

2005

# An analysis of the import trade logistics service through the Ethio-Djibouti corridor

Sebhatu Alemu Ambaye  
*World Maritime University*

Follow this and additional works at: [http://commons.wmu.se/all\\_dissertations](http://commons.wmu.se/all_dissertations)



Part of the [Economics Commons](#)

---

## Recommended Citation

Alemu Ambaye, Sebhatu, "An analysis of the import trade logistics service through the Ethio-Djibouti corridor" (2005). *World Maritime University Dissertations*. 275.  
[http://commons.wmu.se/all\\_dissertations/275](http://commons.wmu.se/all_dissertations/275)

This Dissertation is brought to you courtesy of Maritime Commons. Open Access items may be downloaded for non-commercial, fair use academic purposes. No items may be hosted on another server or web site without express written permission from the World Maritime University. For more information, please contact [library@wmu.se](mailto:library@wmu.se).

**WORLD MARITIME UNIVERSITY**  
Malmö, Sweden

**AN ANALYSIS OF THE IMPORT TRADE  
LOGISTICS SERVICE THROUGH THE  
ETHIO-DJIBOUTI CORRIDOR**

By

**ALEMU AMBAYE SEBHATU**  
Ethiopia

A dissertation submitted to the World Maritime University in partial fulfilment  
of the requirements for the award of the degree of

**MASTER OF SCIENCE**  
**In**  
**MARITIME AFFAIRS**

**(SHIPPING MANAGEMENT)**

2005

## **Declaration**

I certify that all the material in this dissertation that is not my work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own views, and are not necessarily endorsed by the University.

.....(Signature)

.....(Date)

Supervised by:

Name            Patrick Donner  
Office           Associate Professor, Shipping Management  
                    World Maritime University

Internal Assessor:

Name:           Pierre Cariou  
Office:           Associate Professor, Port Management  
                    World Maritime University

External Assessor:

Name:           Maxence Othlieb  
Office:           Senior Economic Affairs Officer  
                    UNCTAD

## **Acknowledgements**

I am most grateful to Mr. Ambachew Abraha, Managing Director, and the management of the Ethiopian Shipping Lines Share Company (ESLSC), for all the support that has enabled me to take the opportunity to study at World Maritime University (WMU).

I express my utmost gratitude to Mr Yohei Sasakawa, Chairman of the Nippon Foundation for his good will, and the noble decision he made to sponsor studies at WMU.

I wish to express my appreciation to Mr Eisuke Kudo, Managing Director and the staff of the Ocean Policy Research Foundation for the continuous support and attention given to me during my studies at WMU.

I am highly indebted to Professor Patrick Donner for the meticulous supervision and critical comments in the course of this study. His supervisory guidance has greatly helped me to redress many features of the study. I am thankful to Mr Clive Cole for his expert linguistic supervision, and the WMU Library staff for their valuable support.

I am thankful to Mr. Fasil Tadesse and Mr. Mekonen Gebeyehu, management staff of the Ethiopian Customs Authority for their cooperation in availing relevant data and

documents that were highly useful in conducting this study. My thanks also go to Mr Gashaw Haile, Staff member of Maritime and Transit Services Enterprise (MTSE) for his dedicated assistance by forwarding materials and data. My thanks as well to Ms. Genet Ayele, Mr. Bruke Dagne, Mr. Tehulu Belay and Mr. Dejene Kebede, ESLSC staff members for their timely and prompt assistance by forwarding all the necessary input materials and data for the study.

I remain grateful to WMU and the staff at all levels whose excellent guidance and gracious support have enabled me to pursue my studies productively and with great enthusiasm. I thank all who have, in one-way or another, given me support right from the inception to the completion of this study.

I thank God, the Almighty for the courage stowed on me, and leading me all the way to this successful end. My heartfelt thanks go to my wife Aster for enduring all the responsibilities at home during my absence while I have pursued my studies at WMU.

## **Abstract**

Title of Dissertation:    **An Analysis of the Import Trade Logistics Service  
                                  through the Ethio-Djibouti Corridor**

Degree:                    **MSc**

This study is an analysis on the import trade logistic services provided to facilitate transit through the Ethio-Djibouti Corridor. The diverse physical and non-physical factors having effect on the transit service are discussed.

An overview of the import trade with respect to volume, value and growth patterns is made. Explanations of import trade logistics and an analysis of the turn-round of multipurpose general cargo ships in Djibouti Port are included. Different sets of data related to transit import trade, container inland haulage and cargo lifting from the port are processed and assessed to identify performance levels of the transit service.

The import trade transit service is examined from the perspective of key logistics concepts and elements such as total logistics cost, in-transit inventory cost, inland transport, cargo handling, value-added activity, customer service and lead-time. A comparative analysis of the ocean and inland freights with those applied in similar regions elsewhere in Eastern Africa is included. Customs practices and implementation status of trade and transportation facilitation regimes and standards in the Corridor are investigated.

Two chapters are dedicated to the SWOT analysis and discussing strategic logistics issues concerning the development of the Corridor. Major prerequisites for the implementation of an intermodal transport service are discussed. The significance of the development of the Corridor for attracting investment to the region, and trade growth is highlighted. A summary and a number of recommendations for further

consideration by pertinent bodies for enhancing the transit service through the Corridor are incorporated.

**KEY WORDS:** Ethio-Djibouti Corridor, Import Trade Logistics, Transit Service,

## **Table of Contents**

Declaration	ii
Acknowledgements	iii
Abstract	v
Table of Contents	vii
List of Tables	x
List of Figures	xi
List of Abbreviations	xi
<b>1. Introduction</b>	<b>1</b>
1.1 Background	1
1.2 Scope	3
1.3 Objectives	5
1.4 Methodology	6
1.5 Limitations of the study	7
<b>2. Import Trade Logistics</b>	<b>9</b>
2.1 Overview	9
2.2 Volume and Value	11
2.3 Trade Growth Pattern	14
2.4 Logistics Activities in the Import Trade	15
<b>3. Port Transit Service</b>	<b>20</b>
3.1 Ship-port Interface	20
3.2 Cargo Handling and Port Tariffs	24

3.3 Cargo Dwell Time	29
<b>4. Inland Transit Service</b>	<b>34</b>
4.1 Transport Performance and Tariffs	34
4.2 Customs Transit and Clearance Services	40
4.3 Inland Warehousing and Tariffs	42
4.4 International Regulations and Standards	44
<b>5. Analysis of Logistics Cost and Value-Addition</b>	<b>47</b>
5.1 In-transit Inventory Cost in Port	47
5.2 Handling Costs in Port	50
5.3 Inland Logistical costs	51
5.4 Total Logistics Costs in Corridor	52
5.5 Value-added Activity	57
5.6 Risks of Inconsistency	61
<b>6. SWOT Analysis</b>	<b>64</b>
6.1 Strengths	64
6.1.1 Stability and Dependability	64
6.1.2 Strategic Geographic Location	65
6.1.3 Modern Container Terminal	65
6.1.4 Improved Infrastructures	66
6.1.5 Competitive Freight Rates	66
6.2 Weaknesses	67
6.2.1 Poor Connectivity and Integration	67
6.2.2 Low Value-added Activity	68
6.2.3 Lengthy Transit Processes	68
6.2.4 Low Optimization of Transport Service	68
6.2.5 Lack of Harmonization in Customs Practices	69
6.2.6 Inadequate Institutional Capacity	70
6.2.7 Cultural Barriers and Low Productivity	71

6.2.8 Dependency on Road Transport	71
6.3 Opportunities	72
6.3.1 EDI and IT Application	72
6.3.2 Trade and Investment Growth	73
6.3.3 Trade Liberalization and Intermodal Transport	74
6.3.4 Railway Concession	75
6.3.5 Monopolistic Position	75
6.4 Threats	76
6.4.1 Alternative Corridors	76
6.4.2 Revival of Assab Port	76
6.4.3 Customer Dissatisfaction	77
6.5 SWOT Matrix	87
 <b>7. Corridor Logistics Strategy</b>	 80
7.1 Vision and Goals	81
7.2 Customer Service	82
7.3 Institutional Capacity and Reforms	85
7.4 Port Import Logistics	89
7.5 Intermodal Transport	91
7.5.1 Physical Requirements	92
7.5.2 Non-physical Requirements	94
7.5.3 Intermodal Transport Providers	95
7.6 Import Trade Transit Facilitation	95
 <b>8. Summary and Recommendations</b>	 98
8.1 Conclusion	98
8.2 Recommendations	100
8.2.1 State Level	100
8.2.2 Institutional Level	101
8.3 Concluding Remarks	104

<b>Reference List</b>	105
<b>Annex</b>	109
<b>Tables</b>	
Table 2.1	Parameters for traffic forecasts 10
Table 2.2	Quarter III and IV imports 12
Table 2.3	Unit value of export 13
Table 2.4	General cargo, container and GDP growth 14
Table 2.5	Activities in the logistics chain 17
Table 3.1	Average FOB freight rates to Djibouti 21
Table 3.2	General cargo freight percentage of cargo value 21
Table 3.3	General cargo ships turn-round time in Djibouti 22
Table 3.4	Port tariffs for transit import cargo through Djibouti 27
Table 4.1	Inland freight tariffs to Addis Ababa 36
Table 4.2	Transport tariffs in Eastern Africa 36
Table 4.3	Performance indicators for October2004 37
Table 4.4	Turn-round time of containers in Corridor 40
Table 4.5	Inland warehouse tariffs 43
Table 4.6	Membership status 45
Table 4.7	Conventions ratification/approval status 45
Table 4.8	Overview of ratification of harmonization policies 46
Table 5.1	Average inventory cost versus unit price 49
Table 5.2	Handling cost per TEU in Djibouti 51
Table 5.3	Total average logistics cost in corridor 54
Table 5.4	Freight rates/ton to Addis Ababa 54
Table 6.1	Container terminal equipment 66

Table 6.2	Approved investment in Ethiopia	73
Table 6.3	Alternative Strategies	78
Table 6.4	SWOT matrix for the Ethio-Djibouti Corridor	79
Table 7.1	Proposed transit time and throughput efficiency	84

## **Figures**

Figure 1.1	Physical Map of Horn of Africa	xiv
Figure 1.2	Port of Djibouti	xv
Figure 2.1	Import Trade Segments	9
Figure 2.2	Major general cargo imports	13
Figure 3.1	The cargo transit process in Djibouti	28
Figure 3.2	Port activity logistics lines	32
Figure 5.1	Inventory in import trade	47
Figure 5.2	In-transit Inventory carrying cost	57
Figure 5.3	Lead -time and order cycle	59
Figure 5.4	Mapping of value-added time	60
Figure 5.5	Stock level with variable lead-time	62
Figure 6.1	Discontinuity in port transit	67

## **Abbreviations**

ADB	African Development Bank
APL	American President Lines
ASEAN	Association of South East Asian Nations
ASYCUDA	Automated System for Customs Data
BAF	Bunker Adjustment Factor
CAF	Currency Adjustment Factor
CCO	Customs Conventions on Containers

CFS	Container Freight Station
CIA	Central Intelligence Agency
CIF	Cost, Insurance and Freight
COMESA	Common Market for Eastern and Southern Africa
CONCOR	Container Corporation
COSCO	China Ocean Shipping Corporation
CPO	Cash Pay Order
CY	Container Yard
DPI	Dubai Port International
DDP	Djibouti Dry Port
ECUA	Ethiopian Customs Authority
EDI	Electronic Data Interchange
ESLSC	Ethiopian Shipping Lines Share Company
EU	European Union
FAL	Convention on Facilitation of International Maritime Traffic
FCL	Full Container Load
FDRE	Federal Democratic Republic of Ethiopia
FOB	Free on Board
GDP	Gross Domestic Product
HS	International Convention on the Harmonized Commodity Description and Coding System
ICC	International Chamber of Commerce
ICD	Inland Clearance Depot
ICT	Information and Communications Technology
IGAD	Intergovernmental Agency for Development
IMPEX	Import and Export
IMO	International Maritime Organization
ISO	International Organization for Standardization
IT	Information technology
LCL	Less than container load
MTD	Multimodal Transport Document

MTO	Multimodal Transport Operator
MTSE	Maritime and Transit Services Enterprise
MERCOSUR	Cartagena Agreement & Andean Pact states
PIL	Pacific International Lines
SWOT	Strengths, Weaknesses, Opportunities and Threats
TEU	Twenty Foot Equivalent Units
THC	Terminal Handling Charge
TQM	Total Quality Management
UAE	United Arab Emirates
UCP	Uniform Customs and Practice for Documentary Credits
UNCITRAL	United Nations Commission for International Trade Law
UNCTAD	United Nations Conference for Trade and Development
UNDP	United Nations Development Programme
USA	United States of America
VAT	Value Added Tax
WB	World Bank
WCO	World Customs Organization
WTO	World Trade Organization



Figure 1.1 – Physical map of Horn of Africa

Source: [http://www.lib.utexas.edu/maps/africa/ethiopia\\_pol\\_1999.pdf](http://www.lib.utexas.edu/maps/africa/ethiopia_pol_1999.pdf)

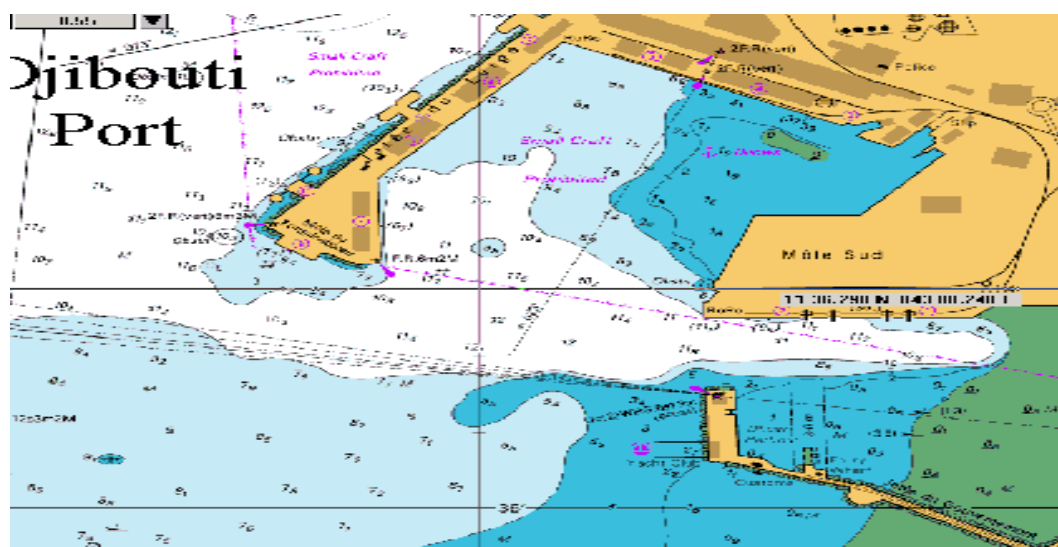


Figure 1.2: Djibouti

Source 1: [http://www.lib.utexas.edu/maps/africa/djibouti\\_rel\\_1991.pdf](http://www.lib.utexas.edu/maps/africa/djibouti_rel_1991.pdf)

Source 2: [http://www.lau-net.de/baerlocher/karten/DJI\\_Djibouti\\_port.gif](http://www.lau-net.de/baerlocher/karten/DJI_Djibouti_port.gif)

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background**

The Ethio-Djibouti Corridor (hereafter Corridor) serves as an important location for the transit of import and export trade of the vast Ethiopian hinterland.

The French Somaliland was established in 1888 and Djibouti became the capital in 1892. The French Somaliland became independent in 1977 and was renamed the Republic of Djibouti (cia-The World Factbook, 2005). A railway linked Djibouti to the Ethiopian backcountry with the commencement of service to Dire Dawa in 1903 and Addis Ababa in 1917. The railway was set up as the Imperial Ethiopian Railway Company in 1897 but subsequently underwent reorganizations including the 1959 agreement for free access to the Djibouti Port to become the Ethio-Djibouti Railway (Addis Fortune, 2005). The Ethio-Djibouti Railway is now jointly owned and operated by the governments of Djibouti and Ethiopia.

The Corridor remained as the main outlet for Ethiopian international trade until the end of World War II. Eritrea was federated with Ethiopia in 1952 and Djibouti Port hence lost its importance to the Port of Assab. Eritrea became a separate state in 1993 and severed its relations with Ethiopia in 1998 and all Ethiopian seaborne import and export (IMPEX) trade activity shifted to Djibouti. The Corridor today accounts for about 80% of the Ethiopian IMPEX trade. The road is the main mode of transport between the port and many economic centres in Ethiopia. The road sector, in fact, has relegated the railway into insignificance.

Djibouti is located on the Red Sea Coast of Africa close to the international shipping lane of the Gulf of Aden and major Arabian Sea ports (Fig.1.1). Its strategic location and proximity as well as a reasonably good network of roads connecting it with many Ethiopian cities, gives the port a competitive advantage. Djibouti accommodates many Ethiopian government and private institutions such as customs, insurance, truck depots, community centres, churches, hotels, etc. Dubai Port International (DPI) took over the management of the port in 2000 on a twenty-year lease contract (DPI, 2005). Djibouti offers a free trade zone and the port service tariffs are set on the basis of bilateral consents between the Governments of Djibouti and Ethiopia. Above all there is an environment of peace, stability and a sense of cooperation for the smooth inland transit of goods and services in the Corridor.

In addition to transit for IMPEX trade, international transshipment and bunkering services are provided. There is also transshipment activity with the major ports in the Gulf such as Salalah - a hub port for MaerskSealand, Dubai and Jeddah ports. The port has specialized terminals for containers, liquid and dry bulk, and break-bulk cargo. There are 16 berths with a combined total length of 3121 metres. The deepest draught is 12 metres and the berths accommodate tankers, dry bulk carriers, ro-ro, cruise, general cargo vessels and container ships up to the size of panamax. The port has fairly large warehouses, petroleum product depots and some industrial firms close to its premises, which classify Djibouti as a second-generation port (Fig. 1.2).

Djibouti port generates the major share of the revenue of the country's economy. As much as 80.7% (2003) of the Country's GDP is from services and two-thirds of the population of 476,703 (July 2005 estimate) lives in the port city (cia-The World Factbook, 2005).

Djibouti Port has an expansion plan, which includes developing the existing port facilities to increase capacities and performances. A new port called Roleh, 8 km east

of the present port is under construction. The new port features container and oil terminals, an oil refinery as well as an industrial and commercial free zone ([Djibouti Port Authority, 2003](#)).

The high dependence of Djibouti's economy on revenues generated from the Corridor transit services, and Ethiopia's need for reliable sustainable sea access to maintain the momentum of her recuperating economy, breed a conducive environment for the business communities and governments of both countries to come forward with greater urgency and commitment to develop the Corridor further for a long-term use. This study could be considered as an initiative in that direction.

## **1.2 Scope**

The facilitation of inland transit trade through such corridors depends broadly on two factors namely the availability of clearly defined legal regimes and a developed logistics chain. The legal regimes governing the transit service emanate from a number of intergovernmental and regional as well as national legislative bodies. In this context, there are a good number of studies about transit corridors in Southern and Eastern Africa, Central and south Asia, etc. (WB, 2005). The studies appear to give emphasis to the legal aspects of trade and transport facilitation. In this study, the legal aspect is given a limited scope and the focus is on the identification of the challenges and bottlenecks in the Corridor, and the proposition of solutions from the perspective of logistics.

Ethiopia has potentially many outlet options in neighbouring countries amongst them being Berbera (Somaliland), Port Sudan (The Sudan,) Mombasa (Kenya), and Assab and Massawa (Eritrea – when the political dispute now in limbo is resolved). Ethiopia is geographically a fairly large country with an area of 1.127 million square kilometres and a population of 73 million (cia-The World Factbook, 2005). Each of the access ports in the neighbouring countries has its merits in terms of proximity to a

particular section of the country but Djibouti appears to have the overall competitive advantages. This is a reason to restrict the study to the Ethio-Djibouti Corridor.

The Corridor facilitates the transit of import and export trade. The export comprises largely agricultural outputs such as coffee, oilseeds, sugar, meat and hides whereas the imported goods include petroleum products, fertilizers, medicine, and a number of semi-finished and finished industrial products (NBE, 2003/2004, p.44). The import cargo has, therefore, comparatively higher volume and value, and Ethiopia has registered an imbalance and deficit in her international trade over the last several years. The higher volume and value of the import trade makes the inland transit much more sensitive in terms of passage time and the quality of customer service. This lays the rationale for this work to focus on logistics service available for the import transit.

Within the import trade, general cargo, both containerized and non-containerized, has the highest unit value and is the most time-sensitive. The different logistical costs associated with general cargo, mostly imported by the private sector, are generally higher. The import of bulk cargo that comprises petroleum products, fertilizer and grain involves government bodies and the capital tied up in the process is not geared by profit and hence is less time sensitive. The scope of this paper is thus limited to the narrower segment of the general cargo of the import trade.

The movement of cargo in the import trade commences at the origin and ends up at the destination where the receiver is located. The chain of activities consists of the passage of goods from manufacturing sites to loading ports, carriage across the oceans to Djibouti Port and then transiting through the port to final inland destinations. The Ethio-Djibouti Corridor covers the last two legs (both the port and inland transits). The emphasis of this work is on the logistics service provided in the

Corridor as it is in this part of the chain that little of the quality of the service is known.

The scope of this study, therefore, is designed to cover the analysis of the import trade logistics through the Ethio-Djibouti Corridor.

### **1.3 Objectives**

Despite the century-old service of the Corridor and its ever-growing significance, there are hardly any structured and comprehensive studies from the perspective of quality of the logistics service. Furthermore, the quality of the inland transit service has been questioned, as this has been a source of scepticism and complaints by the Ethiopian importing business community.

The aim is to study the various physical and non-physical factors affecting the transit service with emphasis on logistics. What is import trade logistics? What are the different logistical cost structures associated with the import trade? What value is being added or not added during the transiting of the import trade? Are there transparent and standardized transit procedures, appropriate institutions and adequate capacity enabling the provision of a competitive service? Are there appropriate strategies in place? Are the strategies being implemented correctly? This study is an attempt to analyse the circumstances that can lead to the formulation of possible answers to the foregoing and related questions.

