of 3.13 and score standard deviation value of 1.08 indicating that the respondents were agreeing to the same idea. The participants were also answered the question provided to check on there is sufficient space for containers storage. Accordingly, 69.2 percent of the respondents agreed and 8 percent strongly agreed on sufficient space for container storage. The remaining 8 percent, 7.6 percent and 7.2 percent of the respondents were neutral, strongly disagreed and disagreed respectively. This implies that majority of the respondents were expressed their consent as agreed. This also substantiated by mean value of 3.63 and score standard deviation value of 0.999 indicating that the respondents were agreeing to the same idea. This means that there is sufficient space to container storage that also facilitates container movement at dry port. This was supported by Black *et al.* (2013), Dry ports should

be developed with adequate space so as to allow efficient, reliable and economical movement of containers in particular when they are developed to support seaport operations

The participants were also answered the question provided to check on the dry port is located on suitable place for customers. Accordingly, 39.6 percent of the respondents disagreed, 31.6 were neutral and 14.8 percent strongly disagreed the dry port is located on suitable place for customers. The remaining 9.2 percent and 4.8 percent of the respondents agreed and strongly agreed respectively. This shows that majority of the respondents were expressed their consent as disagreed. This also substantiated by mean value of 2.50 and score standard deviation value of 1 indicating that the respondents were agreeing to the same idea. The result indicated that the location of dry port is not suitable for customers. This is one of the challenging factors for dry port management.

The respondents were also asked to express their degree of consent on sufficient railway connectivity with the dry port. Accordingly, 42.4 percent and 10.8 percent of the respondents disagreed and strongly disagreed while 33.6 percent of the respondents were neutral. The remaining 10.8 percent and 2.4 percent of the respondents agreed and strongly agreed respectively. This indicate that majority of the respondents expressed their consent as disagreed. This also substantiated by mean value of 2.52 and score standard deviation value of 0.911 indicating that the respondents were agreeing to the same idea. This is supported by the field observation the researcher made, there is only one direction connectivity with Ethio-Djibouti corridor that is also not everyday connectivity. This is also one of the challenging factors for the dry port management at modjo dry port. The respondents were also asked to express their degree of consent on sufficient transport services with fair price to and from the dry port. Accordingly, 45.6 percent and 7.2 percent of the respondents agreed and strongly agreed respectively whereas 21.6 percent of respondents were neutral on sufficient transport services with fair price to and from the dry port. The remaining 14.8 percent and 10.8 percent of the respondents disagreed and strongly agreed respectively. This indicate that majority of the respondents were expressed their consent as agreed. This also substantiated by mean value of 3.24 and score standard deviation value of 1.128 indicating that the respondents nearly were agreeing to the same idea. This implies that there are satisfactory amount of transport services with fair price to and from the dry port, but not sufficient.

Table 4. 3 Dry Port Physical Infrastructures

| Items | Frequency and Percent | | | | | N | Mean | Std. Deviation |
|--|-----------------------|----------------|---------------|----------------|--------------|-----|------|----------------|
| | 1 | 2 | 3 | 4 | 5 | | | |
| There are sufficient loading/unloading equipment, forklift, Crane and Container handling equipment | 14 (5.6%) | 36 (14.4%) | 68 (27.2%) | 121 (48.4%) | 11 (4.4%) | 250 | 3.32 | 0.965 |
| There are sufficient modern forklift, Crane and Container handling equipment at the Modjo dry port | 24 (9.6%) | 119 (47.6%) | 50 (20%) | 48 (19.2%) | 9 (3.6%) | 250 | 2.60 | 1.02 |
| There are adequate road access which connects the dry port with different directions | 33 (13.2) | 21 (8.4%) | 89 (35.6%) | 95 (38%) | 12 (4.8%) | 250 | 3.13 | 1.08 |
| There is sufficient space for containers storage | 19 (7.6%) | 18 (7.2%) | 20 (8%) | 173 (69.2%) | 20 (8%) | 250 | 3.63 | 0.999 |
| The Modjo dry port is located on suitable place for customers | 37 (14.8%) | 99 (39.6%) | 79 (31.6%) | 23 (9.2%) | 12 (4.8%) | 250 | 2.5 | 1.00 |
| There is sufficient railway connectivity with the dry port | 27 (10.8%) | 106 (42.4%) | 84 (33.6%) | 27 (10.8%) | 6 (2.4%) | 250 | 2.52 | 0.911 |
| There are sufficient transport services with fair price to and from the dry port | 27 (10.8%) | 37 (14.8%) | 54 (21.6%) | 114 (45.6%) | 18 (7.2%) | 250 | 3.24 | 1.128 |
| Average Mean | | | | | | | 2.99 | |

Source: Own survey, 2019

4.4.2 Ownership of Dry Port

In this part of the study report, analysis conducted on data gathered to investigate challenges of dry port management from ownership of dry port based on three dimension of ownership investment.

As shown the table 4.4 below, 47.6 percent and 14 percent of the respondents disagreed and strongly disagreed respectively, dry port ownership hold only by government is more

advantageous than privately owned once, with 24 percent of them neutral. The remaining 12 percent and 2.4 percent of the respondents agreed and strongly agreed respectively. The results shows that majority of the respondents disagreed on dry port hold only by government is more advantageous. It is also confirmed by mean score of 2.41 and score standard deviation value of 0.954 indicating that the respondents were agreeing to the same idea. These indicate that the dry port ownership hold only by government is less advantages. This was supported by Rodrigue *et al.* (2006) explains that public facilities are sometimes having characteristics of slow response to market. Hence, Dry port ownership hold only by government is one of the challenging factors for dry port management at Modjo dry port.

In the case of private investment on dry port is more advantageous than public investment, 40 percent and 2 percent of the participants disagreed and strongly disagreed only private investment is more advantageous than public with 41.2 of them neutral. The rest 14 percent and 2.8 percent of participants agreed and strongly agreed respectively. This implies that majority of the respondents were neutral on private investment on dry port is more advantageous than public. It is also confirmed by mean score of 2.76 and score standard deviation value of 0.822 indicating that the respondents were agreeing to the same idea. This indicates that private investment on dry port have own advantage, but the dry port ownership hold only by private company is less advantageous. This was supported by UNCTAD (1991), only private investment on dry port has a larger risk of failure and lack of control over prices.

The participants were also answered the question provided to check on public and Private investment is more advantageous than public or private investment, 51.2 percent and 16.8 percent of the respondents agreed and strongly agreed respectively while 31.6 percent of them neutral. Only 0.4 percent of respondents disagreed. This indicates, majority of the respondents agreed on public and private investment on dry port is more advantageous than public or private investment. It is also confirmed by mean score of 3.84 and score standard deviation value of 0.691 indicating that the respondents were agreeing to the same idea. This was also supported by Rodrigue *et al.* (2006), explains that public-private partnership facilities provides greater flexibility in development of a dry Port in comparison with totally private or governance. Therefore, ownership hold only by government is one of the challenging factor for dry port management at modjo dry port.

Table 4.4 Ownership of Dry Port

| Items | Frequency and Percent | | | | | N | Mean | Std. Deviation |
|--|-----------------------|----------------|----------------|----------------|---------------|-----|------|----------------|
| | 1 | 2 | 3 | 4 | 5 | | | |
| Dry port ownership hold by Government is more advantages than private | 35 (14%) | 119 (47.6%) | 60 (24%) | 30 (12%) | 6 (2.4%) | 250 | 2.41 | 0.954 |
| Private investment in dry port is more advantages than public investment | 5 (2%) | 100 (40%) | 103 (41.2%) | 35 (14%) | 7 (2.8%) | 250 | 2.76 | 0.822 |
| Public & Private investment is more advantages than public or private investment | 0 (0%) | 1 (.4%) | 79 (31.6%) | 128 (51.2%) | 42 (16.8%) | 250 | 3.84 | 0.691 |
| Average Mean | | | | | | | 3.00 | |

Source: Own survey, 2019

4.4.3 Information and Communication Technology

Information and communication technologies have become a crucial element in logistics. Dry Ports must be an integral part of a logistics chain; therefore they should be incorporated into the networks and linked to other transport terminals by implementing information and communication technologies. In addition, not only the links from a dry Port to other nodes should be based on ICT, but also dry Port management as that would significantly contribute to the implementation of lean operations and creation of efficiency in a dry Port (Trainaviciute, 2009).

As per the table 4.5 below, 56 percent and 16.4 percent of the respondents disagreed and strongly disagreed on information exchange between dry port and the dry port customers are supported by information technology while 16 percent of them neutral. The remaining 10.4 percent and 1.2 percent of the respondents agreed and strongly agreed respectively. This implies that majority of the respondents disagreed. It is also confirmed by mean score of 2.24 and score standard deviation value of 0.891 indicating that the respondents were agreeing to the same idea. This is supported by the interview made with terminal coordination manager

that an information exchange between dry port and customers are based only through phone short message. This indicates that there is not information exchange through email, website and other information technology means. The participants were also answered the question provided to check on sufficient information exchange between Modjo dry port and dry port customers, 41.2 percent and 18 percent of the respondents disagreed and strongly disagreed on sufficient information exchange between dry port and customers while 28.8 percent of them neutral. 12 percent of the respondents agreed. This indicate that majority of the respondents disagreed. It is also confirmed by mean score of 2.35 and score standard deviation value of 0.911 indicating that the respondents were agreeing to the same idea. This is supported by the interview made with team leaders of the dry port that a dry port gives information to dry port customer to notice the arrival of a container only. This implies that there is limited information exchange between dry port and dry port customers. Hence, this is one of the challenging factors for dry port management at Modjo dry port.

The respondents were also answered the question provided to check on dry port management is based on information and communication technology, 55.2 percent and 19.2 percent of the respondents disagreed and strongly disagreed dry port management is based on information technology while 20.4 percent of them neutral. The remaining 4 percent and 1.2 percent of the respondents agreed and strongly agreed respectively. This shows that majority of the respondents disagreed. This also validates by mean score of 2.13 and score standard deviation value of 0.806 indicating that the respondents were agreeing to the same idea. This is supported by the interview made with terminal coordination manager, in the terminal number of containers are registered manually by excel and sometime recorded on a record book, location of containers in the terminal not indicated by system hence the owner of a container search location of container manually and also other dry port services are not supported by information and communication technology system. This indicates that the level of information and communication technology implementation is low. Therefore, the implementation level of information and communication technology affects performance of the dry port. This was supported by Trainaviciute (2009), information and communication technology significantly contribute to the implementation of lean operations and creation of efficiency in a dry Port. Hence, this is also challenges of dry port management at Modjo dry port. On the other hand, the respondents were also answered the question provided to check on operational management is based on information and communication technology, 24.8 percent and 16.4 percent of the respondents disagreed and strongly disagreed dry port

operational management is based on information and communication technology whereas 38 percent of the respondents were neutral. The rest 20.4 percent and 0.4 percent of the respondents agreed and strongly agreed respectively. This shows that majority of the respondents were neutral. This also validates by mean score of 2.64 and score standard deviation value of 0.998 indicating that the respondents were agreeing to the same idea. This implies that there is a little dry port operation supported by information and communication technology, however, most dry port operations are not supported by information and communication technology that indicate dry port operation management is based on paper work. This is supported by the interview made with modjo dry port customer services team leader that house made system is implemented only for service charge payment purpose. This shows that taking long time to process container in a dry port. Therefore, this is one of the challenging factors for dry port management at Modjo dry port.