The specific goals that are desired to be achieved through this study are to:

- Explore the various components of logistics and transit services available in the Corridor
- Identify the logistical cost structures associated with these services
- Compare the logistical costs with cargo values and ocean freights

- Assess the implications of total logistics cost for import trade and importers
- Identify the strengths, weaknesses, opportunities and threats of the transit services as well as bottlenecks and challenges
- Propose pertinent strategic options aimed at developing competitive, dependable and sustainable transit service
- Make recommendations to pertinent bodies and parties.

Well-developed cross-border logistics enhance a cost effective, efficient and user-friendly service, which promotes a milieu of competitive international trade. The overall goal of this work is to contribute ideas that can serve towards the realization of an efficient and sustainable transit service in the Corridor.

#### **1.4 Methodology**

A set of secondary data needed for the analysis of the import trade was gathered from various government institutions. Ethiopian Customs Authority, Ethiopian Shipping Lines Share Company (ESLSC), Maritime and Transit Services Enterprise (MTSE), National Bank of Ethiopia (NBE), Comet Transport Share Company (Comet) and Djibouti Port Authority were the main sources of the data. Some project materials of the international companies of Royal Haskoning (Dutch firm), and a feasibility study sponsored by the Ministry of Revenue of the Government of the Federal Democratic Republic of Ethiopia (FDRE) have also been used. Different books, periodicals and publications from the WMU Library were utilized as reference materials.

The websites of World Trade Organization (WTO), World Customs Organization (WCO), International Maritime Organization (IMO), World Bank (WB), and International Organization for Standardization (ISO) as well as UN bodies such as United Nations Conference on Trade and Development (UNCTAD) and United

Nations Commission for International Trade Law (UNCITRAL) have been useful sources for relevant information and data. Regional bodies such as the Intergovernmental Authority for Development (IGAD) whose Head quarters is in Djibouti, the Common Market for Eastern and Southern Africa (COMESA), international non-government bodies which include the International Chamber of Commerce (ICC) and International Maritime Committee (CMI) have also been used, as found necessary, for information and data useful for the study.

Computer applications have been used to process the data to derive specific information in connection with the objectives of the study. The information obtained through such a process was rationalized by analysis so as to obtain logical conclusions. A mathematical model was then developed to find the cost structures associated with the various logistics components and to establish percentages. Such a model can be useful, not only for the purpose of this study, but also for application afterwards in order to keep track of the performance of the Corridor.

The Corridor is treated as a separate entity for the purpose of the analysis of its environment, strengths, weaknesses, opportunities and threats as well as challenges. Treating the Corridor in this way helps to eliminate the possibility of bias and also to develop strategic options without the need to target any specific body. In other words, the study becomes more balanced and acceptable to any pertinent body involved in the business of the Corridor.

### **1.5 Limitations of the Study**

Most of the data collected for the purpose of this work cover cargo imported from January to June 2004. The outcome obtained from the analysis of the data over a limited span of time may not be adequate enough to show the true trends of the transit service when compared with the outcomes available by analysing data for a number

of consecutive years. It is, however, believed that the prevailing features of the transit service have been adequately highlighted by this analysis.

A centralized database with complete details of the import trade is not available either in Djibouti or Ethiopia. The institutions involved in the trade keep data designed to meet only their respective needs. For instance, the Automatic System for Customs Data (ASYCUDA) of the Ethiopian Customs Authority contains comparatively more detail but lacks information related to the transit of the cargo. This, in any way, does not diminish the usefulness of the sets of data obtained from the organizations as input for analysing the transit service from different perspectives.

## CHAPTER TWO

### IMPORT TRADE AND LOGISTICS

#### 2.1 Overview

The international import trade is comprised of different segments considering the different modes of transport and commodity types.

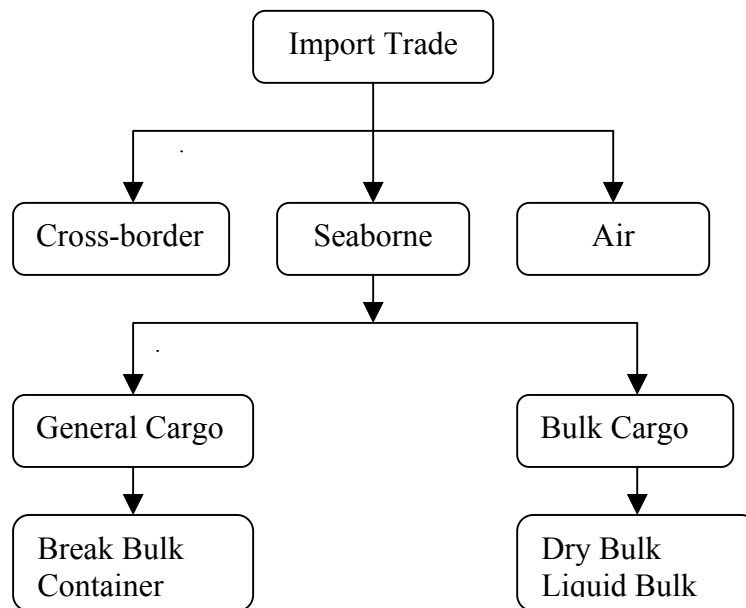


Figure. 2.1: Import Trade segments

Almost all import transactions are conducted through letters of credit with less than 1% processed by "franco valuta", a system that permits the private repatriation of foreign currency by means of importing merchandise. Fertilizer, petroleum products

and grain are carried on CIF terms albeit most of the remaining commodities from 36 identified countries are transported on FOB basis. According to some ESLSC reports, FOB transactions account for about 60% of the total general cargo imports.

The containerizable and containerization factors of the cargo vary. The containerisable factor indicates the rate at which the commodity technically could be containerised, whereas the containerization factor indicates the rate at which the containerisable general cargo is effectively containerised when arriving at Djibouti (Royal Haskoning, 2002, p.3-2). Steel rods imported from India, for instance, have a zero containerisable factor, whereas manufactured goods such as textiles and clothing imported from China have a 100% containerizable factor. Table 2.1 provides the parameters for the traffic forecast of imports.

Table 2.1: Parameters for traffic forecasts (2000-2010).

	GDP growth	Trade elasticity	Trade growth	Containerisable factor	Containerisation factor	Average weight/TEU
Import	4.9%	1.20	6%	60%	80%	11.3 ton

Source: Draft final report on Kaliti ICD, Royal Haskoning, 2002, P.3-4

The import seaborne trade is composed of food, petroleum products, chemicals, manufactured goods, machinery & transport motors, beverages & tobacco, and others (NBE, 2004/05, p.8). The seaborne trade is estimated at about 80% of the total Ethiopian imports and is exclusively handled through the Djibouti Port. According to unofficial estimates by Ethiopian Customs in Djibouti, up to 80% of the total cargo handled by the port is Ethiopian destined cargo.

In Djibouti, the cargo is transferred to trucks and trains and transported to inland destinations. According to studies conducted under the auspices of the Ministry of Revenue of the FDRE (2003, p.4,) in January 2003, 96% of the cargo was transported by trucks, and less than 4% by rail.

## **2.2 Volume and Value**

A set of data consisting of 54,360 imported consignments that were delivered from Djibouti to Addis Ababa between January 1 and June 30, 2004 has been used for the purpose of this study. The set of data was extracted from ASYCUDA with the kind permission of the Ethiopian Customs Authority. The data are processed to sort out the cargo by quantity, type, origin and price. A total weight of 1,637,813 metric tons of commodities with a total price of USD 1,192,026,362 (at prevailing exchange rate of 1USD=8.66 Eth. Dollar) was imported during the period (III & IV Quarters)<sup>1</sup>. The imported commodities were seaborne and originated from a range of countries and regions, the main partners being USA, Middle East, India, EU, East Asia, Turkey, Egypt, East Europe, South East Asia (ASEAN) and Japan.

Table 2.2 below gives the major origins of a total of 556,706 metric tons of general cargo and a price of USD 811 million and this forms 34% and 68 % by volume and value respectively of the total imported seaborne trade within the six months period. The higher percentage in value of the general cargo is a vivid proof of the significance of the value addition through the production process in the respective countries of origin. Grain, fertilizer and petroleum products make up the major portion of the import trade though their unit value is much lower than that of the general cargo.

---

<sup>1</sup> Ethiopian Fiscal Year from July 8 to next July 7

Table 2.2: Quarter III and IV imports (General Cargo)

Origin	Weight (tons)	Value (M USD)	Average Unit Price (USD/ton)
India	98762	74.42	753.5
China	84036	168.43	2004.3
EU	70598	231.0	3272.0
USA	68641	47.73	695.3
Turkey	68997	41.50	601.3
ASEAN	61144	51.81	847.3
South Korea	25371	25.42	1001.7
Saudi Arabia	17168	14.90	866.9
Ukraine	15775	8.10	511.4
Japan	12601	122.52	9722.5
Egypt	12254	10.55	860.8
Iran	11182	5.53	484.8
UAE	10177	8.97	880.9
Total/Average	556706	810.79	1456.4

Source: Sorted from Ethiopian customs data (ASYCUDA), January 1 to June 30, 2004

Figure 2.2 demonstrates the share of the import trade from the major origins of the import trade and the relationship between the weight and the value of the cargo. Imports from Japan, EU, China and South Korea are of high value goods. These high value goods include manufactured goods such as electronic/electric, telecommunications, beverages, textile, clothing, glass, machinery, transport, etc. The major parts of shipments from India, Turkey and Ukraine comprise metals and metal products, whereas most of the imports from Japan and the EU are finished industrial goods.

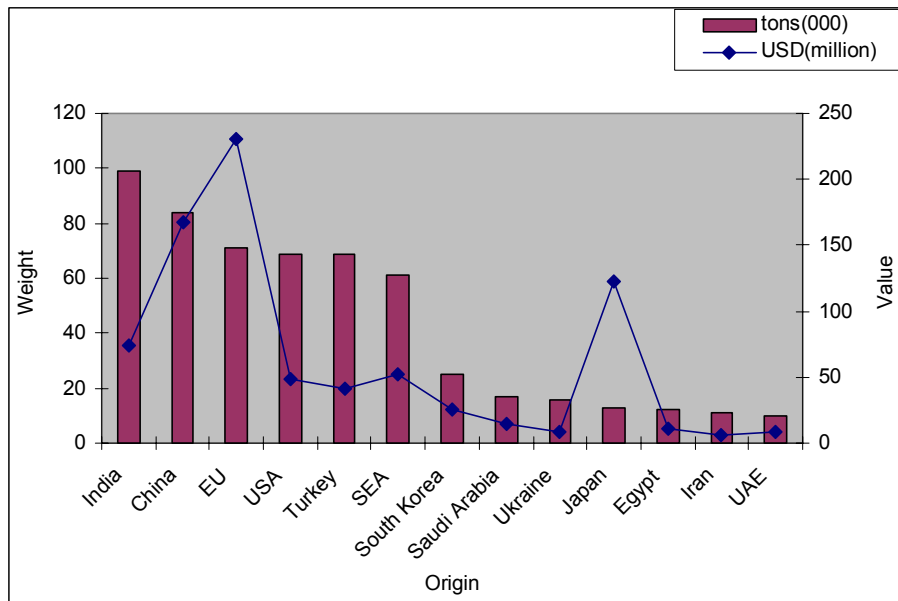


Figure 2.2: Major imports by weight and value

Ethiopia had a trade deficit of USD 467.5 million dollars in Quarter IV of 2003/04 according to NBE (2004/05, p.V.1). The disparity between the high value of manufactured import goods and the comparatively lower value agricultural output export is generally believed to be the inherent cause for the trade deficit. In this particular scenario, however, the main reason is the bigger volume of imports compared to the exports that created the deficit as the unit value of the export commodities appears higher than for the import cargo. Table 2.3 shows the unit value of major export commodities during Quarters III and IV of 2003/2004.

Table 2.3: Unit value of export (USD/ton).

Item	Coffee	Hides /skin	Pulses	Oilseeds	Fruits/Veg.	Chat	Gold (USD/Kg)
USD/ton	1450	4500	300	850	320	6600	9302.55

Source: National Bank of Ethiopia, Quarterly Vol.19, No.4, (2003/04, p.45)

The aggregate average unit price for the export commodities, excluding gold, for the same six-month period from Table 2.3 is USD 2337 per metric ton.

## 2.3 Trade Growth Pattern

The growth of the import trade by a given country could be influenced by a number of factors. At least three predominant factors that influence the volume of imports can be identified. These factors are climatic changes, which affect grain production, capacity building programmes and real GDP growth. Table 2.4 provides the general cargo and container growth trends along with the annual rise of GDP.

Table 2.4: General cargo/container and GDP growth

Fiscal Year	(000) Tons	Growth	TEUS	Growth	GDP Growth
1999/00	970	-	39645	-	5.4%
2000/01	859	-11.4%	43034	8.5%	7.7%
2001/02	891	3.7%	45516	5.8%	1.6%
2002/03	870	-2.4%	49681	9.2%	-3.9%
2003/4	1197	37.6%	---	-	11.6%
Average		6.9%		7.8%	4.5%

Source: Compiled from NBE and customs data

Table 2.4 shows that both the general cargo and GDP have registered aggregate annual growth rates of 6.9% and 4.5% respectively. According to the study conducted by Royal Haskoning (2002, p.3-4), between 1990 and 2000, general cargo import trade to Ethiopia grew by 9.82% and the GDP growth for the same period was 4.90% giving a trade elasticity factor of 2.0 in relation to the growth of the GDP. The study likewise forecast import trade and GDP growth to be 6% and 4.9% respectively for the years between 2000 and 2010. Table 2.4 also shows that the containerization of the general cargo has shown steady growth at 7.8% over the four years. Furthermore, the containerization factor has grown faster than the general cargo import growth rate.

The trade pattern and growth can be explained with the application of economic concepts. It is, however, not always possible to fully understand why, for instance, Ethiopia imports high value finished or semi-finished consumer goods within the realm of economics only. Why are such products not produced within the country? These can be better treated with the application of the tools of global logistics. Shuo Ma (2004, p.14) states that importing and exporting of materials and products are the most frequently used methods to increase the value added and to expand the market as the firm does not need to provide additional facilities or other fixed assets to be committed to a foreign country. This invigorates the probability that Ethiopia's import trend is dictated more by the process of internationalization of production and the globalization of trade. WTO (2005a) statistics for world merchandise exports by products in 2003 gives a share of 74.5% for manufactured goods implying the significance of global logistics in international trade. The Ethiopian import trade is simply a reflection of this global scenario.

## **2.4 Logistics Activities in the Import Trade**

What is logistics? What is the significance of logistics to the import trade? Logistics can be defined in several ways but the fundamental concept can be stated as follows:

Logistics is the process of strategically managing the procurement, movement and storage of materials, parts and finished inventory (and the related information flows) through the organization and its marketing channels in such a way that current and future profitability are maximized through the cost-effective fulfilment of orders (Christopher, 1998, p.4).

The import trade involves the movement of materials and finished inventories through a chain of logistical activities. These logistical activities, performed in the course of importing, can be simply viewed in five consecutive stages.

- I. Process for ordering goods: concluding sale contracts on CIF/FOB basis, obtaining letter of credit, placing order with the seller and similar functions.
  - II. Seller firm's activities: receipt of order for goods, planning, producing/procuring the goods, storing, obtaining export clearance, land transport and delivery to the carrier.
  - III. Sea Transport: cargo loading at port of origin, carriage and discharging at destination port.
  - IV. Port transit: cargo transfer to the warehouse, de-consolidation, inspection and transfer to land transport modes.
  - V. Inland transit: transport, inspections, storage, customs clearance and delivery.
- The major activities of the import trade logistics chain between trans-ocean and inland points are shown in table 2.5.

There are physical as well as non-physical activities in the chain. The physical aspects incorporate warehouses, production facilities, transport modes and cargo-handling equipment whereas the non-physical aspects embrace activities such as information flow, administration, management, customs service and related support functions.

The level of integration between the different activities of the logistics chain determines the effectiveness and efficiency of the materials flow within the chain. For an importer the lead-time and the total logistical costs are the most important variables. The lead-time is the total span of time from placing an order until the delivery of the goods to the buyer. In other words, it is the total time elapsed to execute the logistics elements specified in table 2.5. Why is the lead-time so important for an importer?

Table 2.5: Activities in the logistics chain

Element	Risk factors	Actors
Place order	Delay, inaccuracy	Buyer
Plan to produce/procure	Delay, inaccuracy	Seller
Produce/procure as per plan	Delay, inaccuracy	Seller firm
Cargo booking (FOB)	Delay, wrong details	Buyer
Cargo readiness for pick-up	Delay, wrong package	Shipper
Cargo pick-up	Delay	Shipper
Cargo consolidation	Wrong assembly	Shipper
Land transport	Time deviation	Freighter
Port delivery and receipt	Readiness of port	Port
Cargo waiting/ consolidation	Inspection/delay	Shipper/carrier
Cargo transfer and loading	Stowage	Carrier/agent
Sea transport	Time deviation, damage	Carrier
Cargo discharge and transfer	Delay	Stevedore
Cargo storage in port	Delay	Stevedore
Cargo de-consolidation	Delay	Port
Inspection	Delay	Customs/insurer
Transfer to land transport	Delay	Port
Land transport	Time deviation	Freighter
Cargo de-consolidation	Delay	Customs
Cargo Inspection	Delay	Customs
Cargo clearance	Delay	Customs/forwarder
Cargo delivery	Longer lead time	Forwarder

Source: Adapted from Blauwens et al, Transport Economics, P.198, 2002.

Capital and consumer goods are the two major import components. The lead-time for the capital goods is important to complete time-bound projects, the failure of which creates financial and legal complexities for the parts involved. The consumer goods are mostly procured through letters of credit with up to a 70% bank loan and at the

same time they are time bound for distribution to the market. The customer service and the inventory costs associated with the goods are therefore dictated to a large extent by the lead-time and hence become crucially important to the importer.

Besides the inventory cost, the direct costs of physical and non-physical logistics during the flow of the import materials are of serious concern to the importer. The lower costs in some or a few segments or activities cannot make the entire logistics chain cost-competitive. It is the total cost from origin to destination that will have a bearing on the profitability of the goods for the importer. So the total cost concept of the chain remains the determinant factor for logistical decisions. Inventory cost and time become apparently more important for high value and superior goods than for the lower value goods due to their sensitivity. The low value goods on the other hand are more sensitive to direct logistics costs. The total logistics cost, as specified by Blauwens, Baere and Voorde (2002, p.180), comprises the following:

- Start-up costs
- Order processing costs
- Packaging costs
- Freight (port) handling costs
- Administration costs
- Transportation costs
- Inventory costs (including warehouse costs)
- Location costs
- Stock-out costs
- Customer service costs

The different logistics activities thus have various costs associated with them at every stage in the trade flow. Proper accounting and maintenance of cost information become very important in the management of the different logistics activities. Christopher (1998, p.71) highlights that probably the lack of appropriate cost information is one of the main reasons why it has proved difficult for many firms to adopt an integrated approach to logistics. He further emphasizes that the analysis of

aggregated cost data facilitates the management of the total distribution activity as a complete logistics system with a view to creating an enabling environment to make decisions on cost trade-offs. In this perspective, the analysis of all logistics activities in the entire import trade chain along with the total cost structure can reveal all the anomalies and setbacks inherent in the system. This is the concept that is being applied to the analysis of the import trade logistics in the Corridor. This type of approach and application can contribute towards the development of management models for import trade logistics.

Lambert, Stock and Ellram (1998, pp.21-23) explain the logistics activities in six different categories:

- Customer service level
- Transportation
- Warehousing
- Inventory
- Order processing/information system
- Lot quantity

These activities are the drivers for the logistics costs associated with different stages in the import trade flow and, consequently, it is the total logistics cost structure of the trade chain that will ultimately enable decisions to be made on cost trade-offs or choice of alternative import trade routes.

## **CHAPTER THREE**

### **PORT TRANSIT SERVICE**

#### **3.1 Ship-port interface**

Cargo bound for Djibouti and destined for the Ethiopian hinterland can be broadly grouped into dry bulk, liquid bulk and general cargo. The general cargo is transported in break-bulk (BBK), mostly palletized, and in containers. The freight for the sea transportation of both bulk types is more competitive and highly affected by the elasticity of demand and supply in the bulk-shipping segment. Most of the bulk cargo is imported on a CIF basis. General cargo, on the other hand, is transported according to liner terms and on a FOB basis.

Currently, the general cargo import is stable and showing steady growth. The sea freight rates charged by liner shipping companies for the general cargo (break bulk and container) include the following cost areas (ESLSC-MTSE Stevedoring Contract, 2000, pp.2-4):

- Stowage and securing on board
- Ocean freight
- Stevedoring expenses at loading and discharging ports
- Surcharges such as bunker and currency adjustment factors (BAF & CAF)

Terminal handling charge (THC) at loading ports that include costs for unloading cargo from the shippers' trucks, stowing in storage areas or warehouses, loading on to trucks or trailers and forwarding to shipside under-hook are to the account of the shippers. The THC at Djibouti that covers costs for transferring cargo from shipside to storage area/warehouse or container yard is also to the account of the consignees directly payable to the port. THC is separate from ocean freight at both ends.

The freight rates, when taken as a percentage of the price of the cargo transported, have been given in Table 3.1 for a number of routes.