Table 4.5 Implementation Level of Information and Communication Technology

| Items | Frequency and Percent | | | | | N | Mean | Std. Dev |
|---|-----------------------|----------------|---------------|---------------|-------------|-----|------|----------|
| | 1 | 2 | 3 | 4 | 5 | | | |
| Information exchange between Modjo dry port and the dry port customers are supported by ICT | 41 (16.4%) | 140 (56%) | 40 (16%) | 26 (10.4%) | 3 (1.2%) | 250 | 2.24 | 0.891 |
| There is Sufficient information exchange between Modjo dry port and dry port customers | 45 (18%) | 103 (41.2%) | 72 (28.8%) | 30 (12%) | 0 (0%) | 250 | 2.35 | 0.911 |
| Dry port management is based on ICT | 48 (19.2%) | 138 (55.2%) | 51 (20.4%) | 10 (4%) | 3 (1.2%) | 250 | 2.13 | 0.806 |
| Operational management is based on ICT | 41 (16.4%) | 62 (24.8%) | 95 (38%) | 51 (20.4%) | 1 (.4%) | 250 | 2.64 | 0.998 |
| Average Mean | | | | | | | 2.34 | |

Source: Own survey, 2019

4.4.4 Staff Competence

The number of employees is usually taken as a critical factor influencing businesses of dry ports as more staffs can handle the inbound and outbound containers or bulk cargos more efficiently especially in peak hours (Trainaviciute, 2009). Table 4.6 presents the result of staff competence indicators at Modjo dry port. The assessments were made on the availability of sufficient number of staff and their qualification, readiness to serve and equally serve all customers. According to table 4.6 below, 24 percent and 2 percent of the respondents agreed and strongly agreed respectively on dry port is filled with sufficient workforce while 47.6 percent of them neutral. The rest 16.4 percent and 10 percent of the respondents disagreed and strongly disagreed respectively. This shows that majority of the respondents were neutral on dry port is filled with sufficient workforce. This supported by mean score of 2.92 and score standard deviation value of 0.938 indicating that the respondents were agreeing to the same idea. This implies that majority of the respondents had evaluated there is satisfactory number of workforce, that also facilitate import goods clearance and also improves performance of dry port. This was supported by Gujar (2011), the number of employees is usually taken as a critical factor influencing businesses of dry ports as more staffs can handle the inbound and outbound containers or bulk cargos more efficiently especially in peak hours. Therefore, this helps the dry port can handle more containers efficiently.

The respondents were also asked to express their degree of consent on the dry port staffs are qualified enough to handle their duties, 36.8 percent and 11.2 percent of the respondents disagreed and strongly disagreed respectively on dry port staff qualification whereas 30.8 percent of the respondents were neutral. The remaining 19.2 percent and 2 percent of the respondents agreed and strongly agreed respectively on a qualification of dry port staff. This also validates by mean score of 2.64 and score standard deviation value of 0.981 indicating that the respondents were agreeing to the same idea. This implies that the dry port staff are not qualified enough to handle their duties. This is also supported by the interview made with terminal coordination manager that the crane, forklift, cargo handling equipment operators and other staff member level of qualification is not satisfactory. This is also affect dry port operation. This was supported by the study reported by Deo (2014), employees quality are important factors which influence the performance of dry ports. Therefore, dry ports should have sufficient middle-level and front line managers as well as workers to handle the businesses. Availability of qualified staff is one of the challenging factors at Modjo dry port.

The results in table 4.6 below showed that, 35 percent and 12.4 percent of the respondents disagreed and strongly disagreed respectively on dry port employees are always ready to provide fast service for their customers while 31.2 percent of the respondents were neutral. The remaining 19.6 percent and 1.6 percent of the respondents agreed and strongly agreed respectively. This supported by mean score of 2.63 and score standard deviation value of 0.987 indicating that the respondents were agreeing to the same idea. This implies that dry port employees are not ready to provide fast service. According to the table 4.6 below, 45.2 percent and 18.8 percent of the respondents disagreed and strongly disagreed respectively on dry port employees serve all customers equally whereas 22 percent of the respondents were neutral. The rest 13.2 percent and 0.8 percent of the respondents agreed and strongly agreed respectively. This is supported by mean score of 2.32 and score standard deviation value of 0.954 indicating that the respondents were agreeing to the same idea. This indicates that dry port employees do not serve all customers equally and there is high level of partiality in service delivery. This is one of the challenging factors for dry port management at Modjo dry port. Therefore, Modjo dry port management should give special attention to improve performance and attitude of employees.

Table 4.6 Staff Competence of Modjo Dry Port

| Items | Frequency and Percent | | | | | N | Mean | Std. Dev |
|---|-----------------------|----------------|----------------|---------------|-------------|-----|------|----------|
| | 1 | 2 | 3 | 4 | 5 | | | |
| The Modjo dry port is filled with sufficient workforce | 25 (10%) | 41 (16.4%) | 119 (47.6%) | 60 (24%) | 5 (2%) | 250 | 2.92 | 0.938 |
| The Modjo dry port staffs are qualified enough to handle their duties | 28 (11.2%) | 92 (36.8%) | 77 (30.8%) | 48 (19.2%) | 5 (2%) | 250 | 2.64 | 0.981 |
| Modjo dry port employees are always ready to provide fast service for their customers | 31 (12.4%) | 88 (35.2%) | 78 (31.2%) | 49 (19.6%) | 4 (1.6%) | 250 | 2.63 | 0.987 |
| Modjo dry port employees serve all customers equally | 47 (18.8%) | 113 (45.2%) | 55 (22%) | 33 (13.2%) | 2 (.8%) | 250 | 2.32 | 0.954 |
| Average Mean | | | | | | | 2.63 | |

Source: Own survey, 2019

4.4.5 Customs Services

McLinden (2005) stated that the role of customs becomes more important and more complicated due to tax base become widened, the prevalence of illegal trade, and the need for balance between trade facilitation and control. In order to assess service delivery level of Customs, respondents were asked to express their opinion and the result is presented in table 4.7 below.

As can be seen from table 4.7 below, 54 percent and 21.2 percent of the respondents disagreed and strongly disagreed on there is speedy customs clearance at Modjo dry port while 14 percent of the respondents were neutral. 10 percent and 0.8 percent of the respondents agreed and strongly agreed respectively. This validated by mean score of 2.15 and score standard deviation value of 0.897 indicating that the respondents were agreeing to the same idea. This implies that customs clearance process is time taking. Hence, customs clearance process is one of the challenging factors for dry port management at Modjo dry port. On the other hand, the respondents were also answered the question provided to check on customs tariff classification is based on international rule, 30.4 percent agreed and 6.2 percent strongly agreed respectively while 44.8 percent of them neutral. The rest 14 percent and 2.4 percent of the respondents disagreed and strongly disagreed respectively. This validated by mean score of 3.04 and score standard deviation value of 0.937 indicating that the respondents were agreeing to the same idea.

The respondents were also asked to express their degree of consent on customs valuation system is based on an international valuation rule, 60 percent and 20.8 percent of the respondents disagreed and strongly disagreed respectively whereas 10.4 percent of the respondents were neutral. The reaming 8.4 percent and 0.4 percent of the respondents agreed and strongly agreed respectively. This is supported by mean score of 2.08 and score standard deviation value of 0.825 indicating that the respondents were agreeing to the same idea. This implies that customs valuation process is not based on an international rule and more problematic. Therefore, customs valuation process is one of the challenging factors for dry port management at Modjo dry port.

Table 4.7 Customs Service Deliver at Modjo Dry Port

| Items | Frequency and Percent | | | | | N | Mean | Std. Deviation |
|--|-----------------------|--------------|----------------|---------------|-------------|-----|------|----------------|
| | 1 | 2 | 3 | 4 | 5 | | | |
| There is speedy customs clearance at the Modjo dry port | 53 (21.2%) | 135 (54%) | 35 (14%) | 25 (10%) | 2 (0.8%) | 250 | 2.15 | 0.897 |
| Customs tariff classification is based on international rule | 21 (8.4%) | 35 (14%) | 112 (44.8%) | 76 (30.4%) | 6 (2.4%) | 250 | 3.04 | 0.937 |
| Customs valuation system is based on an international valuation rule | 52 (20.8%) | 150 (60%) | 26 (10.4%) | 21 (8.4%) | 1 (0.4%) | 250 | 2.08 | 0.825 |
| Average Mean | | | | | | | 2.42 | |

Source: Own survey, 2019

4.4.6 Warehouse Condition

Warehousing refers to the activities involving storage of goods on a large scale in a systematic and orderly manner and making them available conveniently when needed. In other words, warehousing means holding or preserving goods in huge quantities from the time of their purchase or production till their actual use or sale. Being an essential component of logistics is a key aspect of modern supply chains and plays a critical role in the success or failure of business today (Frazelle, 2002). In order to show the role of warehouse on dry port operation the respondents were asked to express their opinion and the result is presented in table 4.8 below.

The respondents were also asked to express their degree of consent on there is a clean warehouse at the Modjo dry port. Accordingly, 71.2 percent and 5.6 percent of the respondents agreed and strongly agreed respectively whereas 11.2 percent of the respondents were neutral. The remaining 7.2 percent and 4.8 percent of the respondents disagreed and strongly disagreed respectively. This also substantiated by mean value of 3.66 and score standard deviation value of 0.879 indicating that the respondents were agreeing to the same idea. This implies that there is a clean warehouse at Modjo dry port that also helps to keep

import goods in good way. As table 4.8 below shown, 47.6 percent and 4 percent of the respondents agreed and strongly agreed on there is sufficient warehouse space to handle cargo with 36 percent of the respondents were neutral. The rest 7.2 percent and 5.2 percent of the respondents disagreed and strongly disagreed respectively. This also substantiated by mean value of 3.38 and score standard deviation value of 0.88 indicating that the respondents were agreeing to the same idea. This implies that there is a clean and sufficient warehouse space for import cargo handling at Modjo dry port.

Table 4.8 Warehouse Condition at Modjo Dry Port

| Items | Frequency and Percent | | | | | N | Mean | Std. Deviation |
|---|-----------------------|--------------|---------------|----------------|--------------|-----|------|----------------|
| | 1 | 2 | 3 | 4 | 5 | | | |
| There is a clean warehouse at the Modjo dry port | 12 (4.8%) | 18 (7.2%) | 28 (11.2%) | 178 (71.2%) | 14 (5.6%) | 250 | 3.66 | 0.879 |
| There is sufficient warehouse space to handle cargo at the Modjo dry port | 13 (5.2%) | 18 (7.2%) | 90 (36%) | 119 (47.6%) | 10 (4%) | 250 | 3.38 | 0.88 |
| Average Mean | | | | | | | 3.52 | |

Source: Own survey, 2019

4.4.7 Importer Behaviour

Table 4.9 below presents the result of importers behaviour indicators. The assessment were made on 3 indicators including importers collect their container on time, importers ready to fulfill their duty and sufficient knowledge about import good clearance. The results on these indicators are presented in table 4.9 below.

As indicated in the table 4.9 below, 37.6 percent and 0.8 percent of the respondents disagreed and strongly disagreed on importers collect their container on time respectively, 27.6 percent of them agreed whereas 34 percent of them neutral. This implies that majority of the respondents were expressed their consent as neutral. This also substantiated by mean value of 2.88 and score standard deviation value of 0.821 indicating that the respondents were agreeing to the same idea. However, the interview made with terminal coordination manager proves that importers do not collect their container on time, because currently there are more

than 2000 containers at terminal their dwell time is more than two months. Therefore, importers behaviour is one of a challenging factor on dry port management at Modjo dry port.

On the other hand, The participants were also answered the question provided to check on importers are always ready to fulfill their duty, 31.2 percent and 2.8 percent of the respondents disagreed and strongly disagreed with 37.6 percent of the respondents were neutral. The rest 28 percent and 0.4 percent of the respondents agreed and strongly agreed respectively. This is confirmed by mean value of 2.92 and score standard deviation value of 0.846 indicating that the respondents were agreeing to the same idea. This indicates that importers are moderately ready to fulfill their duty. The response item importers have sufficient knowledge about import good clearance, 60 percent of the respondents disagreed, 2 percent strongly disagreed and 30.4 percent of them neutral. The remaining 7.6 percent of the respondents agreed. The result shows that majority of the respondents disagreed on importers have sufficient knowledge about import goods clearance. This is confirmed by mean value of 2.44 and score standard deviation value of 0.663 indicating that the respondents were agreeing to the same idea. This implies that importers do not have sufficient knowledge about import goods clearance. Hence, this is also one of the challenging factor for dry port management at Modjo dry port.

Table 4.9 Importers Behaviour at Modjo Dry Port

| Items | Frequency and Percent | | | | | N | Mean | Std. Deviation |
|--|-----------------------|---------------|---------------|---------------|-------------|-----|------|----------------|
| | 1 | 2 | 3 | 4 | 5 | | | |
| Importers collect their container on time | 2 (0.8%) | 94 (37.6%) | 85 (34%) | 69 (27.6%) | 0 (0%) | 250 | 2.88 | 0.821 |
| Importers are always ready to fulfill their duty | 7 (2.8%) | 78 (31.2%) | 94 (37.6%) | 70 (28%) | 1 (0.4%) | 250 | 2.92 | 0.846 |
| Importers have sufficient knowledge about import goods clearance | 5 (2%) | 150 (60%) | 76 (30.4%) | 19 (7.6%) | 0 (0%) | 250 | 2.44 | 0.663 |
| Average Mean | | | | | | | 2.75 | |

Source: Own survey, 2019

4.4.8 Bank Document Process

Table 4.10 below presents the result of bank performance indicators. The assessment were made on 3 indicators including bank facilitate import transaction, delivers of necessary documents on time and error free document. The results on these indicators are presented in table 4.10 below.

According to table 4.10 below, 31.6 percent and 1.2 percent of the respondents agreed and strongly agreed respectively on bank tries to facilitate the import transaction within competitive and flexible price whereas 40 percent of them neutral. The remaining 17.2 percent and 10 percent of the respondents disagreed and strongly disagreed respectively. This is supported by mean score value of 2.97 and score standard deviation value of 0.969 indicating that the respondents were agreeing to the same idea. This was supported by Hill (2004), bank facilitate international trade. The respondents were also asked to express their degree of consent on bank delivers necessary documents on time to clear container from the dry port, 36.8 percent and 10.4 percent of the respondents disagreed and strongly disagreed respectively whereas 28.4 percent of them neutral. The rest 22.8 percent and 1.6 percent of the respondents agreed and strongly agreed respectively. This implies that bank does not deliver necessary document on time. This is also validated by mean score value of 2.68 and score standard deviation value of 0.99 indicating that the respondents were agreeing to the same idea. This is supported by interview made with dry port customer service team leader that bank does not deliver original bill of loading and other necessary documents on time that document is an important document to transfer ownership of a container, that also create congestion at dry port. Therefore, this is one of the challenging factors for dry port management at Modjo dry port. According to table 4.10 below, 22.4 percent and 0.4 percent of the respondents agreed and strongly agreed respectively on bank delivers error free documents with 52.8 percent of the respondents were neutral. The remaining 14 percent and 10.4 percent of the respondents disagreed and strongly disagreed respectively. This implies that bank deliver most of the time error free document, but rarely deliver document have error. This is also validated by mean score value of 2.68 and score standard deviation value of 0.99 indicating that the respondents were agreeing to the same idea. The result indicate that bank document process have impact on import goods clearance.

Table 4.10 Bank Document Process

| Items | Frequency and Percent | | | | | N | Mean | Std. Deviation |
|---|-----------------------|---------------|----------------|---------------|-------------|-----|------|----------------|
| | 1 | 2 | 3 | 4 | 5 | | | |
| Bank tries to facilitate the import transaction within competitive and flexible price | 25 (10%) | 43 (17.2%) | 100 (40%) | 79 (31.6%) | 3 (1.2%) | 250 | 2.97 | 0.969 |
| Bank delivers necessary documents on time to clear container from the dry port | 26 (10.4%) | 92 (36.8%) | 71 (28.4%) | 57 (22.8%) | 4 (1.6%) | 250 | 2.68 | 0.99 |
| Bank delivers error free documents | 26 (10.4%) | 35 (14%) | 132 (52.8%) | 56 (22.4%) | 1 (0.4%) | 250 | 2.88 | 0.886 |
| Average Mean | | | | | | | 2.84 | |

Source: Own survey, 2019

4.5 Import Goods Clearance

Table 4.11 Import Goods Clearance Process at Modjo Dry Port

| Items | 1 | 2 | 3 | 4 | 5 | N | Mean | Std. Dev |
|--|---------------|---------------|----------------|----------------|-------------|-----|------|----------|
| Import goods are cleared as standard time | 52 (20.8%) | 135 (54%) | 35 (14%) | 25 (10%) | 3 (1.2%) | 250 | 2.17 | 0.912 |
| Import good clearance procedure is transparent and predictable | 31 (12.4%) | 90 (36%) | 77 (30.8%) | 48 (19.20%) | 4 (1.6%) | 250 | 2.62 | 0.98 |
| Import good clearance procedure is harmonized and simplified | 27 (10.8%) | 40 (16%) | 118 (47.2%) | 60 (24%) | 5 (2%) | 250 | 2.9 | 0.952 |
| Import clearance process at the modjo dry port is save cost of the customers | 24 (9.6%) | 58 (23.2%) | 110 (44%) | 49 (19.6%) | 9 (3.6%) | 250 | 2.84 | 0.967 |
| Average Mean | | | | | | | 2.63 | |

Source: Own survey, 2019

Import goods clearance is the action by the customs to permit goods undergoing clearance to be at the disposal of the person concerned (UNCTAD, 2006). Table 4.11 above presents the result of import goods clearance indicators. The assessment were made on 4 indicators including import goods cleared at standard time, transparency, predictability, harmonization and simplification of clearance process and clearance process save cost of customers. The results on these indicators are presented in table 4.11 above.

The results on table 4.11 above shown that, 54 percent and 20.8 percent of the respondents disagreed and strongly disagreed respectively on import goods are cleared at standard time whereas 14 percent of them neutral. 10 percent and 1.2 percent of the respondents agreed and strongly agreed respectively. The result shows that majority of the respondents disagreed on import goods are cleared at standard time. This is also confirmed by mean score value of 2.17 and score standard deviation value of 0.912 indicating that the respondents were agreeing to the same idea. This implies that import goods are not cleared on standard time a result customers wait for a while to clear their cargo. On the other hand, the respondents were asked to answer on import goods clearance procedure is transparent and predictable, 36 percent and 12.4 percent of the respondents disagreed and strongly disagreed respectively with 30.8 percent of the respondents were neutral. 19.2 percent and 1.6 percent of the respondents agreed and strongly agreed respectively. Majority of the respondents were neutral. This is also validated by mean score value of 2.62 and score standard deviation value of 0.984 indicating that the respondents were agreeing to the same idea. The result shows that the import goods clearance procedure is somehow transparent and predictable.

According to table 4.11 above, 16 percent and 10.8 percent of the respondents disagreed and strongly disagreed respectively on import goods clearance procedure is harmonized and simplified whereas 47.2 percent of the respondents were neutral. 24 percent and 2 percent of the respondents agreed and strongly agreed respectively. This indicate that majority of the respondents were neutral. This also substantiated by mean score value of 2.90 and score standard deviation value of 0.952 indicating that the respondents were agreeing to the same idea. This implies that in some extent there is harmonized and simplified import goods clearance procedure at Modjo dry port. In addition, the respondents were asked to answer on import goods clearance process at the Modjo dry port is save the cost of the customers, 23.2 percent and 9.6 percent of the respondents disagreed and strongly disagreed respectively while 44 percent of them neutral. 19.6 percent and 3.6 percent of the respondents agreed and strongly agreed respectively. This is also substantiated by mean score value of 2.84 and

score standard deviation value of 0.967 indicating that the respondents were agreeing to the same idea. This indicated that import goods clearance process at Modjo dry port is costly for customers'. As per the UNCTAD (2008), in many countries it is still normal not to release goods unless all issues are resolved and duties and taxes are paid. These delays in actually receiving the goods which are caused by Customs clearance procedures are a great concern for importers.

Furthermore, To evaluate how long does it take to receive container from Modjo dry port, the respondents were asked to express their degree of consent on a time take to receive container from dry port table 4.12 below indicated that, 46.6 percent of the respondents said that on average import goods clearance process takes 4 to 8 days, 35.2 percent of them said takes 9 to 15 days, 11.6 percent of respondents said 1 to 3 days and the remaining 6.8 percent said more than 15 days. This indicates that majority of the respondents' response shown it takes long time to take cargo from the dry port. Based on Ethiopian Shipping and Logistics Services Enterprise document a standard time to clear one container from dry port is 24 hours or one day. When we compare actual service delivery time and a standard time set by enterprise there is still delay in clearance process.

Table 4.12 How long does It Take to Receive Container from the Modjo Dry Port

| | | Frequency | Percent | Valid Percent | Cumulative Percent | Standard time |
|-------|----------|-----------|---------|---------------|--------------------|---------------|
| | 1-3days | 29 | 11.6 | 11.6 | 11.6 | 1 day |
| | 4-8days | 116 | 46.4 | 46.4 | 58 | 1 day |
| | 9-15days | 88 | 35.2 | 35.2 | 93.2 | 1 day |
| | >15days | 17 | 6.8 | 6.8 | 100 | 1 day |
| Valid | Total | 250 | 100 | 100 | | |

Source: Own survey, 2019

4.6 Summary Responses of Challenges of Dry Port

Table 4.13 below presents the comparison between which factors are major challenges of dry port management at Modjo dry port.

The rule of thumb pertaining to the intervals for breaking the range in measuring variables that are captured with the five-point Likert type scale (that ranges from strongly disagree to strongly agree) is calculated by $(5-1=4)$ then divided by five as it is the greatest value of the scale ($4/5=0.8$). Afterwards, number one which is the least value in the scale is added in order to identify the maximum of this cell. Hence, a calculated composite mean value that ranges from 1 to 1.80 implies strong disagreement, whereas the remaining ranges of 1.81 to 2.6, 2.61 to 3.4, 3.41 to 4.2 and 4.21 to 5.00 representing respondents' perceptions of disagreement, neutrality, agreement and strong agreement respectively.

Table 4.13 below average means score shows, from major to least challenging factors from top to down. According to table 4.13 below, the average mean indicated that ICT, customs services, staff competence and importer behaviour are major challenges of dry port management at Modjo dry port. The average mean indicated that bank document process, physical infrastructures and ownership are moderate challenges of dry port management at Modjo dry port. The average mean indicated that warehouse condition is least challenges of dry port management at Modjo dry port.

Table 4.13 Summary Responses of Challenges of Dry Port

| Major Challenges of Dry Port Management at Modjo Dry Port | Average Mean Score |
|---|--------------------|
| ICT | 2.34 |
| Customs services | 2.42 |
| Staff competence | 2.63 |
| Importer behaviour | 2.75 |
| Bank document process | 2.84 |
| Physical infrastructure | 2.99 |
| Ownership of dry port | 3.00 |
| Warehouse condition | 3.52 |

Source: Own survey, 2019

4.7. Correlation Analysis

Correlations are the measure of the linear relationship between two variables. A correlation coefficient has a value ranging from -1 to 1. Values that are closer to the absolute value of 1 indicate that there is a strong relationship between the variables being correlated whereas

values closer to 0 indicates that there is little or no linear relationship. By using correlation analysis the interdependence between the independent and dependent variables would be tested. Accordingly, correlation analysis was used to measure the relationship between two items such as physical infrastructure, ownership of dry port, information and communication technology, staff competence, customs services, warehouse condition, importer behaviour and bank document process as independent variables and import goods clearance as dependent variable. The resulting value (called the "correlation coefficient") shows if changes in one item will result in changes in the other item. A pertinent interpretation was given based on this analysis. When comparing the correlation between two items, one item is called the dependent item and the other the independent item.