Table 3.1: Average FOB freight rates to Djibouti (with BAF &CAF)<sup>1</sup>

Ports of Origin	USD/ton BBK=(F <sub>1</sub> )	USD/20'Container=(F <sub>2</sub> )
Japanese ports	156	2295
Chinese ports	85	2056
Korean ports	79	1913
ASEAN ports	74	1812
UK ports	150	1640
NW European ports	137	1530
Mediterranean ports	137	1482
Indian ports	49	1312
Gulf ports	49	1208

Source: compiled from ESLSC data (Revised 01.06. 2003)

Table 3.2: General cargo freight percentage of cargo value (V<sub>n</sub> = value/ton)

Country of Origin	F <sub>1</sub> /V <sub>n</sub>	V <sub>n</sub> x11.3 (USD)	F <sub>2</sub> /(V <sub>n</sub> x11.3)
Japan	1.6%	109864	2.1%
China	4.2%	22645	9.1%
South Korea	7.9%	11319	16.9%
ASEAN	8.7%	9575	18.9%
EU-UK	4.6%	36974	4.4%
EU-NWE	4.2%	36974	4.1%
EU-Mediterranean	4.2%	36974	4.0%
India	6.5%	8515	15.4%
UAE	5.6%	9954	12.1%
Turkey	22.8%	6795	21.8%
Iran	9.9%	5591	19.8%
<b>Aggregate Average</b>	<b>7.3%</b>	<b>16453</b>	<b>11.6%</b>

<sup>1</sup>Prevailing BAF = 7.5%, CAF= 1.8%

Table 3.2 gives the estimated percentage of freight rates to the value of general cargo imported from the different countries. The percentage is worked out by taking the average unit values given in Table 2.1 as established in Section 2.2. The container freight of all kinds (FAK) and break-bulk freight rates from major exporting regions and countries to Djibouti in aggregate average figures are 11.6% and 7.3% respectively. The surcharges are dependent on variable factors and hence are regularly adjusted and added to the basic ocean freight rates. The wide variation in the percentage of the figures is attributed to the FAK rates of containers and the non-consideration of negotiated freights for the break bulk of large consignments that are normally much lower than the official rates posted.

Table 3.3: General cargo ships turn-round time in Djibouti

Vessel	Arrival Date	Disch/load (tons)	Depart Date	Duration
Admas	05.01.04	7615	25.01.04	20
Abyot	15.01.04	1263	23.01.04	08
Andinet	02.02.04	1267	08.02.04	06
Nestanet	09.02.04	6198	17.02.04	08
Nestanet	09.03.04	10660	19.03.04	10
Tekeze	22.03.04	2518	02.04.04	11
Andinet	05.04.04	10949	19.04.04	14
Abbay Wonz	14.04.04	3627	29.04.04	15
Abyot	27.04.04	814	04.05.04	7
Admas	10.05.04	10283	23.05.04	13
Abbay Wonz	27.05.04	7669	07.06.04	11
Tekeze	12.06.04	3887	25.06.04	13
Abyot	19.06.04	3705	04.07.04	15
Total		<b>70455</b>		<b>151</b>

Source: MTSE monthly shipping service reports January-June, 2004.

The cargo discharge at Djibouti forms one of the essential parameters for ship-port interface. How fast then is the cargo discharge at Djibouti? What are the various factors that influence the carriers' relationship with the Port? Table 3.3 gives the average stay of multi-purpose tween-deck ships as 11.6 days with a standard deviation of 3.8 days. The discharging rate is under 470 tons/day. MTSE employs three shifts per day with two gangs on average per shift and their plan is to discharge break bulk cargo of 420 tons/gang/day or 840 tons/day. Comparison of the actual discharge rate during the review period with the planned rate gives a productivity of 56%.

The features that characterize the relationship between carriers and ports are a sense of cooperation on the one hand and competition on the other. The sense of cooperation and partnership emanate from the interdependence between each other and the need to satisfy their common customers - the shippers/consignees. ESLSC, which is the principal carrier to the port, considers Djibouti as the homeport. The psychological attachment cannot be over emphasized and this creates an additional opportunity for cooperation between these two in particular.

There are concerns, nevertheless, which surface from time to time; this being natural as they have a buyer-seller relationship. The carrier wants a faster turn-round of the vessels from the port and the port tariffs to be competitive, whereas the port wants higher tariffs and more revenue. Moreover, the port voiced its concern and objection to the Ethiopian Government's policy on foreign currency control, which they claim it solicits cargo preference to the national ships. The port fears that ESLSC and its Ethiopian agent operating there would monopolize the shipping business including the shipping agency in Djibouti. ESLSC actually made slot agreements with a number of shipping companies, including APL, PIL, COSCO and MESINA and the ships of these carriers continued to service Djibouti, and the fear of Djibouti dissipated in time. ESLSC, on its part, voices concern over tariffs and low efficiency in the operations that result in the slow turn-round of the ships from the port.

### **3.2 Cargo Handling and Port Tariffs**

Once the cargo has reached the port, various tariffs and handling costs begin to apply. What is the sundry cargo handling activity performed in the Port? What are the tariffs applied to the cargo handling?

Two documents have been reviewed in order to answer the questions posed: the Port of Djibouti's Tariff, dated September 2001 which was in force until July 1, 2004 and the Stevedoring Contract Agreement between ESLSC and MTSE, dated March 20, 2000. The import transit general cargo handling activities and tariffs are grouped as following:

- Cargo manifests delivery
- Marine activities/charges
- Cargo/container discharge from hold to deck under hook
- Cargo/container transfer to alongside quay, truck or rail wagon
- Cargo/container transfer to stacking area within terminal, stacking and handing over
- Tallying of cargo
- Open/warehouse storage
- Un-stuffing/stripping of containers
- Inspection of cargo
- Transfer of cargo/containers to Djibouti Dry Port (DDP)
- Transfer of cargo to trucks for inland transport

The port requires cargo manifests to be delivered in six copies, 24 hours before the arrival of a ship. The marine charges cover costs for anchorage, pilotage, berthing, tugs, shifting, birth occupancy and related functions but these costs are already embedded in the carriers' ocean freight.

The break bulk discharge tariffs of the Djibouti Port Authority and the stevedoring tariffs MTSE have similarities and differences. The tariffs of the authority cover the charges for cargo transfer from hold to deck and under the hook only and are payable by the ship operator. Grounding/landing charges for transfer to the stacking/storage area are charged separately and are paid by the cargo owner. The authority tariffs are payable only in Djibouti Franc (1 USD=178 DJF) and are set by government directive, though an understanding is reached with the Government of Ethiopia before making them effective. The MTSE stevedoring tariffs, on the other hand, cover discharging break-bulk cargo from vessels direct to trucks, alongside quays or railway wagons, transporting to the terminal, stowing and handing over to the terminal operator as well as tallying cargo. These tariffs are negotiable and set by agreement on a lump sum basis for payment by the carrier. The fees are fixed in the USD currency. Unlike stevedoring tariffs for break bulk cargo, discharge tariffs per TEU in the port are same and they are to the account of the carrier.

The discharged containers and general cargo are transferred to terminal and storage areas, except for dangerous and hazardous cargo, which is delivered directly to trucks for inland transport. The direct delivery cargo accounts for much less than 1% of the imports. The containers and general cargo destined for Ethiopia are accorded a 30-day grace period (in 2005 the grace period has been reduced to 10 days only) within which storage charges are not applicable. If the cargo is not lifted within the grace period, it is transferred to Djibouti Dry Port (DDP). Furthermore, if the cargo is not cleared within six months, it is auctioned and the sale value apparently goes to the port. In the event that an importer/consignee faults with payment of the dues and charges, the port has a lien on the cargo and can have it sold by open auction but it is not clear what happens to the balance if the money so earned is in excess of the charges due. Carriers like ESLSC, which collect their freights at destination, are not in a position to enforce the claim for freight by holding cargo, since the cargo is not in their possession, nor is

it clear whether the port is able to compensate them from the sale proceeds; at least there is no evidence to that effect.

According to studies sponsored by the Ministry of Revenue of the FDRE (2003, p.4), 85% of containers are stripped in Djibouti. Inspection and transit formalities are processed before cargo can be transported to its inland destination. The consignee's freight forwarder is expected to perform the following before the cargo is readied for lifting from Djibouti.

- Obtain bank clearance after settling required payments
- Arrange payment of freight to carrier or agent and obtain cargo release permit
- Initiate import customs formalities in Ethiopia and obtain a transit permit for cargo delivery to destination
- Forward the bill of lading and cargo release permit to local agents in Djibouti
- Arrange transport (trucks/railway wagons)
- Arrange payments for port charges and finalize related formalities. The payments are initially covered by the local agent and refunded together with the service charges and commission afterwards on presentation of the receipts.

There is no intermodal transport service in which cargo can be directly delivered under the responsibility of one carrier to its final destination through the Corridor and without the need for the consignee to produce transit permits. The lengthy processes, cumbersome procedures, excessive amount of paper work needed, coupled with the stripping of FCL/LCL cargo at Djibouti, delays the cargo transit to a great extent. The stripping of containers at Djibouti is actually performed upon the decision of the consignees in order to avoid payment and demurrage for inland haulage. There would not have been the need for stripping containers at Djibouti had there been intermodal transport arrangements linked to ICDs /CFSs for the import trade in the hinterland of Ethiopia. This defeats the very essence of the use of containers as load units in

transporting cargo. Table 3.4 shows the major Djibouti port tariffs payable by consignees.

Table 3.4: Port tariffs for import transit cargo through Djibouti (USD/Unit).

Item	20' TEU	BBK Freight ton <sup>2</sup>	Remark
Landing charge	197.2		
Storage charge/day	5.6		
Container shift in yard	56.2		
Loading on wagon/truck		5.6	
Port dues	45.0	2.3	
Declaration fees	5.6	5.6	Per declaration
Open storage charge/day	5.6	0.051	31 <sup>st</sup> -60 <sup>th</sup> day
		0.10	61 <sup>st</sup> day & above
Warehouse storage/day		0.051	31 <sup>st</sup> -40 <sup>th</sup> day
		0.12	41 <sup>st</sup> -60 <sup>th</sup> day
		0.26	61 <sup>st</sup> day & above
Transfer to DDP	129.2		
Storage in DDP/day	4.45	0.17	
Delivery to CFS	36.5		
Stripping in DDP	112.4		
Load/unload in DDP		5.6	

Source: Port of Djibouti tariff, September 2001, first edition, pp.9-21.

The above charges were applied until July 1, 2004; after this date new rates with some changes came in to use. The processes through which the cargo passes before it is cleared at Djibouti are depicted in Figure 3.1 below.

<sup>2</sup> 1 freight ton=1.13 m<sup>3</sup>

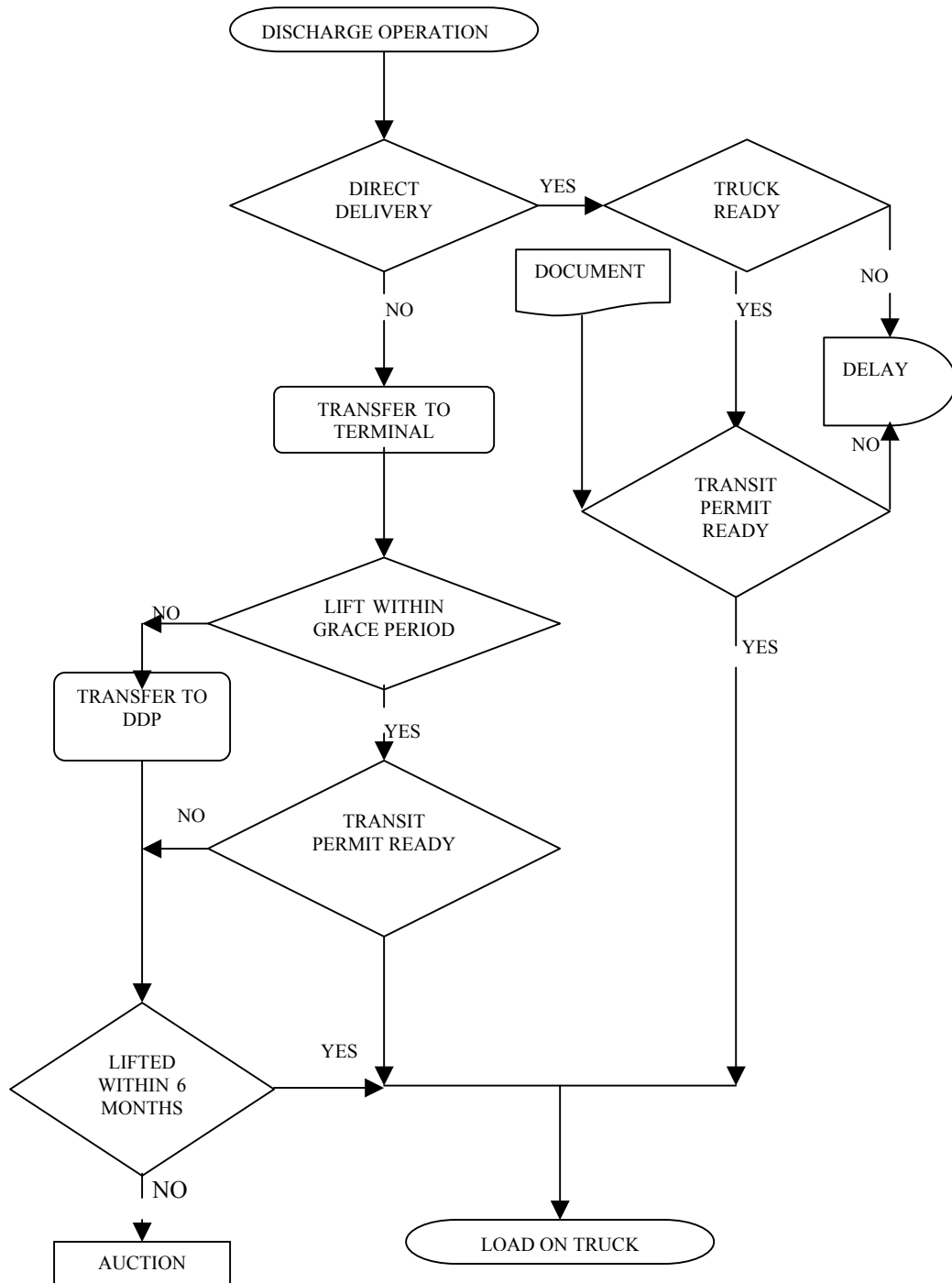


Fig.3.1: The Cargo transit process in Djibouti

### **3.3 Cargo Dwell Time**

In this section, some questions relating to the turnover of import cargo through Djibouti will be raised. How long does the cargo stay in Djibouti before it is transited to its final destination? What factors govern its duration of stay in Djibouti?

A sample of 465 consignments from imported general cargo lifted by MTSE during Quarter III of 2003/04 was randomly selected and an exercise performed to establish the port transit time. The findings are stated as follows:

- The average dwell time of consignments in Djibouti was 41.4 days with a standard deviation of 24 days.
- 42.6% of the consignments were lifted within the period of grace, which was less than 30 days.
- 57.4 % of the consignments were lifted after 30 days.
- Only 9% of the consignments were lifted within 10 days.

The results are representative of the dwell time of consignments in Djibouti Port. The findings indicate that any general cargo consignment arriving in the port has a 57.4% probability to dwell for longer than 30 days. Furthermore, any cargo arriving in Djibouti over an extended period of time may not be transited from the port on average for more than 40 days. What are the possible causes for the extended dwell period of transit import cargo in Djibouti?

It may not be easy to establish the causes for the longer dwell time of cargo in the port as there are so many complex socio-political and economic issues shrouding the scenario and not necessarily attributed only to the port. Nevertheless, the main causes may be highlighted within the scope of logistics. The cargo transfer from the ship to the inland transport modes can be viewed as a process, taking place in three consecutive stages.

- Stage 1- Cargo transfer from ship to terminal or storage area/warehouse
- Stage 2- Cargo in storage
- Stage 3- Cargo preparation and transfer to inland transport modes for transit.

Stage1 involves different cargo operations such as discharging, loading on trailers, transferring to storage areas, terminals and warehousing, and stacking in good order. Cargo tallying and handing activities are also performed. In this series of activities, shipboard and shore equipment as well as people have to work in unison in order to execute the whole operation successfully. In reality however, there are noticeable flaws.

- The stevedores are poorly equipped and inadequately trained. They do not wear any safety shoes, helmets or the like. In fact most of them work wearing sandals. The safety procedures of the crane operations are not observed and instead of using standard body signs to guide crane operators, words and shouts are widely used. The stevedores' movements and style of work are erratic and un-orderly. The effect of this is not only slow operation and low turnover but also damage to the cargo.
- There is no adequate supply of equipment such as trailers, forklifts and cranes; the drivers not being very well trained either. When more ships are simultaneously berthed, the supply of equipment even becomes over stretched.
- Lack of planning and coordination. There is no systematic planning and most operations appear to be executed by conventional standards and little improvements are made for devising new techniques and methods. The different entities participating have very limited fora and means of communication for exchanging information.

The low productivity of stevedoring, which depends on the human element, working procedures and equipment, contributes to longer the turn-round time of the ships on the one hand and an extended stay of the cargo in the port on the other hand. Considering

Table 3.3 and the number of days the general cargo ships are staying in the port, it can be noted that a ship arriving say 10 days earlier is still holding cargo on it and for a particular consignee this cargo has not even been transferred to a storage area yet. This really contributes to the longer dwell time of cargo in the port.

Stage 2 is the one that takes the longest time. The factors that govern the duration of this stage are mainly outside the scope of the port. There are a number of activities that take time and contribute to the extended dwell time of cargo in Djibouti. Such time-taking activities include:

- Completing bank formalities and collection of documents by consignees
- Settling of freights with carriers
- Lodging documents with the Ethiopian Customs
- Obtaining transit permit from Ethiopian Customs
- Forwarding of transit permits to Djibouti
- Arranging transport and entering into contract with operators in Ethiopia
- Inspecting of cargo by the Ethiopian Customs in Djibouti
- Processing customs formalities to release cargo
- Stripping of containers
- Settling port dues and charges

Arrangements for direct delivery for certain cargo types, particularly dangerous goods, are in place but the quantity is very limited. The activities themselves are numerous and they are further slowed by a number of factors such as inefficiency, cumbersome procedures, excessive documentation, communication system power interruption in Djibouti and the dependence on manual methods of work.

Stage 3 forms the port-inland transit interface. It involves the local (Djibouti) intermediaries (freight forwarders) representing not the consignees directly but the freight forwarders in Ethiopia. They process the necessary requirements by pertinent port and Government authorities for the cargo to be transferred to trucks/railway wagons for inland transport. This stage is relatively short but its operations are in many

ways affected by lack of heavy lift equipment on time and delays in the arrangement of transport. The difference in working days and working hours between Djibouti (Islamic State) and Ethiopia is another major factor, which causes delays in the final transfer process. So these factors contribute to the overall extended dwell time of the cargo in the port.

The longer import cargo dwell time through Djibouti, covering all the three stages will have serious repercussions on the competitiveness of the Ethiopian importers as cost and time advantages are already lost here; the details of these are addressed in chapter v. The Spanish State Ports Authority (2003. p.70) classifies the port activities into three lines of space. They are the first, second and third logistic lines.

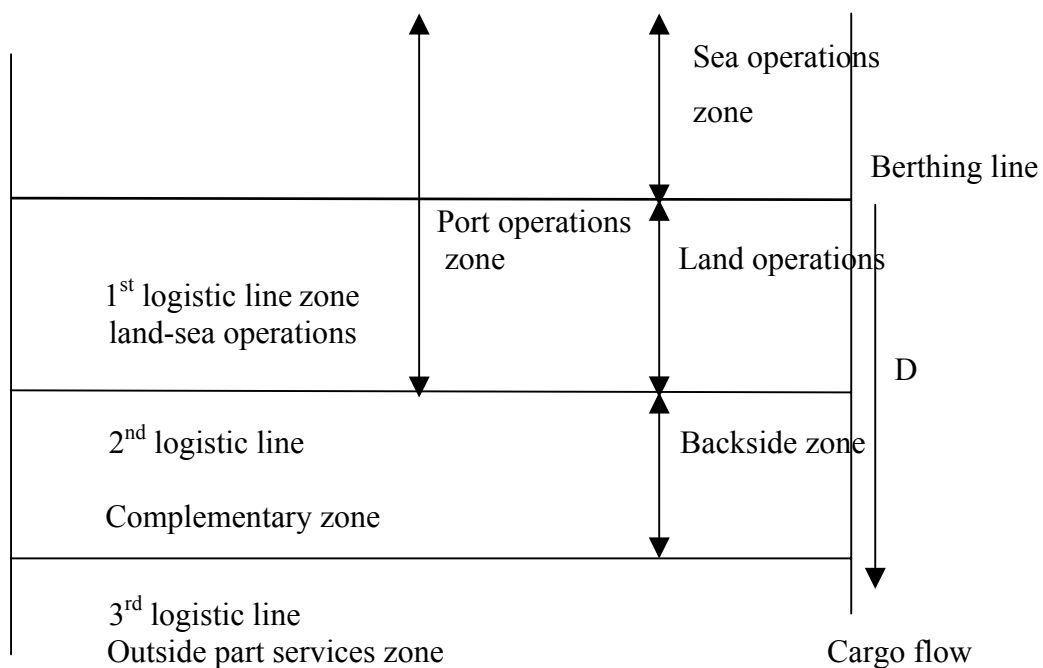


Figure 3.2: Port activity logistics lines

Source: Guide for Developing Logistic Activity Zones in Ports, Spanish State Ports Authority, p.70

The three logistic lines have distinct features and the major operations within these zones are similar to those specified in the three stages above. They are also linked with each other and the speed of operations in one zone affects the other. The totality

of the efficiency of the operations in all the three logistic zones determines the cargo dwell time in the port. From figure 3.2, D is the spatial distance through which the cargo is moved and is actually very small (in Djibouti the berth to DDP distance is not more than 2.5 kilometres) but it is this "small distance" that on average takes 41.4 days. The classification of the port zones by logistic lines helps to visualize the spatial factor in the movement of goods and to establish evaluation criteria. Moreover, the operations in the three zones can be designed and managed better while maintaining a high level of integration between them. The concept of classification by logistic lines implies the significance of value added activities while maintaining high fluidity of the cargo movement through the port. These are some of the fundamental approaches not so clearly visible in the Port of Djibouti.

The discussion in this section demonstrates that there are endogenous and exogenous factors in relation to the port, which are currently determining the length of the cargo dwell time.