The table 4.14 below shows relationship between dry port management challenges with import goods clearance indicated variables are Physical infrastructure (PH), Ownership of dry port (OW), Information and communication technology (ICT), Staff competence (SC), Customs services (CS), Warehouse condition (WH), Importer behaviour (IB), Bank document process (BD) and Import goods clearance (IC). Pearson correlation analysis was conducted to examine the relationship between independent and dependent variables. As cited in Wong and Hiew (2005), the correlation coefficient value (r) both positive and negative range from 0.10 to 0.29 is considered weak, from 0.30 to 0.49 is considered medium and from 0.50 to 1.0 is considered strong

The correlation between dry port management challenges with import goods clearance was run as seen in the table 4.14 below. The result of correlation matrix between each independent variable and import goods clearance are analyzed as follows: As it is indicated in the table 4.14 below, there is significant strong positive relationship between staff competence and import goods clearance with Pearson correlation coefficient of 0.799** ($r=0.799$) and significance less than 0.001. This significance tells that there is positive strong relationship between staff competence and import goods clearance.

Table 4.14 below also depicts that as there is strong positive relationship between physical infrastructure of dry port and import goods clearance with a Pearson correlation coefficient of 0.645** ($r=0.645$) and significance value is less than 0.001. This significance tells that there is strong positive relationship between physical infrastructure of dry port and import goods clearance. As the conducted Pearson correlation test indicated in the table 4.14 below, also there is strong positive relationship between Customs services and import goods clearance

with Pearson correlation coefficient of 0.624** ($r=0.624$) and significance value is less than 0.001. This significance tells that there is strong positive relationship between customs services and import goods clearance.

Table 4.14 below clearly indicates that there is medium positive relationship between information and communication technology and import goods clearance with a Pearson correlation coefficient of 0.434** ($r=0.434$) and significance value is less than 0.001. Hence, information and communication technology and import goods clearance is medium positive relationship. As it is shown in the table 4.14 below, there is medium positive correlation between bank document process and import goods clearance with a Pearson correlation coefficient of 0.335** ($r=0.335$) and significance value is less than 0.001. This significance tells that there is medium relationship between bank document process and import goods clearance. In addition, as it is shown in the table 4.14 below, there is medium positive correlation between warehouse condition and import goods clearance with a Pearson correlation coefficient of 0.331** ($r=0.331$) and significance value is less than 0.001. This significance tells that there is medium relationship between warehouse condition and import goods clearance.

As we can see from table 4.14 below, there is a weak positive correlation between ownership of dry port and import goods clearance with a Pearson correlation coefficient of 0.126* ($r=0.126$) and significance value is less than 0.05. This significance tells that there is a weak relationship between ownership of dry port and import goods clearance. As the conducted Pearson correlation test indicated in the table 4.14 below, there is a weak correlation between importer behaviour and import goods clearance with a Pearson correlation coefficient of -0.1 ($r= -0.1$) and significance value is greater than 0.05. This significance tells that there is weak relationship between importer behaviour and import goods clearance and statistically insignificant. As it is indicated in the table 4.14 below, Staff competence, physical infrastructure and customs services have strong positive correlation with import goods clearance the value of “ r ” 0.799**, 0.645**, 0.624** respectively and significance level less than 0.01. In addition, information and communication technology, bank document process and warehouse condition have medium positive correlation with import goods clearance the value of “ r ” 0.434**, 0.335** and 0.331** respectively and significance level less than 0.01. As seen from table 4.14 below, ownership of dry port have weak positive relationship with import goods clearance “ r ” value 0.126* and significant level less than 0.05. However, importer behaviour have weak negative relationship with import goods clearance

with “r” value of -0.1 and a significance level greater than 0.05. Therefore, staff competence, physical infrastructure, customs services, information and communication technology, bank document process, warehouse condition, ownership of dry port and importer behaviour included in regression analysis because there are relationships with import goods clearance.

Table 4.14 Correlation Matrix

| | | PH | OW | ICT | SC | CS | WH | IB | BD | IC |
|--|---------------------|---------|--------|---------|--------|--------|--------|-------|--------|----|
| PH | Pearson Correlation | 1 | | | | | | | | |
| | Sig. (2-tailed) | | | | | | | | | |
| OW | Pearson Correlation | .130* | 1 | | | | | | | |
| | Sig. (2-tailed) | .041 | | | | | | | | |
| ICT | Pearson Correlation | -.530** | -.129 | 1 | | | | | | |
| | Sig. (2-tailed) | .000 | .218 | | | | | | | |
| SC | Pearson Correlation | .460** | .227** | -.495** | 1 | | | | | |
| | Sig. (2-tailed) | .000 | .000 | .000 | | | | | | |
| CS | Pearson Correlation | .346** | .049 | -.347** | .439** | 1 | | | | |
| | Sig. (2-tailed) | .000 | .442 | .001 | .000 | | | | | |
| WH | Pearson Correlation | .425** | .024 | -.261* | .270** | .157* | 1 | | | |
| | Sig. (2-tailed) | .000 | .701 | .012 | .000 | .013 | | | | |
| IB | Pearson Correlation | .105 | .123 | -.076 | .044 | -.145* | .092 | 1 | | |
| | Sig. (2-tailed) | .097 | .051 | .468 | .489 | .022 | .149 | | | |
| BD | Pearson Correlation | .379** | -.024 | -.293** | .310** | .282** | .186** | .157* | 1 | |
| | Sig. (2-tailed) | .000 | .710 | .004 | .000 | .000 | .003 | .013 | | |
| IC | Pearson Correlation | .645** | .126* | -.434** | .799** | .624** | .331** | -.1 | .335** | 1 |
| | Sig. (2-tailed) | .000 | .046 | .000 | .000 | .000 | .000 | .424 | .000 | |
| *. Correlation is significant at the 0.05 level (2-tailed). | | | | | | | | | | |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | | | | |

Source: Own survey, 2019

4.8 Regression Analysis

This regression analysis is conducted to know by how much the independent variable explains the dependent variable. The regression was conducted between dry port management challenges as independent variable and import goods clearance as dependent variable. The regression was conducted between staff competence, physical infrastructure, customs services, information and communication technology, bank document process, warehouse condition, ownership of dry port and importer behaviour (as independent variables) and import goods clearance (as dependent variable) in the regression. The results of the regression analysis are presented as follows.

4.8.1 Test for Regression Model Assumption

Multiple linear regression analysis makes several key assumptions: the five main assumptions of linear regression are kurtosis and skewness, normality, linearity, absence of multicollinearity and homoscedasticity,

4.8.1.1 Test of Kurtosis and Skewness Test

Normal distribution kurtosis and skewness takes a form of a symmetric bell shaped curve. According to Garson (2012), skewness and kurtosis with range +3 to -3 used to measure normal distribution. It can be noted from table 4.15 below the skewness and kurtosis result shows that there were normally distributed.

Table 4.15 Kurtosis and Skewness Test

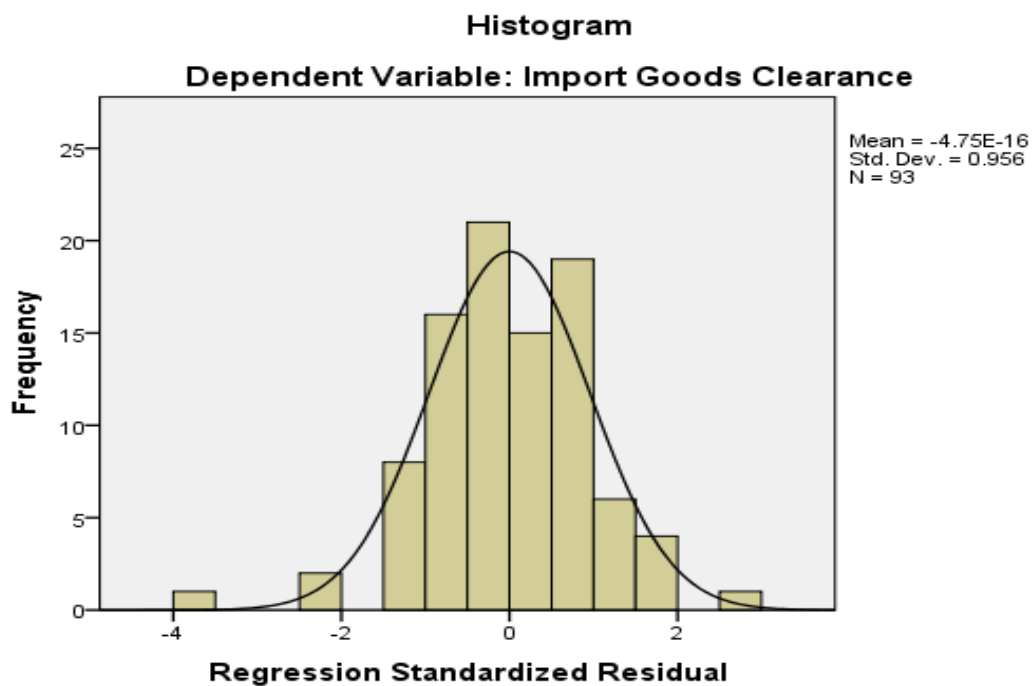
| Dimensions | Skewness | | Kurtosis | |
|--|-----------|------------|-----------|------------|
| | Statistic | Std. Error | Statistic | Std. Error |
| Physical Infrastructure | -0.679 | 0.154 | 0.869 | 0.307 |
| Ownership of Dry Port | 0.234 | 0.154 | -0.52 | 0.307 |
| Information and communication technology | 0.308 | 0.25 | -0.657 | 0.495 |
| Staff competence | -0.139 | 0.154 | -0.297 | 0.307 |
| Customs services | 0.217 | 0.154 | 0.358 | 0.307 |
| Warehouse condition | -1.457 | 0.154 | 2.639 | 0.307 |
| Importer behaviour | -0.017 | 0.154 | -0.845 | 0.307 |
| Bankdocument process | -0.483 | 0.154 | -0.004 | 0.307 |
| Import goods clearance | | | | |

Source: Own survey, 2019

4.8.1.2 Test for Normality

Multiple regressions assume that the residuals are normally distributed. We draw a histogram of the residuals with a normality line, and then examine the normality of the residuals. If the residuals are not skewed, that means that the assumption is satisfied. As it can be seen from figure 4.3 below, the residuals are seamlessly normally distributed. Therefore, in this survey result the assumption of normality is satisfied.

Figure 4.3 Normality Distribution Histogram



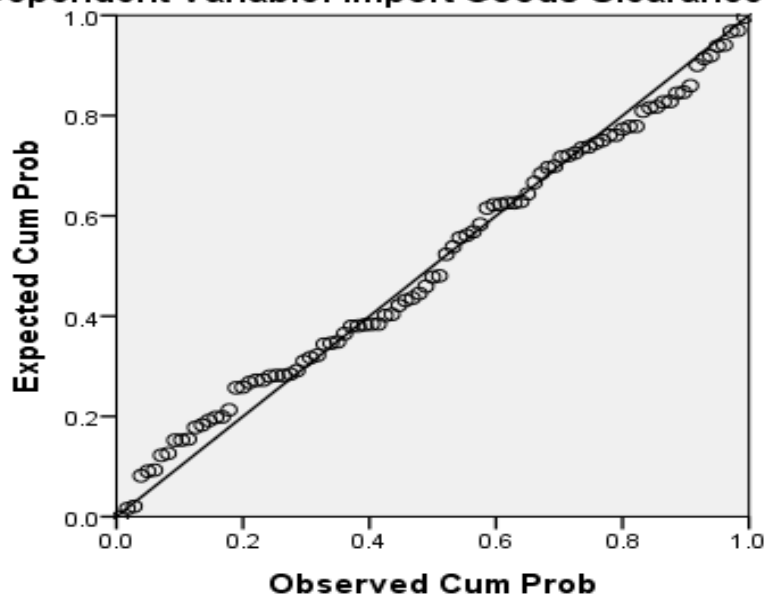
Source: Own survey, 2019

4.8.1.3 Test of Linearity

Multiple linear regressions require there must be a linear relationship between the outcome variable and the independent variables. Scatter plots can show whether there is a linear or curvilinear relationship. We draw a scatter plot of residuals and y values. Y values are taken on the vertical y axis, and standardized residuals (SPSS calls them ZRESID) are then plotted on the horizontal x axis. If the scatter plot follows a linear pattern (i.e. not a curvilinear pattern) that shows that linearity assumption is met. On the figure 4.4 below, there is linear relationship between independent variables and dependent variable. Thus, in this study the assumption of linearity is satisfied.