## **CHAPTER FOUR**

### **INLAND TRANSIT SERVICE**

#### **4.1 Transport Performance and Tariffs**

Transport is generic and related with a number of mainstream subjects. It is, however, widely accepted that transport is an element of economics and its functions are greatly interrelated with production and trade. Transport serves as a bridge between producers and consumers by overcoming the geographic barriers. Benson and Whitehead (1975, p.2) define transport as: “an economic activity, which increases human satisfaction by the movement of goods and passengers. Transport makes it possible to move inaccessible goods to points where consumers need them”. Transport has increasingly become part of the international production process. Transport is an essential part both in the physical supply and distribution chain or in other words the supply chain. This is the main reason why transport is one of the core components of logistics.

The general cargo import trade is considered mainly as a supply distribution and the Corridor is the last leg of the geographic barrier between the origin of the commodities and the consumers in Ethiopia. In this respect, is the transport service through the Corridor adequately fulfilling the customer service needs? What are the physical and non-physical standards available, and the challenges facing the transport system? These are some of the issues addressed in this section.

The inland transport forms one of the important segments in the entire logistics chain necessary for the flow of the import trade. According to recent studies conducted

under the sponsorship of the Ministry of Revenue of the FDRE (2003, p.4), 85 % of the cargo is destined for Addis Ababa and about 300 trucks enter the Ethiopian border on a daily basis through the border town of Galafi.

The journey to Addis Ababa is 925 km by road through Galafi and 781 km by rail. A truck-trailer on average carries 30 tons of cargo and the Addis Ababa-Djibouti-Addis Ababa round trip takes a minimum of seven days. The passage time is three days each way with one-day waiting time. The drivers normally do not travel at night and rest sometime between 2000 and 0400 hours, and have to stop at a number of customs posts. The effective available travel time is, therefore, much less than 16 hours per day. The way to Addis Ababa is a tarmac road and passes through open plains except in a few locations where the terrain is winding and mountainous. More than two-thirds of the way is in an arid zone with temperatures ranging above thirty degrees centigrade. The roads leading to other destinations are of lower grade or patchy.

The working conditions of the drivers have an impact on the transport performance. One driver and an assistant are assigned for each truck in most cases. They have to obtain an entry permit and license from the Government of Djibouti, which as such is not difficult. The working hours of the truck drivers are not particularly strictly controlled by national law or otherwise. The dotted towns on the way provide few facilities due to the low development in the region and the drivers are not able to get adequate facilities where they can take a proper rest at affordable prices. They are seriously exposed to fatigue and weariness.

Availability of technical assistance in the event of a breakdown of the trucks during passage is not adequate either. The drivers are not equipped with the necessary training or tools and spare parts to take care of even simple forms of breakdowns, nor are mobile garages available/accessible to the drivers. In the event that breakdowns do occur, the drivers will have to wait until technical assistance is made available.

When such breakdowns occur in the remote part of the Corridor, it may take days to avail the technical assistance.

The trucks carry break bulk, bagged and liquid cargo; some also carry loaded containers. There are government and private transport operators. The transport tariffs are deregulated and set by competition based on demand and supply. The transport companies participate in bids for the carriage of goods from Djibouti by offering their respective competitive rates. These rates are dictated mainly by the demand for trucks depending on the season and quantity of imports. Whenever there are additional imports such as fertilizers and grain, the demand for trucks will be up and supply stretched, thereby raising the ton-kilometre rates higher. Some indicative rates from Djibouti to Addis Ababa are given in tables 4.1 below.

Table 4.1: Inland freight tariffs to Addis Ababa (in USD)

Item	Rate/ ton-km	Freight/ton
Bagged fertilizer	0.038	35.2
Containerized cargo	0.037	34.2
Overall monthly average	0.040	37.0

Source: Comet Transport Share Company, monthly performance report, October 2004, p.3

From Table 4.1, the average inland freight tariff per ton of break bulk cargo from Djibouti to Addis Ababa is USD 37. Similarly freight rates to some inland destinations in Eastern Africa are given in Table 4.2.

Table 4.2: Transport tariffs for maximum 28 tons 40' container  
in Eastern Africa

From--To	Distance (Km)	Cost/Km (USD)
Djibouti -- Addis Ababa	925	1.12 <sup>1</sup>
Mombasa--Kampala	1440	2.26
Dar -es- Salam -Kigali	1650	3.02
Dar-es-Salam--Bujumbra	1750	2.96
Dar-es-Salam--Lusaka	2000	2.11

Source: UNCTAD, Review of Maritime Transport, 2003, p.134

Table 4.2 indicates that the transport freight to Addis Ababa appears competitive but it is only one part of the different factors that determine the effectiveness of the overall performance of the transport system.

Indicators are used to assess the performance of the inland transport system. These indicators are:

- Loading efficiency
- Unloading efficiency
- Waiting time in port
- Scheduled maintenance efficiency
- Breakdown/lay-time
- Turn-round time
- Ton-kilometre coverage

Table 4.3 gives the performance indicators for the month of October 2004 from Comet.

---

<sup>1</sup>From Comet/ Not from UNCTAD

Table 4.3: Performance indicators for October 2004 (in truck-days)

Description	Performance	Utilization %
Available total	4290	-
Truck operations	1907	1907/4290 = 44.5
Loading operation	890	890/4290 = 20.7
Unloading operation	491	491/4290 = 11.4
Waiting for cargo	0	-
Maintenance	903	903/4290 = 21.0
Downtime total	99	99/4290 = 2.3

Source: Comet Transport Share Co., performance report, October 2004, Annex-5

Table 4.3 shows that from the available total truck- days of 4290 (143 trucks x 30 days<sup>2</sup>) in October 2004, 44% was used for the transporting service, 21% for scheduled maintenance, 32.1% for loading/unloading operations, and 2.3% was downtime due to breakdowns, accidents and preparations. The trucks transported 11475 tons of import cargo from Djibouti and 270 tons export cargo in October 2004. Table 4.3 demonstrates that the loading operations at Djibouti were almost 50% less efficient than the unloading operations at destinations. The productivity and available transport resource utilization percentage appears low despite reports that performance in the month of October 2004 showed a 34% improvement compared to September 2004 and other months in the same year (Comet, 2004, p.3).

The performance of the trains is very poor both in terms of capacity and efficiency. As it is a single gauge rail and old model, it is very slow (40km/hour) and unsafe. Vogelaar and Van Dijk (2003, p.34) established that the Ethio-Djibouti railway does not accept commercial responsibility for the goods it transports and shippers may risk losing their goods without compensation. The railway is now under a concession process (Addis Fortune, 2005).

<sup>2</sup> Ethiopian (Julian) Calendar has 12 months x 30 days + 5/6 days of a leap month

The salient features of the inland transport in the Corridor therefore can be summarized as follows:

- Working as an independent segment within the import trade logistics chain; no provision of intermodal transport service
- Inadequate organization and responsiveness to meet the demands of the trade and customer service
- Low level of customer oriented service; performance indicators are purely of a technical nature and target income generation.
- Inadequate facilities and low safety standards
- Inadequate technical training and poor working conditions for truck drivers
- No urgency for just-in-time delivery

The transport system functions without much integration and coordination with other logistics service providers in the Corridor. The high percentage of downtime means that it leaves a lot of room to raise its reliability. It is not adequate to have only the physical infrastructures or a big number of trucks in place. Failure to integrate the inland transport system with other services deters the uninterrupted cargo inflow from the coast to the destination. Functioning by a “push” method in which trucks are sent to Djibouti to wait for cargo may not be a feasible solution. Operating trucks without the urgency for just-in-time delivery or for achieving a high level of customer service undermines the competitive advantage of the consignees.

Some consignees prefer to carry the cargo in containers without un-stuffing at Djibouti. However, using a container for inland haulage to carry more valuable cargo to avoid pilferage and damage results in an additional cost. Even though the consignees do not have to pay for un-stuffing at Djibouti, they need to pay a deposit for renting the container by committing themselves to return it within a grace period of 30 days. In the event of failing to do so within the grace period, they have to pay demurrage of up to USD10 for each extra day. The turn round of the containers will depend on many factors but the efficiency of the transport remains the major one.

A set of data consisting of 471 leased containers and 1045 owned containers as well as 6077 containers carried through a slot arrangement by ESLSC was used for assessment. The containers were used for inland haulage between 03/2004 and 12/2004 and have been sorted out to establish the average round trip time. The results are shown in Table 4.4 below.

Table 4.4: Turn-round time of containers in Corridor

	Slot	Leased	Owned
Total containers hauled	6077	471	1045
Average round time	23.4 days	20.6 days	25.4 days
Average deviation	9.5 days	10.5 days	10.7 days
Round time =30 days or more	22.4%	18.5%	26.6%

Source: ESLSC containers data base

The average turn round time of the containers in the Corridor is more than 21 days. 1725 containers (22.7%) of a total of 7593 containers used for inland haulage stayed for 30 days or more before they were returned to Djibouti. The long turn-round time for a substantial number of containers is one aspect of the low level of customer service and it is attributed to the inefficient transport system in the Corridor and inadequate CFS facilities at inland destinations. The effect is twofold: on the one hand it exposes the importers to higher container demurrages and on the other hand it discourages containerized traffic for inland haulage.

## 4.2 Customs Transit and Clearance Services

The Ethiopian Customs Authority has control over the import trade at three levels: at Djibouti, during inland transit and at destination. The Customs Branch office in Djibouti issues a transit permit upon receipt of a transit order from a relevant customs authority in Ethiopia for the cargo to be transported to an inland destination.

According to a customs study paper on the application of through bill of lading (2004a, p.18), the consignee's freight forwarder has to produce the documents listed below to the customs in order to initiate the release of the transit order to Djibouti Customs Branch.

- Customs declaration
- Commercial invoice
- Bank import permit
- Receipt for customs duty paid or deposited

The freight forwarder's counterpart in Djibouti will receive other document, such as cargo release notes from the carriers, and finalizes all the necessary formalities for the driver to load and depart.

The Djibouti Immigration and Customs check at the border is the last stop before leaving the territory. Sometimes the stop at the border checkpoint can take hours, particularly if the truck arrives outside office hours. Within a distance of five kilometres again lies the Ethiopian Border Gallafi Customs post. Major customs checks that include the inspection of containers' seals and control of cargo documents as well as immigration formalities are conducted. In the event that any reason for doubt arises or discrepancies surface, the truck will be advised to take a customs police escort until the destination. Other checkpoints still await the truck on the way. There are at least five major checkpoints between Gallafi and Addis Ababa. A truck spends a number of hours by stopping at the different checks between Djibouti and Addis Ababa. On average the total stopping time at customs check points between Djibouti and Addis Ababa is estimated at 12% of the total available driving time.

The clearance requirements are further processed in the Addis Ababa La Gare Customs where 85% of the import cargo is delivered. The trucks either unload into warehouses or stay in the ICD of Comet until the process is completed. The customs officers inspect the cargo, assess the value and work out the customs duty payable. The clearance will then be completed when the freight forwarder arranges duty

payment and submits a number of documents according to the Customs Manual (2004b, p.12). These are:

- Bill of lading
- Commercial invoice
- Ocean freight invoice
- Invoice for insurance cover of cargo
- Pre-shipment inspection certificate
- Packing list
- Certificate of origin
- Bank CPO or receipt for duty payment

The entire clearance process on average takes up to five working days. The time taken to process the customs clearance of goods plays a significant part in the overall efficiency of any logistics chain. Speedy customs clearance of goods facilitates the flow of the import trade. This is the major reason why there have been innovations to apply new technology to cut customs delays. Lambert et al (1998, p.412) wrote that in 1993, going to Mexico meant clearances that could take three or four days but in 1998, 90 percent of all goods from the United States were cleared by Mexican Customs at the border in twenty seconds or less. This means that customs clearance time can be compressed significantly without compromising the customs authorities' requirements if the right strategic decision to that effect is taken and implemented

### **4.3 Inland Warehousing and Tariffs**

The biggest public warehouses are found in Addis Ababa and are owned by Comet. They are used as “flow-through” storage facilities until imported goods are cleared by the Ethiopian customs. Due to the limited number of big public warehouses in existence in and around Addis Ababa, the importer has hardly any choice left except directing the imported goods to the customs nominated state owned ICD. Plans to develop new ICDs in Addis Ababa and elsewhere are still at initial stage.

Lambert et al (1998, p.266-268) define warehousing as a firm's logistics system that stores products in two ways: storage of raw materials, components and parts (physical supply) or finished goods (physical distribution). As depicted in chapter two, the import trade is composed of both types of products for physical supply and distribution. It is difficult to make a clearly marked distinction between the two types of the warehousing service provided to the import trade. Some of the import trade will be used as input for manufacturing firms whereas the durable and non-durable consumer goods will go directly for distribution. The underlying features of the warehousing service are, however; the same in that there are holding costs and storage charges. The holding costs refer to the cost of tied-up capital in goods and the storage charges refer to warehousing/storage service costs. An indicative tariff of the Comet warehouse service is provided in Table 4.5 below.

Table 4.5: Inland Warehouse tariffs

Items	Unit	Unit price
Storage service	1-10 days	0.58 USD/ton/day
	11-20 days	1.16 USD/ton/day
	21-30 days	1.73 USD/ton/day/
	>30 days	2.32 USD/ton/day
Labour charge	Ton	2.32 USD/ton
Infrastructure charge	Ton	0.058 USD
Marking	Consignment	1.16 USD

Source: Comet Transport Share Co, Warehouse tariffs, 2004

There is also an insurance cost and 15% VAT added to the tariffs given in Table 4.5. The average storage time depends on the efficiency of the customs clearance process. A set of data has not been available to assess the clearance duration but the limited number of figures available it is indicated that the average stay of a consignment is five days or more. For example, an imported truckload weighing 2.225 tons that was

cleared on 23.12.2004 after 19 days in the storage area had to pay the equivalent of USD 56.6 according to details in Comet document series No.028870.

The strategic location and type of warehouses necessary for the import trade are significant as they have an influence on the transportation cost and delivery time. In this respect there are a number of issues that may be raised: Can the customs clearance warehouses be used as distribution centres? Which are more required: warehouses or distribution centres? And where? What type: public or private? These and similar queries will be addressed in chapter seven.

#### **4.4. International Regulations and Standards**

Transport operators and customs are the two main actors whose activities greatly affect the inland transit of the import trade. This makes it necessary to assess the status of implementation of applicable international regulations and standards.

There are a number of intergovernmental and international bodies that are engaged in the formulation and promotion of road transport and trade related regulations, standards and recommendations with the objective of facilitating the transit of goods and services. The following are the more relevant ones:

- WCO conventions including
  - Customs Convention on Containers (CCO), 1972
  - International Convention on the Simplification and Harmonization of Customs Procedures (KYOTO), 1971, revised 1999
  - Convention on the Harmonized Commodity and Coding system (Harmonized System), 1988
- IMO's Facilitation (FAL) Convention, 1965
- ICC's Uniform Customs and Practice for Documentary Credits (UCP500), and INCOTERMS
- UN Convention on International Multimodal Transport of Goods

It is pertinent to ask: How actively do Djibouti and Ethiopia participate in these intergovernmental organizations? Which conventions or recommendations have they ratified or adopted? The membership and ratification status can indicate the importance these can countries attach to the trade facilitation regimes. Thus, tables 4.6 and 4.7 below highlight the membership status of and the ratification status of major conventions and recommendations by Djibouti and Ethiopia.

Table 4.6: Membership status (30<sup>th</sup> June, 2005).

	WCO	WTO	ISO	WB	IMO	UNCTAD
Ethiopia	Yes	No	Yes	Yes	Yes	Yes
Djibouti	No	Yes	No	Yes	Yes	Yes

Source: Organizations' websites

Table 4.7: Ratification/approval status (30<sup>th</sup> June, 2005)

Organization	Convention	Djibouti	Ethiopia
WCO	KYOTO1971,1999	No	No
	CCO 1972	No	No
	HS 1988	Yes	Yes
IMO	FAL 1965	No	No
ICC	UCP500	No	No <sup>3</sup>
UNCTAD	Multimodal Transport	No	No

Source: Organizations' websites

Djibouti and Ethiopia are also members of the regional body COMESA (2005a). There are a number of acts and policies formulated and adopted by COMESA for implementation by the member states. Table 4.8 gives an overview of the ratification of the harmonization policies.

---

<sup>3</sup> Does not require ratification, only approval for use is adequate

Table 4.8: Overview of ratification of harmonization policies (Nov. 2003).

Policy	Djibouti	Ethiopia
Harmonized road transit charges (1991, HRTC)	Yes	No
System of cash deposits for transit traffic	No	Yes
COMESA Yellow Card	Yes	Yes
COMESA Customs Declaration (CD)	No	Yes
One stop-border posts	No	No
Axle load limits	Yes	Yes

Source: COMESA (2005b).

The ratification of the international and regional conventions, standards and recommendations by both countries leaves room for reconsideration, though ratification in itself is not the end result. The significance lies in the proper implementation of those that are already ratified. Probably the low level of implementation is a contributory factor for the anomalies and setbacks stated in sections 4.1 to 4.3.

## CHAPTER FIVE

### ANALYSIS OF LOGISTICS COST AND VALUE-ADDITION

#### 5.1 In-transit Inventory Cost in Port

The general cargo import trade is facilitated mainly through outbound logistics in the supply chain. Christopher (1998, p.19) adopts the definition of supply chain as: “a network of connected and interdependent organizations mutually and cooperatively working together to control, manage and improve the flow of materials and information from suppliers to end users”. There are nodes and links in the supply chain of the import trade. Woxenius, Roso and Lumsden (2004, p.307) define a node as a source, a sink or a transshipment point and a link as the transport and transfer activity connecting the nodes. Djibouti Port and Addis Ababa are the nodes and the inland transit service is the link in this import trade flow. What is the significance of the nodes and the link in terms of logistical costs? What interaction and interdependence should exist in order to provide a competitive transit service at a reduced cost?

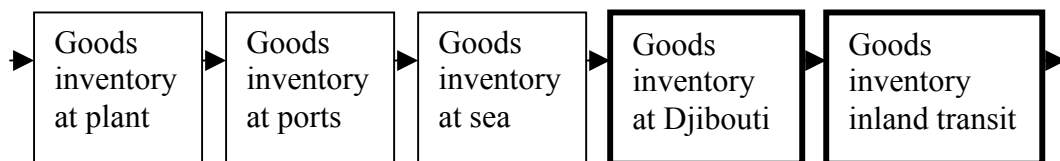


Figure 5.1: Inventory in import trade

Identification of the in-transit inventory costs in the nodes and link of the Corridor becomes necessary in order to establish whether competitive advantages or disadvantages are created to the importers. Lambert et al (1998, pp.24, 116,170) define in-transit inventory as an item en route from one location to another and recommend considering it as an inventory at the place of shipment origin for the

purpose of calculating inventory-carrying cost. The authors further stress the need to develop an accurate inventory carrying cost for proper planning and categorize it as follows:

- Capital cost or opportunity cost, which is the return that the importer could have made on the money tied up in the inventory
- Inventory service cost, which includes tax and insurance on inventory
- Storage space cost, which comprises warehousing space-related costs
- Inventory risk cost, which includes obsolescence, pilferage, relocation within the inventory system and damage.

Blauwens et al (2002, p.182) also identify in-transit inventory cost as stockholding cost comprising interest cost, insurance cost, depreciation of goods and warehouse costs. The values of the cargo and the dwell time in port are two of the important factors affecting the magnitude of the in-transit inventory cost.

The import trade is financed through lending arrangements by Ethiopian banks. The banks finance up to 70% of the cost of the seaborne import trade conducted through approved sale contracts. According to the National Bank of Ethiopia (2003/04, p.19), the average market lending interest rate for the period in review was 10.5%. The loan component of the capital tied up in the import trade accrues interest during the transit time. The length of time for which the goods stay at Djibouti is one of the determinants of the amount of interest accrued. The import is on a FOB basis and insurance is locally covered and the amount is neglected for simplicity. Djibouti Port has a free trade zone and the tax component of the inventory cost is also excluded. The depreciation cost of the goods could, on the other hand, be high and it is imperative to consider it. Generally electric/electronic and IT products have a high rate of depreciation whilst other products such as construction materials have very low or negligible depreciation costs. The useful lifetime of the product determines the depreciation cost and in Ethiopia the straight-line depreciation method, with rates varying from 5% to 20%, is widely used but for this purpose an average depreciation rate of 10% with zero residual value is considered.

### Notations and data

$h_1$  =port in-transit inventory carrying cost of a ton of containerized cargo

$x_i$  = variables or inventory cost components

$V$ = average value of per ton of general cargo.

Average unit values of goods ( $V$ )= USD1456.4 (Section 2.2)

Average dwell time in port ( $t$ )= 41.4 days (Section 3.3)

Average warehousing tariff = USD 0.39/ton/day (=4.45/11.3) (Section 3.2)

Average bank lending rate= 10.5% (Section 5.1)

Depreciation=10% (Section 5.1)

### Calculation

$h_1$ = interest on capital ( $x_1$ ) + depreciation cost ( $x_2$ ) + warehousing cost ( $x_3$ ) + insurance cost ( $x_4= 0$ ).

$x_1= 0.7 \times \text{unit value of goods} \times 0.105 \times \text{average dwell time in port}/365\text{days}$

$x_2= 0.1 \times \text{unit value of goods} \times \text{average dwell time in port}/365 \text{ days}$

$x_3= \text{storage tariff} \times (\text{average dwell time-grace period}) \text{ days in port}$

**$h_1= x_1 + x_3 + x_4 = 0.000834V + 0.0113V + (0.39 \times 11.4)$**

Table5.1: Average in-transit inventory costs as percentage of unit value (USD).

Origin	Value (V)	$x_1$	$x_2$	$x_3$	$h_1$	$\% = h_1/V$
Japan	9722.5	81.1	110.3	4.5	195.9	2.0
EU	3272.5	27.3	37.1	4.5	68.9	2.1
China	2004.3	16.7	27.7	4.5	48.9	2.4
South Korea	1001.7	8.4	11.4	4.5	24.3	2.4
UAE	880.9	7.3	10.1	4.5	21.9	2.5
Saudi Arabia	866.9	7.2	9.8	4.5	21.5	2.5
Egypt	860.9	7.2	9.8	4.5	21.5	2.5
ASEAN	847.3	7.1	9.6	4.5	21.2	2.5
India	753.5	6.3	8.5	4.5	19.3	2.6
Average	1456.4	12.1	16.5	4.5	<b>33.1</b>	<b>2.3</b>

Table 5.1 demonstrates that the in-transit inventory cost (inventory carrying cost) on average is 2.3% of the unit value of the import commodity. This cost represents the average cost sustained only during the cargo dwell time at the port. If this percentage is converted into the annual equivalent, it becomes about 20.3% and this could have been even higher had all the factors contributing to the inventory carrying cost been considered as detailed by Lambert et al (1998, p.164). The inventory carrying cost percentage is substantial and in some cases higher than some ocean freights (Table 3.2).

## **5.2 Handling Costs in Port**

The costs that evolve from cargo handling activities in Djibouti depend on many factors. The charges are not as such directly linked to the length of time the cargo dwells in the port area but anyhow time has an effect as well. Consider for instance the lifting of cargo within the grace period; failure to lift it within this period entails cargo transfer charges that count towards handling costs. The consignee's decision to transport cargo in containers without the need to strip at Djibouti is also another factor that has a bearing on the handling costs. There are many actors involved in the cargo handling activities; the port, customs, freight forwarders, cargo inspectors and labour companies being the main ones.

About 80% of the general cargo is imported in containers and the rest in break bulk up to Djibouti. About 85% of the containers are stripped in Djibouti for transporting to inland destinations. This makes estimating the per unit handling cost more difficult. The cost estimation will thus be based on the container tariffs. The containers are discharged and transferred to the terminal and, if not transited within the grace period, again are transferred to DDP. The container is then stripped and the contents loaded onto trucks or wagons. The handling costs will thus follow this path since; on average such cargo dwells for well over the grace period. The stevedoring and tallying costs are covered by the carriers and hence not included in this

calculation. THC is a cost covering the transfer of the container from the hook to the stacking area and is for the account of the consignees.

The total handling cost of USD 520.3 per TEU shown in Table 5.2 covers the main expenses. The cost per ton after the container is stripped equals USD 46. Finally the charge for loading on trucks/wagons is USD 5.6 making the total per ton handling cost USD 51.6. The cost per ton is denoted as  **$h_2=51.6$** . There are other costs such as delivery order charges that comprise a number of costs related to administration, documentation, communication and other services not considered here.

Table5.2: Handling cost per TEU in Djibouti (USD)

Operation	Tariffs
Landing charge –hook to stacking	197.2
Transfer to DDP	129.2
Delivery to stripping area	36.5
Stripping	112.4
Port dues	45.0
Total	<b>520.3</b>

Source : Djibouti Port tariffs, 1<sup>st</sup> edition , 2001, pp.9 to 20

### 5.3 Inland Logistical Costs

The inland transit activities commence with the departure of loaded trucks from Djibouti and end with the removal of goods from the customs clearing stations. Customs, freight forwarders, consignees, transport companies and banks are the conspicuous actors in the inland transit service. The major costs associated with this leg are:

- Inland freight/transportation cost
- In-transit inventory cost
- Handling costs

The inland freight rates are as established in section 4.1 ( $h_3$ = USD 37.0 (Table 4.1). The consignee when making transport decisions has very little choice of modalities, as trucks are the dominant means for the carriage of goods. There is no integrated transport system either, which can relieve him of the pressure for the need of additional documentation, extra time and expense. So the consignee can only look for competitive freight rates and long time relationships with the freighters.

The in-transit inventory cost ( $h_4$ ) during transportation consists of the interest cost, insurance and depreciation cost but excludes the warehouse cost. The inventory cost during customs clearance will, of course, include the warehousing cost. The total time is three days for transportation plus five days for clearing. Using the relationship shown in section 5.1:

$$h_4 = (0.7 \times 0.105 \times V \times 8/365) + (0.1 \times V \times 8/365) + (5 \times 0.58)$$

$$\underline{h_4 = 0.0016V + 0.0022V + 2.9}$$

For an aggregated average value of USD 1456 per ton of cargo,

$$\underline{h_4 = 2.3 + 3.2 + 2.9 = 8.4}$$

The average inland in-transit inventory cost per ton of break bulk cargo is about USD 8.4. The handling costs ( $h_5$ ) of break bulk cargo in the customs clearing areas are mostly limited to labor expenses for unloading/loading and the amount is about  $h_5 = \text{USD } 2.3 \times 1.15 = \text{USD } 2.7$  including 15% VAT (Table 4.3).

## 5.4 Total logistics Costs in the Corridor

The major logistics costs along the Corridor are composed of the three groups:

- Transportation cost
- In-transit inventory cost
- Handling cost
- 

The total costs are summarized in Table 5.3 using the data found in sections 5.1 to 5.3.

Table 5.3: Total logistics cost/ton in the Corridor (USD).

Cost type	$h_1$	$h_2$	$h_3$	$h_4$	$h_5$	Total
Cost/ ton	33.1	51.6	37.0	8.4	2.7	<b>132.8</b>

The average logistics cost in Table 5.3 shows that to move one ton of general cargo through the Corridor is more expensive than to transport the same unit from Shanghai to Djibouti! The same is true in terms of time: it takes less than three weeks on average to transport a unit of cargo from Shanghai to Djibouti but on average it takes more than one and a half months to move the same unit from Djibouti to its inland destination (the total dwell time in the Corridor being  $41.4+3+5=49.4$  days). The import cargo logistics cost did not even include the additional expenses up to the doorsteps of the consignee and other aspects of expenses, such as documentation and insurance which are, in fact, quite substantial. The aggregate average sea freight rate from the 102 major ports of origin per ton (from Table 3.1) was found to be USD 102. A comparison of the total logistics cost in the Corridor with the aggregate freight rate and unit value of cargo is given as 130.2% and 9.1% respectively. The message conveyed here is that the factors exacerbating costs to the importers lie essentially within the total logistics in the Corridor, and not necessarily with the freight rates, a reality that many appear to overlook.

The breakdown of the total logistics costs per ton through the Corridor is as follows:

- i. In-transit inventory cost (inventory carrying cost) is  $h_1+h_4=33.1+ 8.4=41.5$  or 31.3% ( $41.5/132.8$ ) of the total logistics cost.
- ii. The handling cost is  $h_2+h_5 =51.6+2.7= 54.3$  or 40.9% of the total logistics cost.
- iii. The transportation or inland freight is  $h_3= 37.0$  or 27.9% of the total logistics cost.

It is also worth noting here that the importer in the hinterland of Ethiopia is obliged to pay a ‘total freight’ of sea freight plus inland freight. The total freight rate to Addis Ababa is shown in Table 5.4.

Table 5.4: Freight rates/ton to Addis Ababa (USD) and percentage of value

Origin	Freight to Djib.	Inland freight	Total(t)	%=t/V
Japanese ports	156	37	192	2.0
UK ports	150	37	187	5.7
NWE ports	137	37	174	5.3
Mediterranean ports	137	37	174	5.0
Chinese ports	85	37	122	6.1
Korean ports	79	37	116	11.6
ASEAN ports	74	37	111	13.1
Gulf/Indian ports	49	37	86	9.8/11.4
Aggregate average	102	37	139	<b>7.8</b>

Source: Compiled from ESLSC and Comet tariffs

The inland freight cost is only 27.9% of the total logistics costs in the Corridor which clearly demonstrates the significance of the total cost concept in the decision making process. The inland freight and the handling costs are charges paid for services offered and the question remains whether they are commensurate with the service or not. The inventory cost, on the contrary, is a loss incurred as a consequence of inefficiencies and the ineffectiveness of the transit system in the Corridor. People generally tend to account for what is paid out but apparently overlook what they incur as a loss and this probably is the reason for the lack of focus on the total logistics costs in business planning and operations.

UNCTAD (2003, p.118) provides freight costs as a percentage of the value of import cargo for the year 2001 as:

- Africa ---12.65%

- Sub-Saharan Africa ---13.84%
- Land locked Africa--- 20.69%

The UNCTAD percentages are probably based on a much more comprehensive set of data and comparison with the freight percentage (7.8%) of the import general cargo established in Table 5.4 is not that straightforward but it does give a fairly good indication that the total freight rate is comparatively competitive. It is underlined that the competitive freight alone cannot indicate the true picture of the costs involved and the quality of service rendered. It is the total logistics cost that really highlights the true picture, and this should be the basis for comparison.

Blauwens et al (2002, p.185) divide inventory into six types:

- Cycle stock
- In-transit stock
- Safety stock
- Speculative stock
- Seasonal stock
- Dead stock

The in-transit stock is the type of inventory whose magnitude is greatly affected by the speed of movement of goods and mode of transportation. With respect to the import cargo, the parameters that determine the inventory cost as established in sections 5.1 to 5.4 are:

- The initial purchase value (v) of the commodity
- The market bank lending rate
- The warehouse tariff
- The depreciation rate of the commodity
- The dwell time of goods in passage through the Corridor

The dwell time is the most critically important variable that in turn is compressed or extended by the logistics factors. The other parameters such as the lot size of the import cargo and total distance traversed are either fixed for over a period of time or

are determined by factors outside the Corridor. Based on this scenario, it is possible to develop a mathematical model that can be applied for similar situations.

### Notations

Let  $h$  denote the in-transit inventory cost (inventory carrying cost) per ton of general cargo passing through the Corridor,

$V$  represents value/ton in USD and considered constant for a given commodity during the transit

$t$  represents the total dwell time in days of the unit cargo in the Corridor

### Model

Using relations from Section 5.1,  $h$  is proportional to  $V \times t$ ,

$h = k_1.V.t + k_2.V.t + k_3.(t-3)$ , Where:

$k_1$  is a constant for bank interest/day on tied-up capital,  $k_1=0.0002$

$k_2$  is a constant for depreciation/day,  $k_2=0.0003$

$k_3$  is a combined port and inland warehouse /storage average tariff /day,  $k_3=0.5 \text{ USD} = \{ (0.39 \times 11.4 + 0.58 \times 5)/16.4 = 0.50 \}$

$t-3$ , 3 days transportation time not included in total storage time .

$$h = 0.0002Vt + 0.0003Vt + 0.45(t-3) = (0.0005V + 0.50)t - 1.5$$

$$\mathbf{h = Kt - 1.5, \text{ where } K = 0.0005V + 0.50}$$

This relation is applied further to analyse high, average and low value cargo with different passage times through the Corridor as shown in figure 5.2.

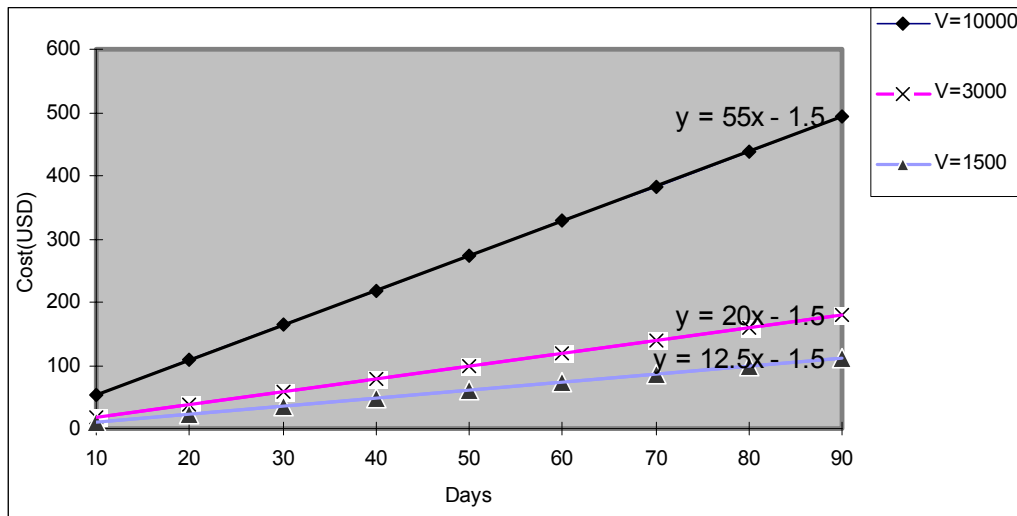


Figure 5.2: In-transit inventory carrying cost/ton cargo

Source: Annex I

The dependent variable 'y' in figure 5.2 corresponds to the inventory carrying cost variable (h) and the independent variable 'x' represents the total dwell time (t). The coefficients 55, 20, and 12.5 stand for the constant (K) indicating the variation in the values per ton of cargo (Annex I). Figure 5.2 confirms the already established time effect on in-transit inventory cost. More expensive products like the type imported from Japan have about five times the in-transit inventory cost of the average priced commodity of the type imported from India. Preparing such a graph of inventory cost versus time can serve as a guideline to determine the expected loss due to delays in the passage of goods as well as to make the right operational decisions by comparing the costs involved.

### 5.5 Value-Adding Activity

Inventory cost accrues during the transit of the import trade but the objective must be to minimize the inventory cost and raise the value of the commodity. Is value being added to the import trade during its flow through the Corridor? How is value generated or not generated during the trade flow? How can the value added, if any, be measured? These are some of the issues that are addressed in this section.

Christopher (1998, pp.110, 162) defines value-adding as any activity that contributes to the achievement of the right product in the right place at the right time. He reiterates that value-adding activities are those activities, which make the product more 'saleable', and cites that moving a pallet into a warehouse, repositioning it, storing it and then moving it out, in all likelihood adds no value but adds considerably to the total cost. Activities such as producing, packaging, transporting and improving functionalities of a product in a cost effective manner are value-adding activities. Christopher (1998, pp.110-113) also states value-adding time as time spent doing something, which creates a benefit for which the customer is prepared to pay and this is applied to measure the throughput efficiency in the supply chain (efficiency in percentage= $(\text{value-adding time} \times 100) / \text{end-to-end channel time}$ ).

Customer service and lead-time are two important logistics concepts that are closely associated with the value-adding activity. Christopher (1998, p.24) asserts that customer service is the consistent provision of time and place utility or in other words products do not have value until they are in the hands of the customer at the time and place required. Lambert et al (1998, p.41) go even further and include an extended definition:

A process which takes place between the buyer, seller and third party. The process results in a value added to the product or service exchanged. This value added in the exchange process might be short term as in a single transaction or longer term as in a contractual relationship. The value added is also shared, in that each of the parties to the transaction or contract are better off at the completion of the transaction than it was before the transaction took place. Thus, in a process view, customer service is a process for providing significant value-added benefits to the supply chain in a cost effective way.

Christopher (1998, pp.157-158) again writes that lead-time from a customer's point of view is the elapsed time from order to delivery and in today's just-in-time

environment; shorter lead times are major sources of competitive advantage. It is prudent, though, to underline that lead-time and customer's order cycle are sometimes interchangeably used but are not necessarily always the same.

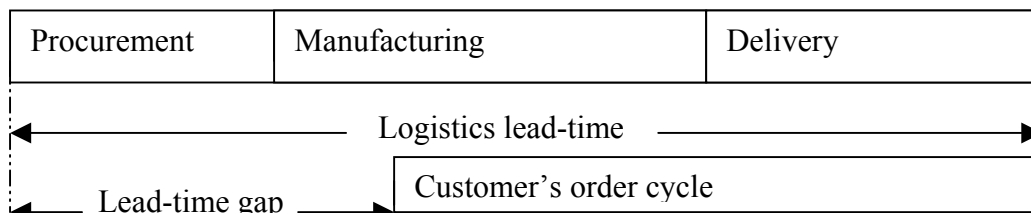


Figure 5.3: Lead-time and order cycle

Source: Logistics and Supply Chain Management, Christopher, M., 2<sup>nd</sup> edition, 1999, p.168

The concepts of value adding, customer service and lead-time are useful for identifying which activities in the Corridor really add value to the importer/consignee. Unless the value adding and non-value adding activities are identified, it remains difficult to devise ways to improve or fulfill customer needs and shorten lead-time in a cost competitive manner.

Consider a parcel of cargo belonging to a given importer and let us keep track of the movement of this parcel. After the ship carrying the parcel berths alongside Djibouti Port, there is every probability that the parcel will be discharged on any one day during the ship's stay there. The parcel will be moved from the ship to storage in the port terminal. The parcel will stay there for the grace period of 30 days. It will then be moved to the DDP. Again the parcel will rest there for another 11.4 days on average before it is loaded onto a truck for inland transport. The truck's average speed is about 30 km/hour so it is actually moving for 1.3 days. On arrival at the custom's clearing station in Addis Ababa, it will again stay there on average for 5 days before it starts moving and is transported to the consignee's premises. During the movement of the parcel from the ship to the customer's premises, no activity such as packaging, assembly, modification or any similar activity that can raise its functionality,

operability, usage or profitability has been performed except the net scalar movement to its final destination.

The value adding activities on the commodity consignment between ship and final delivery to the consignee are:

- A. Discharging and tallying
- B. Landing and transferring to storage area or warehouse
- C. Transferring to DDP
- D. Un-stuffing and loading on truck/wagon
- E. Transporting to inland destination
- F. Inspection for quality and standards

Mapping can better demonstrate the value adding and non-value adding activities.

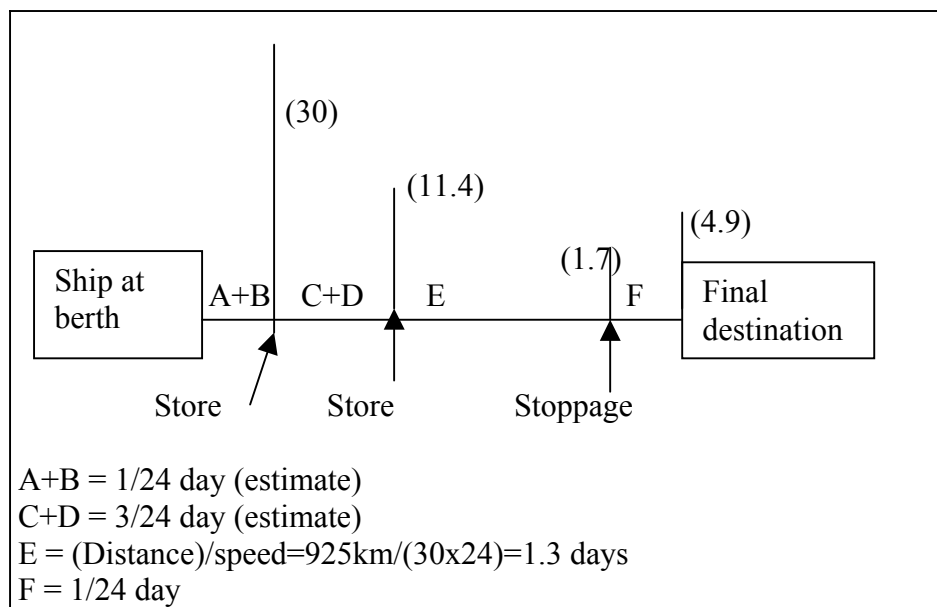


Figure 5.4: Mapping of value-added time

The throughput efficiency of the Corridor can be calculated. The total value adding time is =1.5 days and the total Corridor time = 49.4 days.

Efficiency=(value adding time x 100%)/Corridor time=(1.5 x 100%)/49.4=3.0%.

Some studies show the value adding time as low as 10 per cent in some channels but value added time in the Corridor is excessively low. This means that about 97%

of the time is non-value adding to the goods while in transit through the Corridor and hence adding only considerable cost to the importer. The trends of reduced value-adding activity and the high logistics cost during transit need to be reversed to create a competitive advantage for importers in Ethiopia. Companies that invest in Ethiopia and import inputs with the orientation for re-export can gain competitive advantages in the international market providing complaints about the late delivery of cargo and associated high costs are addressed with expediency by enhancing value adding activities and reducing logistics costs in the Corridor.

## **5.6 Risks of Inconsistency**

The importer is the transit service taker. Longer transit time, high carrying inventory cost, low value added time and inconsistency in delivery are the main features that characterize the transit service. The inconsistency and unreliability of delivery of goods at destination are mainly due to the extended time range over which the cargo is lifted from Djibouti as shown in section 3.3. The import lead-time and cycle stock at destination cannot be consistent under such circumstances and the importer faces the challenge of maintaining balanced stock.

The importers in Ethiopia may maintain different types of stock depending on the nature of their businesses. Importers of consumer goods may accumulate speculative stock, seasonal stock or cycle stock. Imports for the replenishment of stocks used in production units may be accumulated in cycle stocks. The importers who accumulate speculative or seasonal stocks may process their imports with a lesser risk compared with those who accumulate cycle stocks. The challenges they face are: what import quantity to order or, in other words, what inventory level to maintain? How to hedge the risks of inconsistency in the delivery of goods to the destination?

Consider the case where an importer has established the demand of the market X type of commodity to be a quantity (Q) every quarter (3 months). In order to meet the demand, the importer plans to replenish the stock with Q inventory level every three months with a lead-time of, say two months. However, if the consignment delivery arrives late, say by half a month, stock-out of quantity (q) prevails. The importer may then decide to hold safety stock of the same amount (q) to avoid running of stock-out if the importer believes that the shipment will not be delayed by more than half a month. The importer will find it difficult to eliminate the lead-time unpredictable variability but the option will be to adjust the safety stock depending on the variability trend as indicated in 5.4 (Q versus M= lead-time in months).

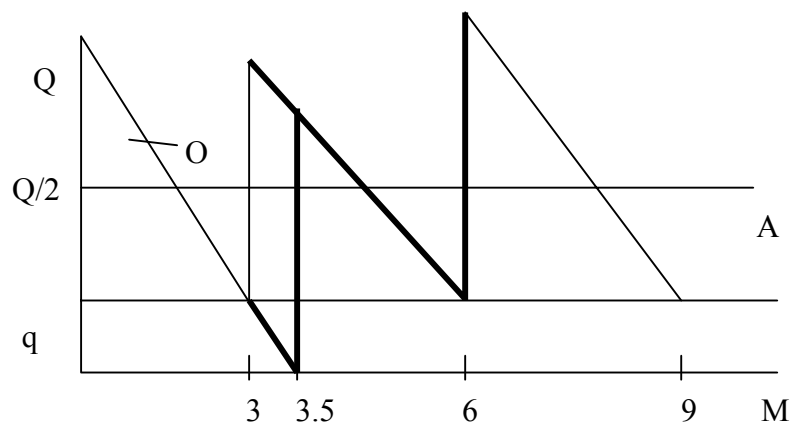


Fig.5.5: Stock level with variable lead-time

Source: Adapted from Fundamentals of Logistics Management, Lambert et al, p.119

$A = \text{Average stock level} = Q/2 + q$ ,  $O = \text{Order placement point}$

The importer would have ordered  $Q/2$  with a definite lead time of two months and replenished the stock with the zero safety stock level if just-in-time delivery had been possible to achieve. Christopher (1998, p.179) points out that just-in-time (JIT) is a philosophy as much as it is a technique based on the simple idea that no activity should commence until there is a need for it. The importer, however, is forced to

order a shipment much before the need for it exists and this leads to higher inventory costs. It also becomes difficult to apply the economic order quantity (EOQ), which is useful for balancing inventory carrying costs with order placement and processing costs. Lambert and et al (1998, p.56) advocate the importance of the consistency of service provided irrespective of the customer service level and company type or size. In other words, whether a company desires customer service with a lead time of one month or three months, 100% consistency in meeting these lead times and maintaining the order cycles is essential. This has not been achievable from the transit service under the current circumstances.