Figure 4.4 Model Assumptions of linearity

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Import Goods Clearance

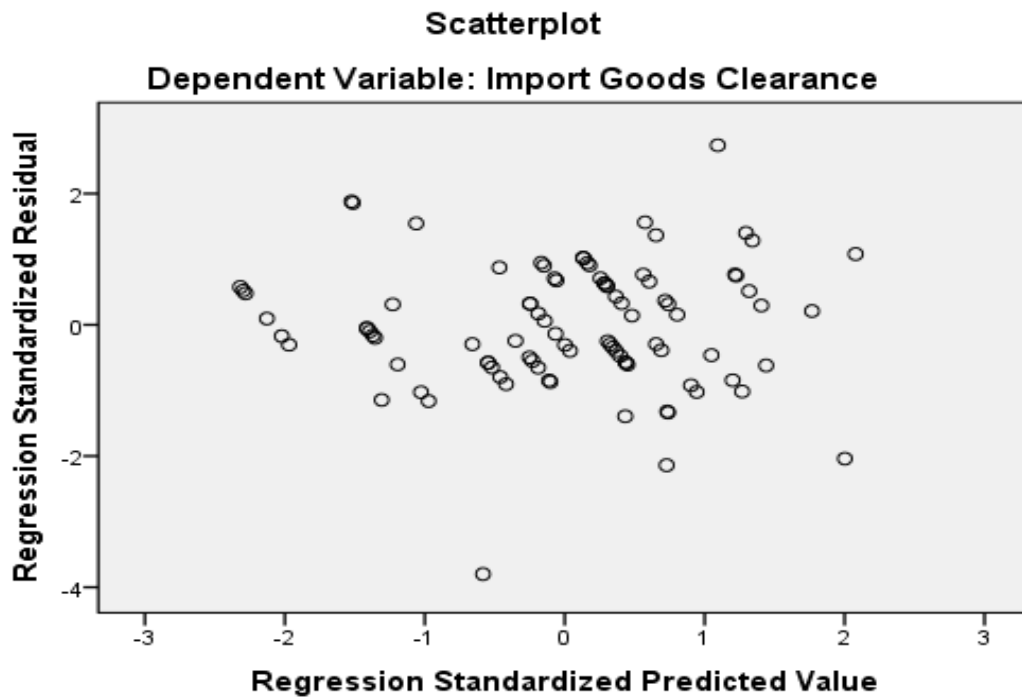


Source: Own survey, 2019

4.8.1.3 Test of homogeneity of the variance

Homoscedasticity assumption states that the variances of error terms are similar across the values of the independent variables. A plot of standardized residuals versus predicted values can show whether points are equally distributed across all values of the independent variables. A scatter plot of residuals versus predicted values is good way to check for homoscedasticity. The figure 4.5 shows, in this study the assumption of homogeneity is fulfilled.

Figure 4.5 Homoscedasticity Variance



Source: Own survey, 2019

4.8.1.4 Multi Collinearity Test

Table 4.16: Multi collinearity test of independent variable

| Model | Collinearity Statistics | |
|--|-------------------------|-------|
| | Tolerance | VIF |
| Staff competence | 0.493 | 2.028 |
| Physical infrastructure | 0.459 | 2.18 |
| Customs | 0.631 | 1.585 |
| Information and communication technology | 0.648 | 1.542 |
| Bank document process | 0.741 | 1.349 |
| Warehouse condition | 0.681 | 1.468 |
| Ownership of dry port | 0.885 | 1.13 |
| Importer behaviour | 0.807 | 1.239 |

Dependent Variable: Import Clearance

Source: Own survey, 2019

Multiple linear regressions assume that there is no multicollinearity in the data. Multicollinearity occurs when the independent variables are too highly correlated with each other. Multicollinearity may be checked multiple ways:

1) Correlation matrix – When computing a matrix of Pearson’s bivariate correlations among all independent variables, the magnitude of the correlation coefficients should be less than .80.

2) Variance Inflation Factor (VIF) – The VIFs of the linear regression indicates the degree that the variances in the regression estimates are increased due to multicollinearity. VIF values higher than 10 indicate that multicollinearity is a problem.

According to Mendard (1995), Tolerance should be more than 0.2 and Myers (1990), VIF should be less than 10. The results show in the table 4.16 above confirms there is no multicollinearity between the independent variables. Since the value of tolerance for all independent variable is greater than 0.2 and all VIF is less than ten (VIF<10). So, this assumption is fulfilled.

Table 4.17 Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Sig. |
|--|-------|----------|-------------------|----------------------------|-------|
| 1 | .935a | 0.874 | 0.863 | 0.30182 | 0.000 |
| a Predictors: (Constant), Importer Behaviour, Information and Communication Technology, Ownership of Dry Port, Warehouse Condition, Customs Services, Bank Document Process, Staff Competence, Physical Infrastructure | | | | | |
| b Dependent Variable: Import Goods Clearance | | | | | |

Source: Own survey, 2019

The table 4.17 above shows whether the model is fit or not. The Adjusted R square value obtained indicates that 86.3 percent of import goods clearance is predicted (explained) by staff competence, physical infrastructure, customs services, information and communication technology, bank document process, warehouse condition, ownership of dry port and importer behaviour. This suggests that the remaining 13.7 percent of import goods clearance cannot be explained by that independent variables and this means that the remaining of the import goods clearance is explained by dry port management challenges not considered in

this study. In this research R² square = 0.874 and adjusted R square = 0.863 is greater than 0.50. Hence, the model is fit to explain the dependent variable.

ANOVA test shows the acceptability of the model from statistical perspective. Accordingly, the regression row indicates the extent of variation explained by the model, whereas the residual row indicates information about the variation that is not accounted for the model, i.e. variation on the dependent variable explained by factors not included in the model.

On the table 4.18 below it is clearly indicated that the computed F statistic is 73.164 with an observed significance level of 0.000, implying the statistical fitness of the regression model to the data.

Table 4.18 ANOVA Test

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|------------|----------------|----|-------------|--------|-------------------|
| 1 | Regression | 53.321 | 8 | 6.665 | 73.164 | .000 ^b |
| | Residual | 7.652 | 84 | 0.091 | | |
| | Total | 60.973 | 92 | | | |
| a Dependent Variable: Import Goods Clearance | | | | | | |
| b Predictors: (Constant), Importer Behaviour, Information and Communication Technology , Ownership of Dry Port, Warehouse Condition, Customs Services, Bank Document Process, Staff Competence, Physical Infrastructure | | | | | | |

Source: Own survey, 2019

Table 4.19 Regression Coefficients

| | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | | Correlations | | |
|-------------------------|-----------------------------|------------|---------------------------|--------|------|---------------------------------|-------------|--------------|---------|-------|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound | Zero-order | Partial | Part |
| (Constant) | -.768 | .349 | | -2.197 | .031 | -1.463 | -.073 | | | |
| Staff Competence | .510 | .050 | .560 | 10.17 | .000 | .410 | .61 | .848 | .743 | .393 |
| Physical Infrastructure | .328 | .056 | .334 | 5.85 | .000 | .216 | .439 | .714 | .538 | .226 |
| Customs Services | .301 | .056 | .259 | 5.33 | .000 | .189 | .413 | .65 | .503 | .206 |
| ICT | .107 | .044 | .115 | 2.40 | .019 | .018 | .195 | -.434 | .253 | .093 |
| Bank Document Process | -.070 | .041 | -.076 | -1.69 | .094 | -.153 | .012 | .258 | -.182 | -.066 |
| Warehouse Condition | .113 | .041 | .129 | 2.76 | .007 | .031 | .194 | .525 | .288 | .107 |
| Ownership of Dry Port | -.033 | .048 | -.029 | -.696 | .488 | -.129 | .062 | .166 | -.076 | -.027 |
| Importer Behaviour | -.049 | .053 | -.039 | -.91 | .364 | -.155 | .057 | .024 | -.099 | -.035 |

a Dependent Variable: Import Goods Clearance

Source: Own survey, 2019

The regression coefficient is the independent variable associated with it is contributing significance to the variance accounted for in the dependent variable.

From the findings in the above table 4.19, the regression equation is: -

$$Y = -0.768 + 0.51x_1 + 0.33x_2 + 0.3x_3 + 0.11x_4 + 0.113x_5 - 0.07x_6 - 0.033x_7 - 0.05x_8 + \epsilon$$

Where Y is Import Goods Clearance

X1= Staff Competence,

X2= Physical Infrastructure,

X3= Customs Services,

X4= Information and Communication Technology,

X5= Warehouse Condition

X6= Bank Document Process

X7= Ownership of Dry Port

X8= Importer Behaviour

€= Error term

In table 4.19 above, the study output indicates that staff competence, physical infrastructure customs services and warehouse condition significantly affects import goods clearance at 1 percent significance level, information and communication technology affect import goods clearance at 5 percent significance level and bank document process, ownership of dry port and importer behaviour statistically insignificant this implies that have no effect on import goods clearance.

From the above table 4.19 regression model, the significance value of five independent variables: staff competence, physical infrastructure, customs services, warehouse condition and information and communication technology are less than 0.05 which show that the model is statistically significant to predict the analysis of dry port management challenges on import goods clearance, whereas the significance value of three independent variables bank document process, ownership of dry port and importer behaviour are greater than 0.05 which show that the model is statistically insignificant to predict the analysis of dry port management challenges on import goods clearance. This implies that the independent variable such as; staff competence, physical infrastructure, customs services, warehouse condition and information and communication technology have the greater influence on import goods clearance.

On the other hand, bank document processes, ownership of dry port and importer behaviour have no significant impact on dry port performance and import goods clearance. However, the descriptive part of the study result shows that bank document process affect import goods clearance because the respondents were expressed their opinion as bank does not delivers necessary documents on time to clear goods from dry port. And also the descriptive part of the study data presentation shows that ownership of dry port affect import goods clearance, because the respondents were expressed their opinion on dry port ownership hold only by government or hold only by private is less advantageous and affect import goods clearance and also ownership hold both by private and public body is more advantageous than private or public. This implies that ownership of dry port affect import goods clearance. In addition, the descriptive part of the study shows that importer behaviour affects dry port performance because majority of the respondents were disagreed on the response item importers collect their container on time.

According to the regression equation established, taking all factors into account (staff competence, physical infrastructure, customs services, information and communication technology, warehouse condition, bank document process, ownership of dry port and importer behaviour) as constant at zero, the import goods clearance will be -0.768 in the equation, which is constant. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase on staff competence will lead to a 0.51 increase on the import goods clearance; a unit increase on physical infrastructure will lead to a 0.33 increase on import goods clearance, a unit increase on customs services quality will lead to a 0.3 increase on import goods clearance, a unit increase on warehouse condition will lead to a 0.113 increase on import goods clearance and finally a unit increase on information and communication technology will lead to a 0.11 increase on import goods clearance.