The advantages of optimizing the import lot size and its total logistics costs will be forfeited and hence the risk of over stocking leads to excessive holding costs and loss of profit. The importer in an attempt to survive in the business is prompted to sell commodities at a higher price to the consumer. The ultimate loser as a consequence of the inconsistent transit time is the end consumer in Ethiopia.

## CHAPTER SIX

### SWOT ANALYSIS

The analysis in the preceding chapters revealed the various aspects and features of the transit service through the Corridor. By identifying the strong features of the transit service provided, weaker aspects that require to be heeded, opportunities to be tapped and threats to be tackled, enables the Corridor to be explored from different perspectives. Moreover, the strengths and weaknesses from within, and the imminent opportunities and threats from outside need to be identified in order to assess their combined or individual impact on the medium and long term development of the Corridor in general, and on the transit service level provided to the importer in particular. The SWOT analysis helps to pave the way for weighing strategic options applicable to the enhancement of the transit service.

#### 6.1 Strengths

The Corridor, comprising the port and the inland transit channel, has many strong features to its credit. The strengths of the Corridor lay the basis for sustainability and future development.

**6.1.1 Stability and Dependability:** - Djibouti is located in the Horn of Africa where many areas are strife with volatility and uncertainty in the socio-political scenario. The Ethio-Djibouti Corridor has had a sound record of stability and peace. The century-old heritage and accumulated experience are sound proofs for the dependability and predictability of the activity in the Corridor. The positive record creates a conducive environment to attract traffic and international trade. The over

long time established friendly relationship and interdependence for mutual benefits of the two Governments sharing the Corridor serve as confidence building measures for the business community of the region.

**6.1.2 Strategic Geographical Location:** - The geographical location of Djibouti in close proximity to the busy international shipping lane of the Gulf of Aden and the oil rich Gulf States positions the port strategically to attract shipping services at competitive freight rates. Djibouti is a seaport and has easy access to berths up to 12 metres deep. The growing transshipment and bunkering services being provided by the port can be attributed to its strategic location. These features in conjunction with an adequate superstructure and container terminal enable the port to entertain panamax, thereby harnessing the advantages of economies of scale that these ships offer. These natural endowments equip Djibouti Port with comparative advantages over the other ports in this part of Africa. The strategic location is not only advantageous from the seaside but also from the landside as it is well positioned to serve a huge hinterland with a big population.

**6.1.3 Modern Container Terminal:** - Djibouti Port is a multi-purpose type offering a wide range of services. The port has developed a container terminal to meet the growing demand for containerized cargo. UNCTAD (2004, p.75) shows that the container traffic through Djibouti grew from 157990 TEU in 2000 to 178405 TEU in 2002. According to the report, Djibouti handled the highest container traffic in the whole of East Africa. The terminal has the necessary infrastructural, superstructural and institutional capacity to handle various sizes of ships, including panamax.

According to the Djibouti Port Authority (2003), the storage and warehouses sprawl over an area of 22 ha with a capacity of 88,000 TEUS. The free zone is 25 ha and 24 plugs for reefer containers are available.

Table 6.1: Container terminal equipment (01.05.2003)

Equipment	Quantity
Ship-to-shore gantry cranes of 50 tons	2
Ship-to-shore gantry cranes of 35 tons	2
Rubber-tyred gantry (RTG) yard cranes	6
Reachstackers 42 tons	4
Yard tractors 50 tons	22
Yard trailers	11

Source: Djibouti Port Authority (2003)

**6.1.4 Improved Infrastructures and Superstructures:** - The setting up of the Djibouti Free Zone and the renewal of many superstructures in the port area indicate the port's commitment towards development that eventually can contribute to the improvement of the transit service in the Corridor. Investment for the development of a new terminal signifies the new direction the port is looking for. The upgrading of the tarmac highway between Djibouti and Addis Ababa has also greatly contributed to improve the cargo transportation service.

**6.1.5 Competitive Freight Rates:** - The inland freight as well as the total freight rate to destinations is competitive and much lower when compared to some other inland countries in East Africa. The distance between Djibouti and Addis Ababa, where most of the cargo is destined is only 781km by rail and 925 km by road. The disadvantages that may emanate from the distance factor as in the case of say Dar-es-Salam to Lusaka (2000 km) or Bujumbura (1750 km) is minimized. According to UNCTAD (2003, p.116), a 40-foot container with a maximum weight of 28 tons by road transport from Dar-es-Salam to Lusaka and Bujumbura cost USD 4230 and USD 5180 respectively, whereas according to data from Comet, the same unit from Djibouti to Addis Ababa in December 2004 cost USD 957.

## 6.2 Weaknesses

The region comprising the Corridor largely suffers from the lack of development of modern times. Djibouti and Ethiopia are among the least developed countries (LDCs) in the world (UNCTAD, 2005). Many of the weaknesses associated with the Corridor may be related to the under developed socio-economic structural settings in the region. There is high optimism that the region is gearing up to come out of its economic doldrums, and in this respect it would be fatalistic to consider the weaknesses as chronic and non-remediable.

**6.2.1 Poor Connectivity and Integrated Transport:** - The transit services lack coordination and suffer from a low level of integration. The ship-port interface activities are separately handled from the port-inland interface activities. The demand for trucks for inland haulage of cargo is not linked with the flow of cargo from the seaside or with ships calling at the port. The ships arrive and discharge cargo without any pre-arrangement for the need for trucks. Even the very little cargo directly delivered to trucks is hardly executed in a well-coordinated manner.

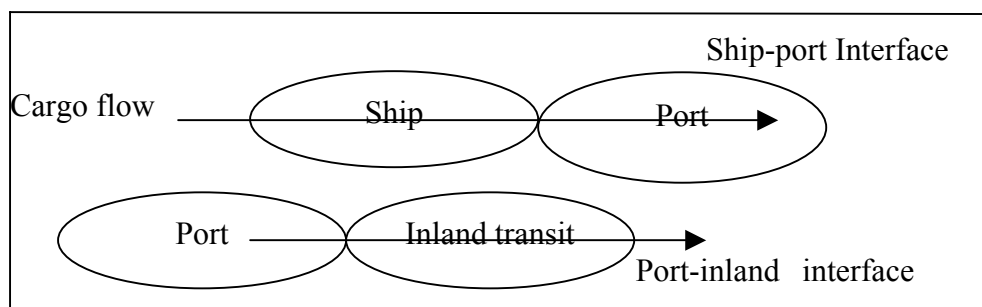


Figure 6.1: Discontinuity in port transit

Inefficient cargo operations cause delay to ships turn-round time in the port as a consequence of which cost is added to the carriers and ultimately to the importers. In fact there is no a system in place that harmonizes the seaside cargo flow with the demand for inland trucks. The Spanish State Ports Authority (2003, p.i) stresses that a port is the connecting node between sea-borne and land-based transport and its basic

function is to ensure sufficient continuity in the transport chain for the flow of cargo to be as fluid as possible. Figure 6.1, however, demonstrates the two interfaces as distinct features with a clear interruption in the flow of cargo in the transit service.

**6.2.2 Low Value-Added Activity:** - The port's development to extend its services to distribution and logistics centres is not adequate. The port is simply a conventional one providing cargo discharging, loading, warehousing and transit services. The port has some features of a second-generation type only and there is very little built-in capacity that can enable it to add value to the cargo handled by it. In fact, the port activities mainly add cost to the general cargo by way of the inventory carrying cost. The cargo delays may generate higher revenue for the port and as such could be considered beneficial in the short run but unless a win-win situation that can equally benefit the importer is created, in the long-term, the effect could be detrimental to the long-term relationship with its customers.

**6.2.3 Lengthy Transit Processes:** - The procedures and documentation needed to finalize the transit formalities both at the destination and in the port, are cumbersome, inefficient and very bureaucratic. Many documents are required to obtain a transit license and they are processed in a time consuming manner. The documents are acquired from several offices in Addis Ababa and forwarded by fax to Djibouti. Acquiring the documents themselves takes days. The fax machines in Djibouti suffer from a lot of down time and lack clarity. Thursday afternoon and Friday are not working days in Djibouti and the difference in the working days takes its toll in time. The transit processing in Djibouti again takes days. Consequently transiting of the cargo is delayed. The importer finds it comparatively easier and it takes him shorter time to finalize the procedures needed to procure the cargo to Djibouti than from Djibouti to the inland destination.

**6.2.4 Low Optimization of Road Transport Service:** - The trucks overall productivity is low for various reasons specified in section 4.1. The drivers themselves are technically poorly trained and do not have the capability to maintain

their trucks. The drivers' working conditions are poor with very limited facilities along the way. The truck depot and loading platforms in Djibouti are not adequately organized with loading and heavy lift equipment. Some trucks wait for days to pick-up their allocated loads due to the scarcity of heavy lift equipment. The trucks timing is not predictable and poor scheduling, together with inadequate coordination, makes operation of the trucks on a just-in-time model more difficult.

The trucking companies have not organized any communication and information system that can keep track of the demand and supply for transport and help in the optimization of the trucks' movement. The entire transport system, despite the upgraded international tarmac roads in the Corridor, lags behind in terms of development and expectations commensurate with the trade growth and the pressing needs to compress time to reduce inventory cost. In some situations, the concern for high transit cost becomes less important as anxiety grows due to delay in the delivery of the goods. This is true particularly for time bound project cargo and high value commodities.

**6.2.5 Lack of Harmonization and Standardization in Customs' Practice:** - The loaded trucks have to stop a number of times on the way for customs checks and inspections. At the Ethio-Djibouti border, the trucks could stop only once if the two countries were to harmonize their immigration and customs checks. But each government stops the trucks within a space of 5 kilometres on either side of the border. Similarly on the Ethiopian side, the number of stops adds to the time count of the trucks. There are limited efforts to reduce the number of stops and checking time by harmonizing these activities with the trade flow. The customs clearing procedures are not time sensitive either. Why does it take days and weeks to clear the imports? Can't the clearing be completed in a matter of minutes without compromising the tax collection and control of the cargo? All such questions raise issues pertinent to the veracity of the trade facilitation system and attitude of individuals therein. Simply there are no adequate physical and non-physical trade facilitators in place. The

present system is largely a trade barrier and it requires improvement to make it a trade facilitator.

**6.2.6 Inadequate Institutional Capacity and Public-Private Partnership:** - Who are the actors in the Corridor? The Djibouti Port and Government, customs, transporters, freight forwarders, cargo owners, and the Government of FDRE are the main actors. But who is looking after the development and productivity of the Corridor? The answer is: everybody and nobody. The actors are looking after their respective affairs and the impact on the total outcome of the Corridor is not known. The activities are fragmented with a focus on individualistic interests and collective or organized efforts are not in place. Consider the customs: its objective is to maximize revenue and strictly control cargo flow to minimize illegal trade. The truck company is interested in making as many round trips as possible to maximize income. The port has its own interests. So, who will ensure that the importer is really served well and in a competitive manner? Who is to perform the marketing activities for the Corridor? How will the performances of the Corridor be assessed without any sort of organization dedicated to these activities? The fundamental issue lies in approaching the service in the Corridor in an integrated manner. There are bilateral working groups and committees set up from both countries dealing with issues related to trade facilitation, tariffs, port dues and ways of cooperation, but they are not far reaching and adequate.

The public and private sector interaction and engagement in the matters of the Corridor are not adequate either. There are fora for facilitating contacts between the private sectors of both countries to address a variety of trade issues, but a coherent and structured partnership with the view of developing the Corridor is lacking. The public interaction with the private sector in a consistent manner does not only serve as a mechanism for feedback, but more importantly can also contribute in raising the quality of the transit service.

**6.2.7. Cultural Barriers and Low Productivity:** - Government policy issues reflect capitalism and the free market economy in the region, but the modern economic order barely has an impact on the cultural aspect at the grass root level of society. People who are predominantly leading a nomadic style of life sparsely populate the adjoining tract of land comprising the Corridor between the two countries. While acknowledging and paying due respect to the cultural heritage of society, it is reckoned that it is a very hard task to produce a highly disciplined and technically competent working force that the modern time sensitive service requires. This is actually reflected in the low quality of stevedoring service rendered in the port, the lengthy transit processing and customs checks. Much of the work force in the Corridor can hardly view time in the same way as the importer, who is squeezed by every passing day's bank interest and risk of reaching a point of stock-out. So the time sensitive trade and culture are not in conformity in this part of the region.

What can urge a person to work hard when that person naturally leads a simple way of life, without the varieties that the modern economic order can offer? Dixon (2003, p.116) wrote a comment on Maslow's (1954) and Herzberg's (1966) content theories that individuals are motivated by a 'package' of needs and wants, which they pursue. This comment truly explains the scenario here. It presupposes that the package of needs and wants is variable upon certain factors and that it acts as a driver to work. Naturally, the low level of needs by this type of society can hardly motivate its work force to produce the level of productivity that the transit service requires. The relatively lower economic development of this part of the region has created a cultural barrier with a retroactive effect of low productivity and negative influence on the Corridor's performance.

**6.2.8 Dependency on Road Transport:** - Djibouti is linked by road, rail and air to Ethiopia but about 96% of import cargo is transported by road. The railway is performing under its capacity and its market share is very low. The non-availability of a faster and efficient railway transport service between the two countries means the usual advantages of carrying capacity and speed of rail transport are lost. A train with

a modest speed of 60 kms/hour can reach Addis Ababa in about half a day (781/60 hours) thus tapping the advantage of speed, higher carrying capacity and greater frequency. Rail transport is more suitable for connecting with ICDs and CFSs and paves the way for setting up an integrated transport system. Woxenius, Roso and Lumsden (2004, p.316) assert that the dry port (ICD) concept goes beyond the conventional use of rail shuttles for connecting a seaport with its hinterland and cite the attainable benefits in ecological environment, increase in throughput without the need for physical expansion, services to shippers and quality of life. The lack of a modern and efficient railway system means the loss of those attainable benefits.

### **6.3 Opportunities**

The Corridor is not an isolated world but rather in constant interaction with the environment surrounding it and affected in one way or another by events taking place around it. Identifying and understanding the imminent events and managing those changes for mutual benefits and advantages remain a challenge for all involved in activities related to the Corridor.

**6.3.1 EDI and IT Application:** - The excessive use of paper documents used in the Corridor can be significantly reduced by the application of appropriate Information Technology (IT) and Electronic Data Interchange (EDI). The application of IT or EDI cuts the time and documentation costs. UNCTAD (2003, p.28) enumerates the main benefits of electronic equivalents to transport documents as speed, cost saving, avoiding liability from late arrival and competitiveness. It is estimated that customs procedures including delays and documentation add 7-10 % to the cost of the import trade (Donner, 2004, p.279). These costs could be substantially minimized by the use of IT and EDI for conducting business within the Corridor and its commercial environments. The adaptation to IT and EDI based commerce is not without its challenges in terms of changing the attitude of working people, adopting suitable regulations, high initial investment and obtaining the right infrastructure for the electronic system, but it is an opportunity worth taking

**6.3.2 Trade and Investment Growth:** - The Ethiopian import trade has shown a steady growth of 6% (Table 2.2) over the last 10 years and the forecast indicators look even better. More import trade implies more cargo to be handled by the Corridor and this is a challenge as well as an opportunity. The corridor transit service has to be structurally adjusted to meet the growing demand at elevated efficiency and speed. Likewise, the investment has shown an upward trend, as shown in Table 6.2 below.

**Table 6.2:** Approved investment in Ethiopia (in million Eth. Dollars)

Fiscal Year	Total investment	Foreign Capital	Foreign Capital %
1993/94	3421	438	13
1994/95	5338	505	9
1995/96	6490	434	7
1996/97	6722	2268	34
1997/98	9940	4106	41
1998/99	10060	1380	14
1999/00	14127	1627	12
2000/01	8556	2923	34
2001/02	9190	1474	16
2002/03	11962	3514	29
2003/04	21220	7205	34

Source: National Bank of Ethiopia (2005).

Table 6.2 shows that investment in Ethiopia has been generally on the rise with about a 20% average annual growth. The investment increase is correlated with import trade growth, as there arises the need to set up many projects using imported inputs. On average 21% of the total investment is foreign capital and the remaining part is financed from local sources. Both financing schemes will depend on bank financing and the pressure of time is always there. The time factor in investment may have multidimensional effects: on the one hand, the investor has to pay interest on the

borrowed portion of his capital, and on the other hand, completion of the project may be delayed thereby exposing the investor to additional unforeseen costs and even the risk of bankruptcy. Other embedded or sunk costs such as inflation are not to be ruled out either. The time factor for investment related import cargo is thus highly sensitive and it is not surprising that investors have been heard complaining about the delays in the transit service through the Corridor.

There is a widely accepted notion that the package of main factors for drawing investment is a favourable government policy, availability of skilled and cheap labour, availability of land, stability, less bureaucracy and attractive financing schemes. The investment package becomes even more attractive when it fosters the provision of logistical facilitation. For an investor, the total cost concept of logistics stands very high in the checklist for favourable criteria of investment. It is the totality of costs and time that are critically important for an investor. How much time and cost will it take to move capital and technology to start the project? How speedily can the products be accessed to the international and local markets and at what costs? How long and how much does the complete logistics chain associated with production take? It is the entire logistics chain cost and time that will eventually determine the investment decision. Development of the Corridor facilitates the flow of trade and investment complementing the growth of trade. Development through the facilitation of trade and investment is a major opportunity the actors in the Corridor have to take by providing an enhanced transit service.

**6.3.3 Trade Liberalization and Intermodal Transport:** - Djibouti has been a member of the WTO since 31<sup>st</sup> May 1995 and Ethiopia submitted an application on 13<sup>th</sup> February 2003 for membership by accession according to WTO (2005). Both countries are also members of the Common Market for Eastern and Southern Africa, (COMESA, 2005). The implications are that both countries are committed to trade liberalization and the facilitation regimes these organizations formulate. The membership to the trade organizations offers an opportunity to create a favourable

legislative framework for the development of physical and non- physical facilities for smooth trade flow in the Corridor.

The two countries being members of a number of regional and international/intergovernmental bodies formulating trade facilitation and transport regulations and recommendations and at same time both countries being parties to the regimes, offers a sound opportunity for the development of intermodal transport services and rapid trade flow. ESLSC has taken this opportunity to commence an intermodal transport service as of 2005.

**6.3.4 Railway Concession:** - The Ethio-Djibouti railway currently transports 240,000 tons of import-export cargo annually and there is a plan to give it, on concession, to private companies in order to upgrade its carrying capacity to 1.5 million tons annually (Addis Tribune, 2004). Successful completion of the concession plan is an attractive opportunity that would guarantee a long-term strategic relationship between the Port and the importing community in Ethiopia.

**6.3.5 Monopolistic Position:** - Ethiopia and Eritrea strained their relations in 1998 and all Ethiopia seaborne trade shifted from Assab Port to Djibouti Port. Until 1998, Assab was the main port for the Ethiopian seaborne trade. The strained relations between the two countries, though unfortunate, has nevertheless turned out to be an opportunity for Djibouti as its share of Ethiopian cargo increased from just 30% to more than 70% of its total cargo handled according to the Port Authority (2003). This opportunity could be a transient phenomenon and needs to be changed into a long-term advantage, despite developments in the future relationship between Ethiopia and Eritrea, by pursuing appropriate strategies with exigencies.

## **6.4 Threats**

Threats are imminent external developments that can pose dangers to a business or an industry. Opportunities at one time could be threats at another time. Only those surfacing or threats at this point in time are considered here.

**6.4.1 Alternative Corridors:** - Ethiopia, being a relatively large country and having borders with five coastal states, may opt to diversify its use of corridors. The Ethio-Kenya corridor through the port of Mombasa, Ethio-Somaliland corridor through the port of Berbera and Ethio-Sudan corridor through the port of Port Sudan are currently providing transit services for Ethiopian trade. Though statistics are sketchy, the percentage of the Ethiopian trade, which transits through Port Sudan and Berbera Port is on the rise. Even though the long established Ethio-Djibouti Corridor has many comparative advantages over the other corridors, their growing and combined share of the seaborne trade handled may ultimately pose a challenge. Djibouti is closer to Addis Ababa than the other ports but they can better serve the part of the country closer to each. The Ethio-Kenya Corridor can better serve South and Southwest Ethiopia and this is the driving factor for the Mombasa–Moyale (on the Ethiopian border) international highway project now in progress by the African Development Bank (2005). Sol Business and Economy (2005) carried the following statement by The Ministry of Roads and Public Works:

The much-publicised Isiolo-Moyale road that connects Kenya and Ethiopia is among those earmarked for feasibility and design works. The road once completed will boost communication and trade between Ethiopia, Kenya and other countries in the region.

**6.4.2 Revival of Competition from Assab Port:** - The Port of Assab has been the closest rival to the Port of Djibouti. Currently Ethiopia and Eritrea are at loggerheads and this has given Djibouti a temporary advantage. Once rapprochement is achieved, Assab could once again come back to compete against Djibouti thereby posing a challenge to the current supremacy. The current monopoly of the port service by

Djibouti could face fierce competition and challenge from Assab Port. The two ports are about 132 nautical miles apart but most of the inland transit is common for both ports. The apparent difference in the quality of services provided by the ports can thus bring a significant change to the overall transit service, which in itself is a remedy to the anomalies of a monopolized service. The Port of Djibouti has to gear up to face this threat at any time in the near future.