From the table 4.19 above bank document process had negative effect on import goods clearance and a unit increase in bank document process will lead to a -0.07 decrease in import goods clearance process, but statistically insignificant at $p = 0.094$ because p value greater than 0.05 in this study considered statistically insignificant. Ownership of dry port had negative effect on import goods clearance and ownership hold only by government or private organization will lead to a -0.046 decrease import goods clearance process, but statistically insignificant at $p = 0.488$ because p value greater than 0.05 in this study considered statistically insignificant. Finally, importer behaviour had negative effect on import goods clearance and a unit increase on bad importer behaviour will lead to a -0.05 decrease import

goods clearance process, but statistically insignificant at $p = 0.364$ because p value is greater than 0.05 in this study considered statistically insignificant.

In this study, Staff competence had positive ($\beta=0.56$) effect on import good clearance and statistically significant ($p=0.000$). The study report of Gujar (2011) and Rajasekar and Deo (2014) also indicated that number of employee and their quality are important factors which influence the performance of dry ports. Secondly, physical infrastructure also had positive ($\beta=0.334$) effect on import goods clearance and statistically significant ($p=0.000$). Gujar (2011), Container handling equipments are viewed as the main machines for dry ports as well as seaports and they can greatly influence both the container handling capacities and in turn, the performance of the dry port . Dry ports should be developed with adequate space so as to allow efficient, reliable and economical movement of containers in particular when they are developed to support seaport operations Black *et al.* (2013).

Thirdly, Customs services had positive ($\beta=0.259$) effect on import goods clearance and statistically significant ($p=0.000$). Customs are often the first contact with foreign business and travellers have with the government. A satisfactory encounter with customs at the border has a potential to encourage continued commercial activities (Michel H., 1998). And also, warehouse condition had positive ($\beta=0.129$) effect on import goods clearance and statistically significant ($p=0.007$). Warehousing means holding or preserving goods in huge quantities from the time of their purchase or production till their actual use or sale. Being an essential component of logistics is a key aspect of modern supply chains and plays a critical role in the success or failure of business today (Frazelle, 2002). Information and communication technology had positive ($\beta=0.115$) effect on import goods clearance and statistically significant ($p=0.019$). Dry port management system based on Information and communication technology would significantly contribute to the implementation of lean operations and creation of efficiency in a dry port (Trainaviciute, 2009).

Finally, Bank document process had negative ($\beta= -0.076$) effect on import goods clearance, but statistically insignificant ($p=0.094$). Similarly, ownership of dry port had negative ($\beta= -0.029$) effect on import goods clearance, but statistically insignificant ($p=0.488$). This is supported by Rodrigue *et al.* (2006), explains that public facilities are sometimes having characteristics of slow response to market. In contrary, Public-private partnership provides greater flexibility in development of a dry port in comparison with totally private governance. UNCTAD (1991), Drawbacks of sole private ownership of dry port are known as larger risk

of failure of a project and lack of control over prices. Importer behaviour had negative ($\beta = -0.039$) effect on import goods clearance, but statistically insignificant ($p=0.364$).

The finding of this research indicates well qualified staffs, high quality physical infrastructure of dry port, quality Customs services, good warehouse condition and well implemented information technology have positive impact on import goods clearance. In contrary, long bank document process, ownership of dry port hold on only one party and importer behaviour have no significant impact on dry port performance and import goods clearance. Therefore, based on findings dry port staff competence, physical infrastructure condition, Customs services, warehouse condition, implementation level of information and communication technology, bank document process, ownership of dry port and importer behaviour affect import goods clearance.

The output of the study goes in line with the studies of Abdurezak M.(2016), Girma K.(2018), Gujar G. (2011), Jeevan J (2015), Rodrigue et al, (2006) Roso et al, (2008) Selamawit H. (2017), Thuermer (2008) and Trainaviciute (2009).

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of findings from which conclusions drawn and that would precisely address the basic research questions of the study and recommendation to the case study company is forwarded. Finally, limitation of the study and suggestions for further study is indicated.

5.1 Summary of the Findings

High-quality trade logistics service in terms of infrastructure, customs procedures, logistics competence and tracking and tracing enhance country's import by reducing cost and delay. Dry ports, freight stations and warehouses are important elements of logistics system. Hence, the primary objective of this research was conducted towards an attempt to investigate the major challenges of dry port management and its effect on import goods clearance at modjo dry port in Modjo, Ethiopia. In order to operationalised the research objective into feasible research elements, seven research questions were developed. The related theoretical literatures and empirical study issues were incorporated in this study to provide a theoretical basis for the development of the research. The following summaries have been drawn on the bases of the findings of the data analysis.

The general objective of this research was to investigate major challenges of dry port management at modjo dry port and its effects on import goods clearance. The major challenges of dry port management assessed based on eight variables and the overall results of the study are as follow:-

- About 52.8 percent of the respondents agreed on there are sufficient loading/unloading equipment, forklift, crane and container handling equipment. 57.2 percent and 54.4 percent of the respondents disagreed on sufficient modern forklift, crane and container handling equipment and the dry port is located on suitable place for customers respectively. 69.2 percent and 42.8 of the respondents agreed on sufficient space for container storage and adequate road access which connects the dry port with different directions respectively. Finally, 53.2 percent of the respondents disagreed on sufficient railway connectivity with the dry port and 52.8 percent of the respondents agreed on sufficient transport services with fair price to and from the dry port. The result of the study shows that there are sufficient forklift, crane and cargo handling equipment,

adequate road access which connects the dry port with different directions and also there are sufficient space for containers storage, and transport services. In contrary, there are inadequate modern forklift, crane and container handling equipment at modjo dry port, the location of dry port is not suitable for customers and there is insufficient railway connectivity.

- From dry port ownership perspective, 61.6 percent of the respondents disagreed on dry port ownership hold only by government is more advantageous than private or both public and private. 42 percent of the respondents disagreed on dry port ownership hold only by private organization more advantageous than public or both public and private organization. 68 percent of the respondents' agreed on dry port ownership holds both by public and private organization is more advantageous than only by public or private. The result of the study implies that dry port ownership hold both by public and private organization more advantageous than private or public.
- Majority (72.4 percent) of the respondents disagreed on information exchanges between dry port and the dry port customers are supported by information technology, 59.2 percent of the respondents disagreed on sufficient information exchange between dry port and dry port customers and also 74.4 percent of the respondents disagreed on dry port management is based on information and communication technology. 41.2 percent of the respondents disagreed on dry port operational management is based on information and communication technology. The result of the study shows that information exchange is not supported by information technology and there is not sufficient information exchange between dry port and dry port customers. Similarly, dry port management, and operational management is not supported by information technology.
- The result of this study also revealed that, 47.6 percent of the respondents were neutral on dry port is filled with sufficient workforce. 48 percent and 47.2 percent of the respondents disagreed on dry port staffs are qualified enough to handle their duties and dry port employees are always ready to provide fast service for their customers respectively. In addition, 64 percent of the respondents disagreed on dry port employees serve all customers equally. This implies that dry port employees are not qualified enough to handle their duties, they are not ready to provide fast service for their customers and there is high partiality in service delivery.

- The finding of the study showed as, 75.2 percent of the respondents disagreed on there is speedy customs clearance at modjo dry port. 44.8 percent of the respondents were neutral on customs tariff classification is based on international rule. Finally, 80.8 percent of the respondents disagreed on customs valuation system is based on an international valuation rule. The result indicates that there is delay in customs clearance process and the valuation system is not based on an international rule and have high problem.
- About 76.8 percent and 51.6 percent of the respondents agreed on there is clean warehouse and sufficient warehouse space to handle cargo at modjo dry port respectively. The result shows that there is clean and sufficient warehouse space at modjo dry port.
- The response of 38.4 percent of the respondents disagreed on importers collect their container on time, 37.6 percent of the respondents were neutral on importers are always ready to fulfil their duty and 62 percent of the respondents disagreed on importers have sufficient knowledge about import goods clearance. This implies that importers do not have sufficient knowledge on import goods clearance process and they do not collect their container on time.
- About 52.8 percent and 40 percent of the respondents were neutral on bank delivers error free documents and bank tries to facilitate the import transaction within competitive and flexible price respectively. 47.2 percent of the respondents disagreed on bank delivers necessary documents on time to clear container from the dry port. The result shows that bank does not deliver necessary documents on time.
- According to the findings, 74.8 percent and 48.4 percent of the respondents disagreed on import goods are cleared as standard time and import goods clearance procedure is transparent and predictable respectively. 47.2 percent and 44 percent of the respondents were neutral on import good clearance procedure is harmonized and simplified and import clearance process is save cost of the customers respectively. Additionally, 46.6 percent of the respondents said that on average import goods clearance process takes 4 to 8 days. The result indicate that there is long clearance process compared with the organization's standard service delivery time and lack of transparent and predictable clearance procedure.

- The last objective of this study was to investigate effect of dry port management challenges on import goods clearance at Modjo dry port. The correlation between dry port management challenges and import goods clearance has experienced that; the dependent variable (import goods clearance) has a strong correlation with staff competence ($r=0.799^{**}$), physical infrastructure ($r=0.645^{**}$) and customs services ($r=0.624^{**}$) and the significance value is less than 0.001.
- Import goods clearance has medium correlation with information and communication technology (0.434^{**}), bank document process (0.335^{**}) and warehouse condition (0.331^{**}) and the significance value is less than 0.001.
- An import goods clearance has weak correlation with ownership of dry port ($r=0.126^*$) and the significance value is less than 0.05 and also, it has a weak relationship with importer behaviour (-0.1) with the significance value greater than 0.05.
- The coefficient of determination (adjusted R Square) of the model has produced that 86.30 percent of import goods clearance is predicted (explained) by dry port management challenges indicated in this study and 13.7 percent of import goods clearance is explained by another factor which are not included in this study.
- The data findings analyzed also shows that taking all other independent variables at zero, a unit increase on staff competence will lead to a 0.51 increase on the import goods clearance; a unit increase on physical infrastructure will lead to a 0.33 increase on import goods clearance, a unit increase on customs services quality will lead to a 0.30 increase on import goods clearance, a unit increase on warehouse space will lead to a 0.113 increase on import goods clearance and a unit increase on information and communication technology will lead to a 0.11 increase on import goods clearance.
- Finally, Bank document process had negative effect on import goods clearance and a unit increase in bank document process will lead to a -0.07 decrease on import goods clearance process, but statistically insignificant at $p=0.094$. Ownership of dry port had negative effect on import goods clearance and ownership hold only by government or private organization will lead to a -0.033 decrease on import goods clearance process, but statistically insignificant at $p=0.488$. Lastly, importers behaviour had negative effect on import goods clearance and a unit increase in lack of willingness of importer to collect

their container on time from dry port will lead to -0.05 decrease on import goods clearance process, but statistically insignificant at $p=0.364$.

5.2 Conclusions

The study tried to investigate dry port management challenges and its effects on import goods clearance. According to the results obtained from the analyses, the following conclusions were drawn based on the results of the study:

- As per the analysis made, there are a satisfactory number of loading/unloading equipment, forklift, crane and container handling equipment. There is also sufficient space for container storage, adequate road access which connects dry port with different direction and there are sufficient transport service with fair price. This contributes in improving the performance of the dry port and facilitate import goods clearance
- According to the research finding, there are shortage of modern forklift, crane and container handling equipment, the location of dry port is not suitable for customers and there is insufficient railway connectivity. This is also affecting the dry port performance and create import goods clearance process delay.
- As per the result, the dry port ownership hold both by public and private organization is more advantageous than public or private ownership. The modjo dry port holds only by government organization and this is affecting the dry port performance and import goods clearance.
- Information and communication technology system often considered as enabling instrument for dry port management and improve performance of dry port. According to the result, information exchanges between dry port and dry port customers are not supported by information technology. There is no sufficient information exchange between dry port and dry port customers; and also dry port management and operational management is not based on information and communication technology. This implies that lack of modern information and communication technology infrastructure and goods clearance process is highly exposed to paper work. This is affecting the dry port performance and import goods clearance.
- According to the research finding, there is lack of skilled, experienced manpower, lack of readiness to deliver fast services and also there is high partiality in service delivery. This

is also affecting the dry port performance, import goods clearance and create dissatisfied customers.