**6.4.3 Customer Dissatisfaction:** - The importer is the transit service taker with high expectations for competitive cost, speedier transit time and reliable delivery. The Corridor has substantially failed to live up to the expectations as a consequence of which the importers are dissatisfied. The dissatisfied customers may not currently have many alternatives and may have to continue with the poor transit service they are provided with. It is difficult to regain a dissatisfied customer who loses confidence in the service. That is why customer dissatisfaction is considered as a threat. Marketing strategies developed with the intent of retaining the existing customers of the Corridor need to identify what the customer wants or does not want in existing and possible future environments. Lemon, White and Winer (2002, p.1) advise that current models of customer retention have not incorporated a customer's future orientation and, therefore, it is necessary to uphold the notion that when deciding whether to continue a service relationship, consumers not only consider current and past evaluations of a firm's performance, such as overall satisfaction, service quality and perceived quality, but also incorporate future considerations regarding the service. This is what the Corridor is lacking at the moment.

## **6.5. SWOT Matrix**

A systematic matching of the strengths and weaknesses observed within the Corridor with those external opportunities and threats enables to develop alternative strategies, as indicated in Table 6.3 below.

Table 6.3: Alternative strategies

Internal External	Strengths (S)	Weaknesses (W)
Opportunities (O)	SO strategies	WO strategies
Threats (T)	ST strategies	WT strategies

Source: Manager's Guide to Strategy, 2003, p.108, by Formisano, R.

The SO strategies are based on the existing strengths of the transit service in the Corridor to take advantages of the identified opportunities. For instance, the strategic geographical location of the Djibouti Port alone cannot yield good results unless the port is well connected to the hinterland to take advantage of the growing import trade to the region. Likewise, WO strategies help to overcome weaknesses so that the Corridor is in a position to grab the opportunities available concurrently with external weaknesses. Consider the case of the availability of IT and EDI for application in the transit service; it can hardly be feasible without overcoming the shortage of skilled personnel in the field.

The effects of threats can be avoided or minimized by developing ST or WT strategies. Internal strengths can be successfully employed to deal with external threats by developing ST strategies. Similarly developing WT strategies can, effectively defend the possible culmination of external threats and internal weaknesses to undesirable degree. Enhancing the customer service, for example, can help to retain dissatisfied customers in the Corridor. Table 6.4 below indicates all the possible strategies in a matrix form.

Table 6.4: SWOT Matrix for the Ethio-Djibouti Corridor

<b>Strengths</b>	<b>Weaknesses</b>
S1= Stability and dependability	W1= Poor connectivity/integration
S2=Strategic geographic location	W2= Low value-added activity
S3=Container terminal/Free zone	W3= Lengthy transit processes
S4= Improved infrastructure	W4= Low optimization in road service
S5= Competitive freight rate	W5= Unharmonized customs practices
<b>Opportunities</b>	W6= Inadequate organization
O1=EDI and IT application	W7= Low productivity
O2=Trade and investment growth	W8= Dependency on road transport
O3=Trade facilitation/intermodalism	<b>Threats</b>
O4= Rail way concession	T1= Alternative corridors
O5= Monopolistic position	T2= Revival of Assab rivalry
<u>SO Strategies</u>	T3= Customer dissatisfaction
SIS2O2= Promote trade/investment	<u>WO Strategies</u>
S1S2S4O3= Develop intermodalism	W1W2O3= Focus on logistics chain
S3O3O4= Promote containerization	W3O1=Focus on customer service
S1S2O5=Ensure sustainability	W4O4=Develop integrated transport
S5O1O3=Promote e-business	W5W6O3=Build capacity
<u>ST Strategies</u>	W7O1O2=Develop human resource
S1S2T1= Consolidate position	W8O2O3=Diversify transport modes
S1S3S4T2= Identify success factors	<u>WT Strategies</u>
S5T3= Retain customers	W1W2TI= Remove bottlenecks
	W3T3= Improve customer service

## **CHAPTER SEVEN**

### **CORRIDOR LOGISTICS STRATEGY**

The logistics strategy considers the overall direction that may be pursued in the enhancement of the import trade transit service through the Corridor. The strategy can serve as a common guide to link the individual developmental plans and projects by the various actors in the Corridor. The strategic approach acts as an initiative to bring about a fundamental change of outlook and attitude to the Corridor concept. Humplick (1999, p.23) advises on the need for looking at systemic, holistic aspects of trade, transport and facilitation in addressing corridor development issues. The theme is that the Corridor issues cannot be addressed in isolation, as so many diverse factors having effect on it need to be addressed on a common platform in a common direction. It is with this perception that the logistics strategic issues are discussed and treated.

The major strategic issues and options under consideration are addressed in the following order.

- Vision and goals
- Customer service
- Institutional framework and reforms
- Port import logistics
- Intermodal transport

- Import trade transit facilitation

## 7.1. Vision and Goals

Why is it necessary to formulate a vision about the Corridor? It becomes difficult to ensure where one wants to take the Corridor to in terms of development without having a guiding motto and vision. First of all, the Corridor concept needs to be promoted as an entity that requires to be managed and handled with adequate planning and commonly adopted guidelines. At this juncture it is prudent to establish the dimension and extent of the conceptual Corridor. Dictionary.com defines corridor as: “A tract of land forming a passageway, such as one that allows an inland country access to the sea through another country.” The Ethio-Djibouti Corridor comprises all the transit services from the ship-port interface up to the final inland destinations. It is not only the port services, transportation or customs check posts, but all the activities that are performed to move the import trade between the end points. It is this holistic notion that one needs to uphold and promote so that the solutions can also be sought in that manner. Humplick (1999, p.17) emphasizes that one has to go from a transport corridor concept to a development corridor concept. It is proper to go further and adopt a vision around this idea. The vision for the Corridor can thus be taken as: “***Transform the Ethio-Djibouti Corridor to a development Corridor.***” Development implies improvement in all respects including enhancement of the transit service, rehabilitation and upgrading of the infrastructures and adoption of applicable transport legal framework with the end goal of facilitating trade flow at competitive costs.

What are the possible specific goals that could be achieved? The goals that need to be attained greatly depend on the effectiveness of the strategies and the time span of their realization. The main bottlenecks and hindrances in the Corridor have already been identified in the previous chapters as:

- Slow operation at ship-port interface for general cargo ships
- Cumbersome transit procedures and lengthy processing time

- Slow port-inland transport interface activities
- Slow inland transport

The bottlenecks and hindrances are the results of numerous intricate factors and, as such, it is difficult to find easy solutions. The aim, nevertheless, is to remove the bottlenecks and hindrances in order to reduce the transit time and logistics costs. The goals can be formulated in two phases (proposed goals):

- i. Short term: achieve a total transit time of five days
- ii. Long term: achieve a total transit time of one day

It is possible to transship general cargo from ships in Djibouti to importer delivery points in Addis Ababa within five days under the prevailing infrastructure and modes of transport, provided appropriate strategies are pursued. In the longer term, the goal has to be to achieve one-day total transiting time with the shift over to a modern railway system as the main transport mode in the Corridor.

## **7.2 Customer Service**

A customer service strategy forms the cornerstone of logistics. Who are the customers? What customer service level do they want? What customer service policies should be adhered to? How is customer service maintained? These are some of the issues the actors in the Corridor need to address. It is also worth mentioning that customer service strategic issues can be effectively addressed with the application of a proper marketing strategy.

Customer service has been defined in section 5.5 which mainly focuses on the provision of ‘time and place utility on established parameters’ in the transfer of goods and services between buyers and sellers. Lambert et al (1998, p.41) broaden the definition to include activities such as order processing or handling customer complaints. They also consider customer service as a guiding philosophy not merely an activity alone. The importers (or consignees or shippers or buyers) in Ethiopia are the customers who receive the transit service. The general cargo importers form a

segment with the importing community. The general cargo importers may also be dissected and sub- dissected into different segments by using different criteria like type of cargo they import (electronic/IT equipment, metal products, etc) or the size and frequency of the import trade or the origin of the cargo. This type of segmentation can serve to identify the particular needs of the segments in order to provide differentiated service levels.

Policies and strategies can then be developed to design the customer service level and type to be provided. The following may be included:

- I. Policy on cargo tracking from departure to delivery at destination
- II. Transparency of the transit formalities at Djibouti
- III. Standardization of cargo transit time through the port and level of consistency for each segment of importers
- IV. Standardization of inland transit time including customs clearance and consistency level
- V. Delivery of cargo in good order
- VI. Mechanisms for addressing complaints and consistency level

IT and quality management may be applied to raise the level of the transit service. It can be particularly beneficial to reduce paper documentation and create access to importers for tracking cargo. Ship departure, advance notice of ship delay, ship arrival at Djibouti, special needs for transiting, departure from Djibouti and arrival time at destination are the types of details necessary for the importers to do their share of preparations in advance for speedier transit.

The transit service for each type of segment can be designed by taking time and consistency into consideration. For instance, a customer service of 5 days of transit time with 68% consistency and 10 days of transit time with 98% consistency can be designed for two different segments of importers. The cost implications for the former is higher than for the latter but it also demonstrates that low customer service level does not necessarily mean less consistent service. One major benefit of the

higher customer service level, despite its higher cost, is its improved throughput efficiency due to the significant reduction in transit time, provided the other variables affecting it are not substantially changed.

Table 7.1: Proposed transit time and throughput efficiency.

Activity	Total time (T)	VA Time (t)	(t/T)%
Transit through port	2 days	0.3 days	2.1%
Transport to destination	2.5 days	1.3 days	52.0%
Customs clearance	0.5 day	0.04	8.4%
Grand Total	5 days	1.64 days	32.8%

Source: Refer to section 5.5

Table 7.1 indicates the major value-added activities at every stage of the Corridor and the possibility for improvement of the throughput efficiency. The value added activities appear limited and the reason for this depends on two main factors. The first lies in the practice of the importers themselves in that they opt to import finished goods, with complete packaging, ready for the consumer. Consider, for instance, the import of detergents, motor bicycles or TV sets. These products are imported in complete packaged form and directly delivered to the shelves. These products could have been imported in different forms. The detergents could have been imported in loose form and the weighing, packaging and labelling could have been made anywhere in the Corridor after importing. The TV set parts could have also been imported loose and then assembled, packed and labelled. This goes for the motor bicycle or other products as well. At least the packing, labelling and packaging could have been done after import. These activities could have added value to the imported goods thereby, saving costs and at the same time creating job opportunities for many citizens in the Corridor. The other reason for the limited value added activities lies in the non-existence of adequate distribution and logistics centres in the Corridor.

The demand for, and supply of the value addition activities do not exist in the present circumstances. Unattractive government customs duties on unassembled imported products may have acted as a deterrent. All this is to say that shortening the transit time alone is not adequate to raise the throughput efficiency in the Corridor and the setting-up of distribution and logistics centres need to involve the public and private sectors alike.

The other benefit of a higher customer service level or reduced transit time is the reduction in time dependent logistics costs. There are time and non-time bound cost factors. Port dues, handling costs and transport tariffs for containers and break-bulk are not time bound. The rates are set either by bilateral agreements or by the market itself. Inventory costs that include warehousing costs are time dependent and generally increase with the elapse of time. The inventory costs are quite substantial as depicted in section 5.4 and if the transit time is reduced to 5 days, the total logistics costs will be much lower, thereby creating a competitive advantage for the importers.

### **7.3 Institutional Framework and Reforms**

The creation of appropriate institutional capacity and reforming the existing methods by which activities are performed in the Corridor are some of the fundamental medium term strategic issues. The activities related to the transit service need to be managed, planned and handled in an integrated manner in order to attain a competitively high transit service.

There are many elements and components that are necessary for the creation of the institutional capacities and reforms. They include:

- Designating supervisory government bodies

- Human resource development
- Public and private sector cooperation
- Establishing a central trade data bank
- Implementation of enablers- ICT and TQM
- Establishing dispute settlement mechanisms
- Cultural and attitude change
- Benchmarking
- Coordination of support and technical assistance

Appreciation of the Corridor's challenges and commitment to its development by both governments are crucial. Both have to designate bodies in their respective areas with the aim of ensuring comprehensive development plans for the Corridor. These bodies may be mandated to form a common working forum for harmonizing plans, and coordinating efforts and implementing programmes.

Cooperation between the public and private sectors plays an important role in the Corridor development. Rahmatullah (1999, p.4) stresses the need to bring the institutional representation of the private sectors together on a regular basis for increased collaboration, thereby promoting a platform for envisioning, defining and formulating initiatives designed to facilitate trade. Both governments may face constraints in availing adequate resources that are necessary for development and in such situations the private sector can step in to invest by forming joint ventures.

There are a number of national, regional and international legal frameworks and rules that could be adopted and implemented in the Corridor by both governments. The content, relevance and implications of such rules and regulations have to be interpreted and legislative regimes prepared before they can be put into effect. Adequately trained personnel with sufficient know-how are required to handle such affairs. The human resource development is thus one of the capacity building measures that are necessary to accomplish the formulation of legislations. The

human resource development schemes have to address the training needs of truck operators, stevedores, freight forwarders, customs officers and all other major players in the Corridor as well.

Standardization and application of enablers like total quality management and ICT will enhance the transit service. Traffic rules, the use of languages, handling of goods and ensuring cargo safety, for example, are among the elements that show disparity and create misunderstanding in the day-to-day operation in the Corridor. There are no pre-set, commonly adopted measurement gauges and criteria that can be used to assess overall performances in the Corridor. The exchange of import trade documents between the two countries is not a simplified process due to lack of automation, poor info-structure and language barrier. The development of standards and effective application of enablers ostensibly lay the basis to build the institutional capacity.

The non-existence of a comprehensive database focusing on trade is a serious drawback and deters one from taking the initiative to conduct research into the multifaceted problems of the import business. It is difficult to appreciate the different challenges that Ethiopian importers face without analysing the trade and the various activities associated with the flow of the trade. Maintenance of a proper database and data analysts become prerequisites. The current data that are being maintained by different government bodies and private organizations are purpose-oriented and as such, are not suitable for comprehensive research work. Maintenance of the database is only however, half the solution; sustained analysis and interpretation of the data in a manner that can serve as input for policy formulation and rectification processes is the more important objective.

The institutional capacity building programme also has to address the benefits of benchmarking. There are a number of transit corridors in Asia, Africa, Europe and South America that have developed efficient transit corridors. In fact, the Ethio-

Djibouti Corridor is one of the shortest corridors in terms of actual distance, which is about two hundred kilometres from the port to the Ethiopian border, but probably among the least efficient. Benchmarking can save a lot of resources. Many intergovernmental organizations such as WTO, UNDP, UNCTAD, WB etc. can offer technical assistance, which in one way or another may be useful for the development of the Corridor and even for the capacity building programme itself. All such opportunities need to be taken with commitment and diligence.

As in any business sector, disputes may surface from time to time. Truck drivers, for example, face some difficulties in Djibouti when they fall foul of the traffic rules. The amount of money they are requested to deposit before being released on bail is simply beyond their reach. With due respect to the Sovereignty of each country, it is prudent to establish dispute settlement mechanisms based on common understanding and applicable international rules.

The Corridor is located in a region where modernization and economic progress are marginal. Traditional ways of doing things without sufficient room for change are commonplace. Attitudes and minds are set to maintain the status quo. These have direct or indirect negative influences on the quality of service provided. The underdevelopment, particularly in some parts of the Corridor, is so serious that it can be an obstacle to future development programmes. Uneven development in both countries has left this Corridor in its current state and this scenario needs to be reformed.

## **7.4 Port Import Logistics**

The Port of Djibouti lies at an important geographic location and forms the interface between the ships and the inland transport service. Humplick (1999, p.19) notes that geography and location advantages are meaningless if the hinterland infrastructure is poor. This statement has far reaching implications. It indicates that Djibouti Port, not only has to improve its infrastructure and superstructure as well as its productivity, but also has to integrate its activities with those in the hinterland. From the point of view commercial interest, Djibouti has thus a two-fold concern: Port development and hinterland development.

Currently, the increase in the revenues of the port depends on two main factors: the port tariff settings and the inefficiency of the transit service. The higher the tariffs are set, the higher will the corresponding annually attainable revenues be. The strategy of maximizing revenue by setting higher port tariffs, however, may have a long-term detrimental effect unless it is made to reflect the quality of service provided by the port. The reality, on the contrary, is that they are not commensurate with the service rendered as stated in chapter three. What is worse is that not only the port but also the entire transit service is inefficient and goods are not lifted for weeks. This inefficiency results in the longer dwell time of goods in warehouses, thereby increasing revenues for the port. It is worth underlining the obvious fact that someone's costs are someone else's revenues. The high costs of the importer are the port's revenue. High tariffs coupled with transit inefficiency are thus generating more income to the port. The problem lies not with the high revenue but in the poor service and this is what creates customer dissatisfaction and a dissatisfied customer is a threat! Should Djibouti Port allow this to continue? The answer must be an emphatic NO!

The Spanish States Port Authority (2003, p.16) states that ports have ceased to be isolated nodes for cargo transfer but have been structured as points for value added

activities to be carried out. The Authority further advises that ports must try to ensure, as their first basic strategy, that port cargo flows are as fast as possible. It is clear that the two strategies of structuring ports for value added activities and ensuring the rapid flow in the passage of goods through ports are not antithetical but rather complementary. These are the two major strategic issues that the Port of Djibouti has to ponder over seriously since at the moment neither has been achieved yet.

The Spanish State Ports Authority also specifies measures, which serve to implement the basic (cargo flow) strategy:

- Optimization of both the physical flow of goods and the flow of intelligence accompanying it
- Harmonization between the different links in the port chain (handling, transport, warehousing, etc)
- Effective integration between the different agents belonging to the Port community (shipping companies, shipping agents, etc.)
- Regulation of the activity involved and simulation of the business competition.
- The measures for the value addition strategy specified by the Authority are:
  - Organizing port spaces and infrastructures in view of logistic purposes
  - Locating and assigning spaces for logistic areas
  - Active participation of freight forwarders, logistics operators, etc in the logistics activities
  - Strengthening of the port as a critical node for managing intelligence

The two strategies are worth consideration in the medium range. Effective realization of the strategies means the port's connectivity in the import cargo flow will be faster, and at the same time value addition will justify the cost to the

importer. More important advantages for the port will be the attainment of customer loyalty and the generation of more demand for import and logistic activities.

## **7.5 Intermodal Transport**

UNCTAD (1995, p.13) defines intermodal transport as:

The transport of goods by several modes of transport from one place or port of origin via one or more interface points to a final port or point where one of the carriers organizes the whole transport. Different types of documents are issued depending on how the responsibility for the entire transport is shared.

Intermodal transport is again categorized into two types: segmented and multimodal transport. According to the same UNCTAD source, transport is segmented if the carrier that organizes the transport takes responsibility for the portion he is performing himself and issues an intermodal bill of lading, whereas multimodal transport means that a carrier takes the responsibility for the entire transport and issues a multimodal transport document.

Ricci (2002, p.2) defines intermodal transport in a more concise manner as: “the movement of goods in one loading unit, which uses successively several modes of transport without handling of the goods themselves in transshipment between the modes.” A loading unit (LU) here refers to containers, swap bodies and trailers and not to the vehicles on to which the LU is successively loaded.

Intermodal transport solutions render a number of benefits. Intermodal transport is not simply a juxtaposition of modes of transport but rather a systematic integration of the modes that results in an overall efficiency and cost competitiveness in the carriage of goods. This type of transport provides door-to-door and in many ways a one-stop shopping service. The speedy transport of goods gives the added advantage of lower inventory costs. Therefore, it becomes imperative to chart a strategy in

order to develop intermodal transport in the Corridor so as to provide sustainable improvement solutions to the poor state of the existing transit service.

What are the pre-requisites for intermodal, and in particular multimodal transport development in the Corridor? The prerequisites are complex and comprehensive but they can be viewed in two broad areas as physical and non-physical requirements.

**7.5.1 Physical Requirements:** The physical requirements include:

- Infrastructures and superstructures
- Loading units
- Transport units

Roads, railway and airports are the main infrastructures available in the inland part of the corridor. Air transport is used mainly for passengers. The rail extends up to the port warehouses and terminals, and terminates at the centre of Addis Ababa at the other end. The road similarly stretches from end to end. Both the rail and road, as far as the layout is concerned, are suitable for intermodal transport as their potential for connectivity to the ships is good. The railway, however, is very inefficient and outdated; hence the upgrading of this mode, and raising its operational efficiency, remains crucially important for the future development of intermodal transport in the Corridor. The need to pursue the early modernization of the railway system cannot be overemphasized. Currently the road stands as the most important infrastructure in the corridor. If the rail is upgraded, then it would be possible to carry higher loads at faster rates and this could enable it to meet the growing demands of the import trade. Rail transport offers the benefits of economies of scale compared to trucks and, particularly with increasing fuel prices; rail freight charges may remain comparatively competitive.

Currently there is only one operational ICD owned by Comet in Addis Ababa. The availability of more ICDs with adequate CFS/CY spaces, loading/unloading

equipment, access to road as well as rail, warehousing facilities and parking lots are basic pre-requisites. The return on investment of CDs, CFSs and warehouses may take many years and the setting up of these structures needs to be based on strategic decisions by addressing pertinent issues such as location, size, ownership, managerial/operational capability and availability of resource. An extension of modern telecommunication and high-tension power lines all the way along the Corridor is also essential in order to set up ICDs and distribution centers at any economically viable locations along the Corridor where there is access to rail. Woxenius et al (2004, p.316) explain that a consciously applied concept of dry port (ICD) can shift freight volumes from road to more energy efficient traffic modes and amongst other benefits, make the throughput of goods more efficient, and facilitate improved logistics solutions for shippers in the hinterland. The upgrading of the rail connection and setting up of ICDs/dry ports thus remain fundamental strategic issues for the Corridor and the early realization of efficient and effective intermodal transport service.