- As per the analysis made, there is long and time taking customs clearance process at modjo dry port. And customs valuation system is not based on an international valuation rule and have high problem in customs valuation process. Therefore, there is a delay in customs clearance process and most of the customers are dissatisfied with the service delivered by customs. This shows that the overall customs practice has a negative impact on the dry port performance and import goods clearance.
- According to the research finding, there is clean and sufficient warehouse space at modjo dry port. Thus, the warehouse conditions of the dry port improves performance of dry port and facilitates import goods clearance.
- As per the result, importers do not collect their container on time and they do not have sufficient knowledge about import goods clearance. Hence, there is congestion at the dry port that is also affecting the dry port performance and import goods clearance process.
- As per the result, the bank document process is taking long time to deliver necessary document to customers'. This implies that importers are waiting long time to get document from bank that is also the reason container stay long time in the dry port. Therefore, this is affecting the dry port performance and import goods clearance.
- There is delay on import goods clearance and the clearance process is not transparent and predictable. This is affecting the dry port performance and import goods clearance.
- According to the research finding, physical infrastructure, information and communication technology, staff competence, customs services and warehouse condition had positive effect on import goods clearance.
- As per the result, ownership of the dry port, bank document process and importer behaviour had negative effect on import goods clearance.

As a general conclusion standing from the research findings, the dry port have not reached to the expected level of performance, due to inadequate modern dry port machinery, lack of skilled and experienced manpower, lack of information and communication technology infrastructure, long customs clearance process, lack of willingness from importers to collect

their container on time, long bank document process and ownership of dry port are challenging factors for dry port management at Modjo dry port.

5.3 Recommendations

The Ethiopian Shipping & Logistics Service Enterprise modjo dry port is the biggest dry port among the seven dry ports in Ethiopia. Modjo dry port as one of the biggest logistic hub can use the findings of this study to improve efficiency and effectiveness on service delivery. Based on the results of the study, the following recommendations are suggested for consideration:

- Investment in dry port physical infrastructure will have a significant impact in improving dry port performance. Hence, in order to improve the performance of the dry port Ethiopian Shipping and Logistics Services Enterprise should invest on modern dry port machinery and other dry port physical infrastructure.
- Information and communication technology system often considered as enabling instrument for dry port management and improve performance of dry port. There for, the organization should give a special attention to invest on information and communication technology infrastructure and to implement information technologies properly.
- Adequate and skilled manpower is necessary to deliver efficient and effective service in dry port. Therefore, the organization should recruit skilled employees and prepare work related trainings.
- Reform of customs import clearance procedures is essential as reforms can result in the reduction of delays on trade consignments and accelerate the movement of containers in terminals.
- ESLSE modjo dry port should cooperate and coordinate with stakeholders. And also rising awareness of importers to clear their container on time.

5.4 Limitation and Suggestions for Further Research

The research aimed to investigate challenges of dry port management and its effects on import goods clearance in modjo dry port. The identified issues are not the only challenges that influence dry port management performance. The challenges of dry port management vary from one port to another port. The study entirely delimited to study the issues of modjo

dry port management. The scope and findings of the research were limited in the following ways:

- The study focused on a few challenges of dry port management such as physical infrastructure, ownership of dry port, information and communication technology, staff competence, customs services, warehouse condition, importers behaviour and bank document process, but the other factors affecting dry port performance were not included.
- The study mainly focused on import goods clearance. Thus the export cargos have not been considered in this study.

Thus, future research might further evaluate other challenges related to internal and external factors which influence dry port management and its effects on import goods clearance might be further evaluated and analyzed to identify any additional challenges of dry port management.

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ANNEX-1

አዲስ አበባ ዩኒቨርሲቲ

የንግድ ስራ ኮሌጅ

ውድ የጥናቱ ተሳታፊዎች

እኔ ኤልሳቤጥ ዘለቀ በአዲስ አበባ የንግድ ስራ ኮሌጅ የማስተርስ ተማሪ ስሆን ይህንን ትምህርት ለማጠናቀቅ የሚረዳ የመመረቂያ ጥናት በሞጅ ደረቅ ወደብ እና ተርሚናል አስተዳደር ላይ የሚያጋጥሙ ችግሮቹ እና እነዚህም ችግሮች በገቢ ዕቃዎች ዕቃ አወጣጥ ላይ ያሳደሩት ተፅዕኖ ዙሪያ ላይ እየሰራው እገኛለሁ። በመሆኑም በሞጅ ደረቅ ወደብ እና ተርሚናል አስተዳደር ላይ የሚያጋጥሙ ችግሮቹ እና እነዚህም ችግሮች በገቢ ዕቃዎች ዕቃ አወጣጥ ላይ ያሳደሩት ተፅዕኖ ላይ የእናንተን አስተያየት እንድትሰጡኝ በአክብሮት እጠይቃለሁ። ቀጥሎ ለተመለከቱት ጥያቄዎች በታማኝነት መልስዎን እንዲሰጡ በትህትና እንጠይቃለሁ። የሚሰጡት ማንኛውም ምላሽ ለጥናቱ አላማ ብቻ የሚውል መሆኑን ላረጋግጥልዎ እወዳለሁ። ስለተባበራችሁኝ ከልብ አመሰግናለሁ። ስምዎትን መጥቀስ አይጠበቅብዎትም። (በአስመጪዎች ወይም ትራንዚተር የሚሞላ)

ለበለጠ መረጃ በዚህ ስልክ ቁጥር 09-11-33-59-52፣ e-mail: elsabini@gmail.com ኤልሳቤጥ ዘለቀ ብለው ልያገኙ ይችላሉ።

ክፍል አንድ አጠቃላይ የግለሰብ መረጃ

1. ፆታ : ሴት ወንድ

2. ዕድሜ : 18-25 አመት 26-35 አመት 36-45 አመት

46-55 አመት ከ55 በላይ አመት

3. የትምህርት ደረጃ :- አራተኛ ክፍል እና ከዚያ በታች 5-8 9-12
ሰርተፊኬት ዲፕሎማ ዲግሪ እና ከዚያ በላይ

4. የስራ ሁኔታ:- አስመጪ ላኪ አስመጪና ላኪ
የጉምሩክ አስተላላፊ

5. የአገልግሎት ዘመን/በአስመጪነት/በጉምሩክ አስተላላፊ ሥራ ላይ ከተሰማሩ ስንት አመት ነው

3 አመት በታች ከ3-6አመት ከ7-10 አመት
ከ10አመት በላይ

6. በሞጆ ወደብ ተርሚናል ምን ያህል ጊዜ ተስተናግደዋል

አንድ ጊዜ ሁለት ጊዜ ሶስትና ከዚያ በላይ

ክፍል ሁለት

1. መመሪያ አንድ:- ሞጆ ደረቅ ወደብና ተርሚናል ላይ በሚስተናገዱበት ወቅት በሞጆ ደረቅ ወደብ እና ተርሚናል አስተዳደር ላይ የሚያጋጥሙ ችግሮች በተመለከተ ከዚህ በታች አረፍተ ነገሮች ቀርበዋል እርሶም ጥያቄዎቹን ካነበቡ በኋላ በእርስዎ እይታ ትክክለኛ መልስ ነው የሚሉትን ከቀረቡት አምስት አማራጮች መካከል አንዱን ቁጥር በመምረጥ ውጤት መስጫ ቦታ ውስጥ ምልክት በማድረግ ምላሽን ይስጡ።

በጣም አልስማማም(=1)፣አልስማማም(=2)፣ገለልተኛ(=3)፣እስማማለሁ(=4)፣

በጣም እስማማለሁ(=5)

| ተ.ቁ | ከሚያጋጥሙ ዋና ዋና ችግሮች አንጻር | 1 | 2 | 3 | 4 | 5 |
|-----|--|---|---|---|---|---|
| | ወደቡ ካሉት መሰሪያዎች አንጻር | | | | | |
| 1 | በሞጆ ወደብና ተርሚናል ላይ በቂ የሆነ የመጫን እና የማራገፍ አገልግሎት መስጫ መሰሪያዎች አለው። | | | | | |
| 2 | ደረቅ ወደቡ ዘመናዊ በሆነ ክሬን፣ ፎርክሊፍት እና የኮንቴነር መንከባከብያ መሰሪያ የተደራጀ ነው። | | | | | |
| 3 | ደረቅ ወደቡን በተለያዩ አቅጣጫ የሚያገናኙ በቂ መንገዶች አሉት። | | | | | |
| 4 | ደረቅ ወደቡ ኮንቴነሮችን ለማስቀመጥ በቂ የማከመቻ ስፍራ አለው። | | | | | |
| 5 | ደረቅ ወደቡ የተገነባው ለደንበኞች ምቹ ቦታ ላይ ነው። | | | | | |
| 6 | ደረቅ ወደቡን በበቂ ሁኔታ የሚያገናኙ የባቡር መንገዶች አሉት። | | | | | |
| 7 | ከደረቅ ወደቡ ዕቃ ለማስወጣት ተመጣጣኝ በሆነ ዋጋ የትራንስፖርት አገልግሎት ይገኛል። | | | | | |
| | ከወደቡ ባለቤትነት አንጻር | | | | | |
| 8 | መንግስት የሚያስተዳድረው ደረቅ ወደብ የግል ባለሀብቶች ከሚያስተዳድሩት ደረቅ ወደብ የበለጠ ጥቅም አለው። | | | | | |
| 9 | የግል ባለሀብቶች የሚያስተዳድሩት ደረቅ ወደብ መንግስት ከሚያስተዳድረው ደረቅ ወደብ የበለጠ ጥቅም አለው። | | | | | |
| 10 | ደረቅ ወደብን መንግስት እና በግል ባለሀብቶች በጋራ በያስተዳድሩት የተሻለ ጥቅም አለው። | | | | | |
| | ከዘመናዊ መረጃ ቴክኖሎጂ አንጻር | | | | | |
| 11 | በደረቅ ወደቡ እና በደንበኛው መካከል ያለው የመረጃ ልውውጥ በዘመናዊ መረጃ ቴክኖሎጂ የተደገፈ ነው። | | | | | |
| 12 | በደረቅ ወደቡ እና በደንበኞች መካከል በቂ የሆነ የመረጃ ልውውጥ አለ። | | | | | |
| 13 | ደረቅ ወደቡ የሚሰጠው የተለያዩ የወደብ አገልግሎት በዘመናዊ መረጃ ቴክኖሎጂ የተደገፈ ነው። | | | | | |
| 14 | የደረቅ ወደቡ ተርሚናል በመረጃ ቴክኖሎጂ የተደገፈ አገልግሎት እየሰጠ ይገኛል። | | | | | |

| ከሰው ሀይል አገገር | | | | | | |
|---------------------------|--|--|--|--|--|--|
| 15 | ደረቅ ወደቡ በበቂ የሰው ሀይል የተደራጀ ነው። | | | | | |
| 16 | ደረቅ ወደቡ የወደብ ዕውቀት ባላቸው ሰራተኞች አገልግሎት እየሰጠ ነው። | | | | | |
| 17 | የደረቅ ወደቡ ሰራተኞች ሁልጊዜም ለደንበኞች ቀልጣፋ አገልግሎት ለመስጠት ዝግጁ ናቸው። | | | | | |
| 18 | የደረቅ ወደቡ ሰራተኞች ለሁሉንም ደንበኛ ተመሳሳይ (አንድ አይነት) የሆነ አገልግሎት ይሰጣሉ። | | | | | |
| ከጉምሩክ አገገር | | | | | | |
| 19 | በጉምሩክ በኩል የሚሰጠው አገልግሎት የተቀላጠፋ ነው። | | | | | |
| 20 | የጉምሩክ የዕቃዎች ታሪፍ አመዳደብ የአለም አቀፍ የጉምሩክ ታሪፍ ህግ መሰረት ያደረገ ነው። | | | | | |
| 21 | የጉምሩክ ዋጋ አወሳሰን ዘዴ የአለም አቀፍ የጉምሩክ ዋጋ አተማመን ዘዴ መሰረት ያደረገ ነው። | | | | | |
| ከደረቅ ወደቡ መጋዘን አገገር | | | | | | |
| 22 | ደረቅ ወደቡ ንጽህናውን የጠበቀ የዕቃዎች ማከማቻ መጋዘኖች አሉት። | | | | | |
| 23 | መጋዘኖቹ ዕቃ ለማስቀመጥ የሚያስችል በቂ የማከማቻ ስፍራ አላቸው። | | | | | |
| ከአስመሬዎች አገገር | | | | | | |
| 24 | አስመሬዎች ዕቃዎችን ከደረቅ ወደቡ በወቅቱ ይረከባሉ። | | | | | |
| 25 | አስመሬዎች የሚጠበቅባቸውን ሀላፊነት ለመወጣት ዝግጁ ናቸው። | | | | | |
| 26 | አስመሬዎች ስለ ገቢ ዕቃ አወጣጥ ሂደት በቂ ዕውቀት አላቸው። | | | | | |
| ከባንክ አገገር | | | | | | |
| 27 | ባንክ ለገቢ ዕቃ አወጣጥ ደንበኞች ተመጣጣኝ በሆነ ዋጋ ፈጣን የሆነ አገልግሎት በመስጠት ላይ ይገኛል። | | | | | |

| | | | | | | |
|----|---|--|--|--|--|--|
| 28 | ባንክ ዕቃውን ከወደብ ለመረከብ የሚያስፈልጉ ሰነዶችን በወቅቱ ይሰጣል። | | | | | |
| 29 | በባንክ በኩል የሚመጡ ሰነዶች ከስህተት ነፃ ናቸው | | | | | |
| | ገቢ ዕቃ አወጣጥ | | | | | |
| 30 | በተቀመጠለት የጊዜ ገደብ ውስጥ የገቢ ዕቃ አወጣጥ ሂደት እየተጠናቀቀ ነው። | | | | | |
| 31 | የገቢ ዕቃ አወጣጥ ሂደቱ ግልጽ እና ሊገመት የሚችል ነው። | | | | | |
| 32 | የገቢ ዕቃ አወጣጥ ሂደት የተቀናጀና ቀላል ነው። | | | | | |
| 33 | በሞጆ ደረቅ ወደብ ላይ የሚሰጠው የገቢ ዕቃ አወጣጥ ሂደት ወጭ ቆጣቢ ነው። | | | | | |

34. በሞጆ ደረቅ ወደብ አገልግሎት አሰጣጥ ላይ ትልቅ ችግር የሚፈጥር ነው የሚሉት የትኛው ችግር እንደሆነ ደረጃ ይስጡ።

| ችግር | ደረጃ |
|--|-----|
| የመጫን እና የማራገፍ መሳሪያዎቹ በቂ የሆነ ኮንቴነር የማክመቻ ስፍራ አለመኖር፣ ወደቡ የሚገኘበት ቦታ እና ለትራንስፖርት ምቹ አለመሆን። | |
| ወደቡ በመንግስት ባለቤትነት የተያዘ መሆኑ። | |
| የሚሰጠው አገልግሎት በዘመናዊ መረጃ ቴክኖሎጂ ያልተደጋፈ መሆኑ። | |
| የሰው ሀይል። | |
| በጉምሩክ የሚሰጠው አገልግሎት። | |
| ደረቅ ወደብ ላይ በቂ መጋዘን አለመኖር። | |
| አስመጪዎች ደረቅ ወደብ ላይ የደረሰውን ዕቃ ለመረከብ ዝግጁ አለመሆን። | |
| በባንክ በኩል የሚመጡ ሰነዶች ቶሎ ስለማይደርሱ። | |

35. የደረቅ ወደብና ተርሚናል አገልግሎቱን ጨርሶ ዕቃ ለማውጣት ከሞጆ ደረቅ ወደብ በአማካይ ምን ያህል ቀን ይፈጃል?

1-3 ቀን 4-8 ቀን 9-15 ቀን ከ15 ቀን በላይ

36. ከላይ በክፍል ሁለት ላይ ከተገለጹት ውጭ ሞጆ ደረቅ ወደብና ተርሚናል ላይ በሚስተናገዱበት ወቅት በሞጆ ደረቅ ወደብ እና ተርሚናል አስተዳደር ላይ የሚያጋጥሙ ችግሮች ካሉ ቢገልጹ?

አመሰግናለሁ!!!!!!!

ANNEX-2

Addis Ababa University School of Commerce
Department of Logistics and Supply Chain Management

Survey Questionnaires for Ethiopian Shipping and Logistics Services Modjo dry port Employees /Customs Commission

Dear Respondent,

My name is Elizabeth Zeleke and I am a graduate student at Addis Ababa University School of Commerce, Department of Logistics and Supply chain Management. The purpose of this questionnaire is to collect data to investigate a thesis under the title” **The challenges of Dry Port Management and Its Effect on Import Goods Clearance: The Case of Modjo Dry Port**” for the partial requirement of master’s degree in Logistics and Supply Chain Management.

The information you provide in this questionnaire will be kept confidential and utilize only for the purpose of doing this academic thesis. So, your genuine, frank and timely response is vital for successfulness of the study. Therefore, I kindly request you to respond to each items of the question very carefully.

Lastly, thank you for sacrificing your precious time in advance.

General Instructions

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

Contact Address

If you have any query, please do not hesitate to contact me and I am available as per your Convenience at (Mobile: 09-11-33-59-52 or e-mail: elsabini@gmail.com)

Part I. General Information

1. Gender: Female Male

2. Age: 18-25 Years 26-35 Years 36-45 years 46-55 years
 55 and more years

3. Educational qualification: Less than Grade 10 Grade 10-12
 Certificate Diploma Degree and above

If others, specify _____

4. Job title: specify _____

5. Years stayed at the organization

Under 3 years 3-6 years 7-10 years over 10 years

Part II

Introduction: Please select and tick (√) in the appropriate number to indicate the extent to which you agree or disagree with each statement about the challenges of Modjo dry port management and related issues. The item scales are five-point Likert type scales with 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

6. Major challenging factors at Modjo dry port management

| | Dry port facility | 1 | 2 | 4 | 5 |
|---|--|---|---|---|---|
| | Physical Infrastructure | | | | |
| 1 | There are sufficient loading/unloading equipment, forklift, Crane and Container handling equipment | | | | |

| | | | | | |
|----|--|--|--|--|--|
| 2 | There are sufficient modern forklift, Crane and Container handling equipment at the Modjo dry port | | | | |
| 3 | There are adequate road access which connects the dry port with different directions | | | | |
| 4 | There is sufficient space for containers storage | | | | |
| 5 | The Modjo dry port is located on suitable place for customers | | | | |
| 6 | There is sufficient railway connectivity with the dry port | | | | |
| 7 | There are sufficient transport services with fair price to and from the dry port | | | | |
| | Ownership | | | | |
| 8 | Dry port ownership hold by Government is more advantages than private | | | | |
| 9 | Private investment in dry port is more advantages than public investment | | | | |
| 10 | Public & Private investment is more advantages than public or private investment | | | | |
| | Information and communication | | | | |
| 11 | Information exchange between Modjo dry port and the dry port customers are supported by information technology | | | | |
| 12 | There is Sufficient information exchange between Modjo dry port and dry port customers | | | | |
| 13 | Dry port management is based on information and communication technology | | | | |
| 14 | Operational management is based on information and communication technology | | | | |
| | Staff Competence | | | | |
| 15 | The Modjo dry port is filled with sufficient workforce | | | | |
| 16 | The Modjo dry port staffs are qualified enough to handle their duties | | | | |

| | | | | | |
|----|---|--|--|--|--|
| 17 | Modjo dry port employees are always ready to provide fast service for their customers | | | | |
| 18 | Modjo dry port employees serve all customers equally | | | | |
| | Customs Services | | | | |
| 19 | There is speedy customs clearance at the Modjo dry port | | | | |
| 20 | Customs tariff classification is based on international rule | | | | |
| 21 | Customs valuation system is based on an international valuation rule | | | | |
| | Warehouse Condition | | | | |
| 22 | There is a clean warehouse at the Modjo dry port | | | | |
| 23 | There is sufficient warehouse space to handle cargo at the Modjo dry port | | | | |
| | Importer Behaviour | | | | |
| 24 | Importers collect their container on time | | | | |
| 25 | Importers are always ready to fulfil their duty | | | | |
| 26 | Importers have sufficient knowledge about import good clearance | | | | |
| | Bank Document Process | | | | |
| 27 | Bank tries to facilitate the import transaction within competitive and flexible price | | | | |
| 28 | Bank delivers necessary documents on time to clear container from the dry port | | | | |
| 29 | Bank delivers error free documents | | | | |
| | Import Goods Clearance | | | | |
| 30 | Import goods are cleared as standard time | | | | |
| 31 | Import good clearance procedure is transparent and predictable | | | | |

| | | | | | |
|----|--|--|--|--|--|
| 32 | Import good clearance procedure is harmonized and simplified | | | | |
| 33 | Import clearance process at the modjo dry port is save the cost of customers | | | | |

34. Would you please rank, the following most challenging areas in good clearance at the Modjo dry port?

| Challenge | Rank |
|-------------------------------|-------------|
| Physical Infrastructure | |
| Ownership | |
| Information and communication | |
| Staff Competence | |
| Customs Services | |
| Warehouse Condition | |
| Importer behaviour | |
| Bank document process | |

35. How long does it take to receive container from the Modjo dry port by fulfilling necessary requirements?

1-3 days 4-8 days 9-15 days 15 days and above

36. What are other dry port management challenges that not mentioned previous section, if you have Please specify them?

Thank you!!!

ANNEX-3

Addis Ababa University School of Commerce

Department of Logistics and Supply Chain Management

Semi-Structured Interview Guide for the management of the Modjo Dry port

Personal Information questions

- Please tell me a bit about yourself?
 - Your position?
 - Education?
 - Work experience in the field?

1. Questions related to challenges of Dry port management at Modjo dry port

1.1 Regarding Physical infrastructure

- On average, how many forklift, crane and container handling equipments are available at Modjo dry port?
- Transportation availability
- Road /rail infrastructure
- Sufficient container storage space

1.2 Information and communication technology application

- ICT based dry port management(information exchange, dry port operation management)

1.3 Human resource related questions

- Are you filled with sufficient work force?
- Are they equipped with appropriate skills either by education or experience?

1.4 Dry port governance related questions

- Does the government allocate adequate fund to run the dry port effectively?
- What do you think about the challenges/advantages of a dry port governed by both public and private body?

1.5 Customs related issues

- Do you believe Modjo Customs office delivered quality service?

1.6 Warehouse Condition

- Do you think there is clean, sufficient warehouse space to handle dangers cargo separately?

1.7 About Importers

- Do you think importers use dry port as a warehouse?

1.8 About Bank

- Bank deliver necessary document on time that require to goods clearance?

1.9 Do you think the physical infrastructure, dry port governance policy; ICT based dry port management, employees' competency, customs services, warehouse condition, importers behaviour and Bank document issue affect import goods clearance, how and to what extent?

Concluding Questions

- Are there any other issues we have not covered that you would like to discuss?

Thank you!!!