The emphasis on rail and ICD strategic issues does not in any way imply undermining the role of the road transport system. The necessary support facilities, such as vehicle maintenance workshops/garages, communication centers and warehouses, the optimization of the operation of trucks, improving the working conditions of truck drivers and raising safety standards with a view to making the road transport system more efficient, serve to remove bottlenecks standing in the way of a faster transit service. The road transport system can be made to meet the requirements of intermodal transport by stipulation of appropriate strategies for this sector.

Standardization of the transport units and loading units facilitate efficient operations. Currently the vehicles in use are of different makes, lengths, heights, conditions and axle loading capacities. Some trucks are so old and in such poor condition that they are unsafe and stop frequently due to breakdowns as a consequence of which goods

are excessively delayed from reaching their destinations. The load units are of less variation as ISO containers are in use but there is lack of repair facilities for containers. All these non-standardized variations in the road sector and poor facilities can hamper even a limited intermodal transport service that relies on the road traffic. Laying down all the relevant structural needs and streamlining the vehicle standards along with associated equipment are fundamental priorities that need to be addressed with the view of developing intermodal transport services.

**7.5.2 Non-physical Requirements:** Transport legislations acceptable to both parties form an important basis for the intermodal service. The legislation serves to harmonize and facilitate the licensing of truck operators, road transport insurance and commercial liability for goods in transport as well as the handling of trucks found with illegal trade, control of the load limits of trucks, vehicle dimensions, etc. Transport documentation, such as consignment notes, should also be harmonized.

Transport legislation could be adopted in line with rules established by COMESA (2005). The Government of Djibouti has yet to adopt many of the harmonization rules. Intermodal transport may require combined or more transport documents for the import cargo in transit. Multimodal transport, however, requires the issuance of a single Multimodal Transport Document (MTD) and in this respect availability of Multimodal Transport Operators (MTO) is presumed. The MTD will cover at least two modes of transport. This implies that a carrier that uses the ocean and road to transport imported cargo from origin to its final inland destination can issue a single MTD for the entire route. The carrier, upon issuance of such a single document, takes charge of the cargo and becomes liable as a consequence for any possible damage to or loss of cargo or delay in delivery. The multimodal transport service requires the adoption of a multimodal transport regime that will be fully acceptable to banks, customs, insurance companies and other players in the import trade. Multimodal transport, in addition to the advantages it offers, is very convenient for corridor transits and inland countries. Many regions and countries including

ASEAN, MERCOSUR, Austria and India have adopted multimodal transport legislations (UNCTAD, 2001, pp.6-18). The Corridor transit service and the importing community can benefit from this multimodal transport and it deserves due attention by the parties involved.

**7.5.3 Intermodal Transport Providers:** Who can provide an intermodal transport service if the prerequisites are met? Shipping lines, freight forwarders and road transport operators can theoretically provide intermodal transport services. At the moment, ESLSC is positioned to provide this service considering the organizational set-up, expertise and resources it can offer for this initiative. Shipping lines are not only active as sea carriers but are also engaged in inland transport including as multimodal transport operators (Ohl, 2002, p.111). ESLSC, in collaboration with indigenous road transport operators, can provide a door-to-door service by issuing a single transport document. In other words, it can provide a multimodal transport service for the carriage of goods from origin to final destination in inland ICDs, thereby offering one-stop shopping for the Ethiopian importers. It is towards this objective that strategies and efforts need to be directed.

## **7.6. Import Trade Transit Facilitation**

The entire logistics set-up and strategies for the efficient transit of goods through the Corridor at a competitive cost cannot be meaningful without incorporating strategies directed at the trade itself. There are various intergovernmental and international bodies that are, in one way or another, engaged with international trade facilitation. WTO, WCO, UNCITRAL, ICC, ISO, IMO, WB and UNCTAD are among the most prominent bodies that contribute towards international trade facilitation. Similarly, IGAD and COMESA are regional bodies working towards the same objective.

Most of the trade facilitation activities are associated with documentation and trade law. The transit service through the Corridor is still in most cases, operated in

conventional ways. Recently the Ethiopian Customs Authority has implemented ASYCUDA and preparations are also underway to establish a container-scanning facility at Mille town along the road to Addis Ababa. These are positive measures that will facilitate the speedy flow of the import trade. The approach, however, needs to be more comprehensive and holistic in which all-relevant international conventions and standards are adequately researched with the aim of facilitating the import trade. The adoption of such facilitation regimes through national or regional legislations will avail the necessary mechanism to facilitate import trade, be it in terms of documentation or legal issues.

Consider for example, that a company in Ethiopia wants to become a multimodal transport operator by issuing a multimodal transport document. The document could be of the UNCTAD/ICC type. The UNCTAD/ICC rules are subject to formal approval so if, the different institutions such as banks, customs and insurance companies do not accept the document, the entire project of setting up as a MTO faces difficulties and this would leave the Ethiopian importers at a great disadvantage. Adoption of the relevant trade facilitation conventions and standards also serve to attract foreign direct investment as this serves not only as a trade facilitation mechanism but also as a confidence building measure.

Modern IT based “paperless” documentation is widely coming into use in the international trade. Electronic bills of lading, e-commerce and electronic data interchange have got relatively wide application. The number of documents used in the Ethio-Djibouti Corridor is excessive, time consuming and costly. The use of “paperless” documentation in the Corridor could eliminate all the anomalies associated with paper-based documentation in the transit service.

The adoption and implementation of the relevant international import trade facilitation instruments will greatly contribute towards a significant reduction in the logistical costs that can be up to 30% of the price of products (Humplick, 1999,

p.23) that are incurred at the moment. Such strategies can help to change the Corridor into a more vibrant trading region in which all the parties involved will benefit in the long term.

The Ethiopian Customs Authority has also a very good opportunity to benchmark proven customs procedures and systems from other countries through bilateral cooperation schemes. The Swedish Customs (2003), for example, have *The Stairway System*. The Stairway is based on a close and trusting cooperation with the business community. The system incorporates processes in which companies are accredited to enjoy simpler, more flexible and quicker customs routines. The benefits of the Stairway system are two fold: Firstly the companies can reduce expenses and secondly the Customs Authority can dedicate its resources on other onerous and more risky areas. Advancing the customs practice of focusing on control to offering flexible routines within the legal framework with the application of ICT and proven worldwide standards is deemed a strategic choice available to the authority.

## **CHAPTER EIGHT**

### **CONCLUSION AND RECOMMENDATIONS**

#### **8.1 Conclusion**

A stratified approach was adapted in conducting this study as summarized hereunder.

I Analysis of internal and external aspects of the transit Corridor was made by discussing topics as follows:

- Import trade and logistics
- Port transit service
- Inland transit service
- Logistics costs

There are a number of revelations and results attained from this part of the study. The major ones are:

- The growing pattern of general cargo import and containerization
- The low turn round of multipurpose general cargo ships due to low stevedoring productivity at Djibouti
- The long transit time from berth to inland delivery points (on average about 50 days)
- The high total logistics costs of the import trade during transit due to the high in-transit inventory and handling costs
- The low value added activity and customer service level

- The un-stuffing of most containers at Djibouti due to the inadequate inland ICDs/CFSS and lack of intermodal transport service
- The slow and inefficient transport service
- The competitive ocean and road freight rates compared to the UNCTAD figures for other East African corridors

- II Analysis of the internal strengths and weaknesses within the Corridor as well as imminent external opportunities and threats having effects on it. Despite the long-time experience in transit service, a strategic location and stable environment, the Corridor faces a number of challenges. The Corridor has yet to transform itself into providing a competitive service that meets the demands of today. There are a number of opportunities for development and transformation but, unless they are tapped as early as possible, the Ethio-Djibouti Corridor can succumb and be forced to surrender its leading position to other competing Corridors. The wide application of IT and the development of a fast intermodal transport service can ensure sustainability of the Corridor transit service.
- III Proposition of logistics strategic options is included. The strategic options and policy issues have been initiated for consideration by those pertinent and concerned bodies. The strategic options are comprehensive and encompass a range of issues but without losing sight of the more important aspects.

The study has revealed that the transit Corridor is a bottleneck for the flow of the import trade. Had there been a well-developed transport system, the transit could have been accomplished in a matter of hours; now it is taking weeks and even months. Similarly, customs clearances could be completed in a matter of minutes instead of days. The situation now calls for the removal of the bottlenecks in the transit Corridor and making it responsive to the demands of the modern, time sensitive trade. This study may hopefully serve as an inspiration for this task.

## **8.2 Recommendations**

### **8.2.1 State level**

Foreign direct investment and the import trade could be viewed as part of globalization and outsourcing, which amongst other things, bring about the flight of capital and transfer of technology. Investment and transfer of technology play a great role in the development of the economies of countries. They are important for the realization of poverty alleviation strategies. The availability of an efficient and speedy transport system subservient to the international trade stands critically high on the list of prerequisites for attracting investment. The removal of the stumbling blocks in the Corridor and the provision of quality transit service lay the basis for investment and trade growth.

The Governments of Djibouti and Ethiopia thus shoulder the task of transforming the Corridor into a development facilitator. Exerting resources on discussing petty issues such as tariffs and port dues will not bring sustainable solutions. It requires a holistic and systemic approach with a sense of cooperation and full understanding. The development of the transit Corridor will not benefit only one country; both countries stand to reap the benefits of its development. A developed transit corridor means facilitating international trade and attracting more investment to the region, thereby improving the economies of both countries. This dissertation may serve as an initiative as it attempts to propose strategic options for the development of the transit corridor. A number of well-developed transit corridors are evident around the world and lessons could be learnt from their experiences as well. For instance, India is a very large country with a total area of over 3 million square kilometres (CIA-The World Factbook, 2005), which is almost three times as much as the combined area of Djibouti and Ethiopia. Despite the large size, the Indian international trade from the hinterland is well facilitated by multimodal logistics service with the use of a network of over 40 terminals most of which are served by rails (CONCOR, India, 2005). This example sets a good standard for benchmarking. In this context, it is recommended that the Ethiopian Government consider the setting up of a national

container logistics body that can steer the setting up of ICDs/CFSs and the development of the Ethio-Djibouti Corridor and other transit corridors leading to the different parts of the country.

### **8.2.2 Institutional Level**

- I. Djibouti Port Authority:** - The Port of Djibouti is the most important node along the import transit through the Corridor. Modern ports have the dual strategic tasks of developing port logistics and transit systems to the hinterland. The Port of Djibouti is not an exception. Adequate port logistics will facilitate the smooth and rapid flow of goods and services through the port and at the same time adding value to them. Ensuring the rapid transit of goods and services while at the same adding value mean responding to the pressing needs of shippers, carriers and development partners and, by implication, establishing a long term relationship with them. It is important that the port pays attention to this strategy. The port, however, also has to look beyond the horizon of its premises and review its level of cooperation in the development of the inland transit system. The port has to consider itself as part of the transport industry and not merely as a conventional port. It is not enough just to push the goods through the port but the port has also to cooperate in all development endeavours to ensure the fast and orderly arrival of the goods at destinations because the importers who are customers of the port are at those destinations.
- II. Ethiopian Customs Authority:** - The Authority is an important player in the Corridor. It is reckoned that in recent years there have been a number of endeavours to drastically improve the customs practices. The application of ASYCUDA, reviewing of customs procedures and commencement of automatic cargo scanning will all contribute towards making customs practices more efficient. A fundamental shift in outlook is still important by aligning customs practices with the needs of the customers and the trade. The trade requires value added and swift cargo clearing services; one-stop shopping for the cargo clearing service with time factors measurable in minutes if not in seconds is what the trade needs. The Customs Authority has to move forward to fulfil these

needs and prove that customs is not a development inhibitor but rather a development partner. The strategic options initiated in this study, and benchmarking with the practices of other customs authorities like in Sweden, are worth considering.

**III. Ethiopian Shipping Lines Share Company (ESLSC):** - The Company is well positioned to play a leading role in the development of intermodal transport systems that include door-to-door services. It is now a proven practice for liner shipping companies to extend their port-to-port transport services towards inland points in order to be able to provide a one-stop shopping service for the shippers. Generally there are two options in achieving this: through cooperation with different transport mode operators or vertical integration. Whichever way the Company opts to move, there are two fundamental issues for consideration. First of all its move towards providing an intermodal transport service needs to be made with caution in order not to create the notion of monopoly of the transit service. Trust, understanding and a sense of partnership and cooperation should prevail in this endeavour. The second point is that dependence on the road transport mode for its intermodal transport service has to be a transient phenomenon, as the road transport cannot have the speed or the carrying capacity to fulfil the needs of the anticipated service. Dry ports linked to rail transport are among the basic prerequisites for an efficient door-to door service. Additionally trade facilitation, customs harmonization and transport legislation are essential for the operation of intermodal transport and the company needs to pay special attention to their early formulation.

**IV. Road Transport Operators:** - The current state of the transport service is facing daunting tasks. Optimization of the transport system with the application of ICT and networking could render the service a leap forward. Training the truck drivers to attain more competence in maintenance and truck management along with improvements in working conditions are essential. The fundamental issue lies in shaping the right attitude towards the service. Attaining preset customer service levels and inculcating a customer oriented culture into the system need to be high on the list of priorities. Fair competition as well as

cooperation between the different operators (government and private) is important. Cooperation is necessary for creating capacity like setting up maintenance workshops, communication networks, training facilities and marketing.

- V. Freight Forwarders:** - The intermediary role played by freight forwarders is vital. They represent shippers (importers) during the transiting and clearing of cargo in the Corridor. They appear to have difficulties in attaining adequate capital, a spirit of cooperation within the industry and sufficient capacity. Unless this industry sets a common ground for cooperation, it will be difficult to create adequate capacity in terms of organization, information exchange, marketing know-how and quality management. The freight forwarders have to create a common platform for cooperation in order to position themselves to contribute towards achieving an efficient transit service.
- VI. Chambers of Commerce:** - Many of the shippers are members of chambers of commerce. This implies that the quality of the transit service through the Corridor is also the concern of the chambers. There are two areas where the chambers can play important roles. Many of the complaints aired by the community of importers about delays in cargo transit, poor service quality and high costs have grounds as depicted by this study. The chambers of commerce and its members appear to look for piecemeal solutions but they need to aim for lasting structural solutions based on thorough research and studies. This is probably a fundamental change of direction that they have to uphold. The other area of concern is their level of participation as transit development partners. They are not expected simply to be solution seekers but they need to involve themselves vigorously in the solution formulation process right from devising strategies up to the implementation stage and beyond.

The organizations listed have one common concern and that is improving the transit service through the Corridor. The solution also lies in their readiness to work in unison for the common cause and that underlines the basis for the development of the Corridor.

### **8.3 Concluding Remarks**

A high degree of care has been taken in the process of treating data involving the organizations mentioned in the study. This is an initiative with the motto of constructive engagement towards the development of the transit corridor and it deserves perusal with the same spirit. Despite limitations in the time scope of the data processed to reach certain findings, and the limited number of changes taking place in recent months, it is strongly believed that the study reflects reality on the ground. The study will hopefully contribute to initiating concerned bodies to mobilize development endeavours in the Ethio-Djibouti transit corridor.

## Reference List

- Addis Fortune. (2005). *Railway Enterprise sends Concession Documents to Bidders*. Retrieved on August 07, 2005 from the world wide web:  
[http://www.addisfortune.com/web\\_issue/news\\_004.htm](http://www.addisfortune.com/web_issue/news_004.htm)
- Addis Tribune. (2004). *Railway to be privatized soon*. Retrieved August 01, 2005 from world wide web:  
<http://www.addistribune.com/Archives/2004/09/17-09-04/Ethio.htm>
- African Development Bank. *Mombasa-Nairobi-Addis Ababa Road Corridor Development Project*. Retrieved on June 15, 2005 from the world wide web:  
<http://www.afdb.org/portal/page> (2005).
- Benson, D. and Whitehead, G. (1975). *Transport and Distribution*. Longman Inc., New York, USA
- Blauwens, G., Baere, B.D. and Voorde, E.V. (2002). *Transport Economics*. Uitgeverij de Boeck nv, Antwerpen, Belgium.
- Christopher, M. (1998). *Logistics and Supply Chain Management*. Second edition. Financial Times Professional Limited, 1998. Great Britain.
- Cia-The World Factbook. (2005). *Djibouti, Ethiopia, India*. Retrieved May 24, 2005 from theWorld wide web:  
<http://www.cia.gov/cia/publications/factbook>
- Common Market for Eastern and Southern Africa (COMESA (2005a). *Member States*. Retrieved on July 20, 2005 from the world wide web:  
<http://www.comesa.int/countries>
- COMESA. (2005b). *Regional Transport*. Retrieved on May 28, 2005 from world wide web:  
<http://www.comesa.int/transport/bg-paper-tc-strategy/view>
- Comet Transport Share company. (2004). *Performance Reports-October 2004. Storage and Warehouse tariffs 2004*. Addis Ababa, Ethiopia.
- Container Corporation of India (CONCOR). (2005). *Terminal network*. Retrieved on August 15 from world wide web: <http://www.concorindia.com>
- Dixon, R. (2003). *The Management Task*. Third edition. Butterworth-Heinemann, London, England.

- Djibouti Port Authority.(2003). *Infrastructures, Superstructures, Equipment, storage and warehouses, Projects, traffic*. Retrieved on May 26, 2005 from world wide web: <http://www.pmaesa.org/djibouti.htm> (2003).
- Donner, P. (2004). *Existing Regulations are Inadequate for Trade-What Can be Done Now?* The First International Conference on Logistics Strategy for Ports. 22-26 September 2004, Dalian Maritime University Press, Dalian, China.
- Dubai Port International (DPI). (2005). *DPI's Middle East Operations*. Retrieved on June 30, from world wide web: <http://www.dpi.co.ae/dpintl.htm>
- Formisano, R. (2003). *Manager's Guide to Strategy*. McGraw-Hill Trade, USA
- Ethiopian Customs Authority. (2004a). *Customs Cargo Clearance Manual*. Revised April 8, 2004, Addis Ababa, Ethiopia.
- Ethiopian Customs Authority. (2004b). *Study on Pre-requisites for Application of Through Bill of Lading*. Addis Ababa, Ethiopia.
- Ethiopian Shipping Lines Share Company (ESLSC).(2003).*FOB Import Freight Tariffs and Surcharges Manual*. Revised January 05, 2003, Addis Ababa, Ethiopia.
- ESLSC-MTSE. (2000). *Stevedoring Contract Agreement for the Port of Djibouti*. Signed 29<sup>th</sup> November, 2000 Addis Ababa, Ethiopia.
- Humplick, F. (1999). *What can South Asia Learn from International Experience in Transport and Transit Facilitation?* World Bank /UN-ESCAP Regional Technical Workshop. Retrieved July25, 2005 from : [http://worldbank.org/tr\\_facil/docs/frannie2.pdf](http://worldbank.org/tr_facil/docs/frannie2.pdf)
- International Maritime Organization (IMO). (2005). *Status of Conventions by Country*. Retrieved July 21, 2005 from world wide web: <http://www.imo.org/home.asp>
- Lambert, D.M., Stock, J.R. and Ellram, L.M. (1998). *Fundamentals of Logistics Management*. Singapore: Irwin/McGraw-hill.
- Lemon, K.n., White,T.B. and Winer, R.S. (2002). *Dynamic customer relationship Management: Incorporating Future Considerations into the Service Retention Decision*. Journal of Marketing. Vol.66, Jan. 2002.
- Maritime and Transit Services Enterprise, Djibouti Branch. (2004). *Monthly Shipping Reports of January to June 2004*, Djibouti.

- Ministry of Revenue (Government of The Federal Democratic Republic of Ethiopia). (2003). *Pre-feasibility Study on Cargo Scanning System for Ethiopia*, Addis Ababa, Ethiopia.
- National (Central) Bank of Ethiopia (NBE). (2003/2004). *Quarterly Bulletin*. Fiscal Year Series, Volume 19, No.4 Fourth Quarter 2003/2004. Addis Ababa, Ethiopia.
- NBE. (2004/2005). *Quarterly Bulletin*. Fiscal Year Series, Volume 20, No.1 First Quarter 2004/2005. Addis Ababa, Ethiopia.
- NBE. (2004/2005). *Investment*. Retrieved on July 20, 2005 from world wide web: [http://www.nbe.gov.et/NBEPublications/Annualnew\\_index.htm](http://www.nbe.gov.et/NBEPublications/Annualnew_index.htm)
- Ohl, K. (2002). Trade Review: *Drafting international maritime transport regimes in changing practical environments*. BIMCO, Bagsvaerd, Denmark.
- Port of Djibouti. (2001). *Tariff Manual*. First edition, September, 2001. Djibouti.
- Ramahtullah, M. (1999). *Public/private partnership*. World Bank /UN-ESCAP Regional Technical Workshop. Retrieved July 25, 2005 from world wide web: [http://www.worldbank.org/transport/tr\\_facil/docs/tg\\_partn.pdf](http://www.worldbank.org/transport/tr_facil/docs/tg_partn.pdf)
- Ricci, A. (2002). *Pricing of Intermodal Transport: Lessons Learned from RECORDIT*. Retrieved July 20, 2005 from world wide web: [http://www.imprint-eu.org/public/papers/IMPRINT%intermodal\\_Ricci.pdf](http://www.imprint-eu.org/public/papers/IMPRINT%intermodal_Ricci.pdf)
- Royal Haskoning. (2002). *Draft Final Report on ESLSC'S Kaliti ICD Feasibility Study*. Addis Ababa, Ethiopia.
- Shuo, Ma. (2004). *An Introduction to Logistics and Supply Chain Management*. Unpublished Handouts, World Maritime University, Malmö, Sweden.
- Sol Business and Economy. *Mombasa-Nairobi-Addis Ababa Corridor*. Retrieved July 13, 2005 from world wide web : [http://www.sol-sd.com/bus-econ/t17-t-1\(3\).htm](http://www.sol-sd.com/bus-econ/t17-t-1(3).htm) (2005)
- Spanish State Ports Authority. (2003). *Guide for Developing Logistic Activity Zones in Ports*. Ministerio de Fomento, Madrid, Spain.
- Swedish Customs. (2003). *The Trade Support Process: The Stairway*. Stockholm, Sweden.
- United Nations Conference on Trade and Development (UNCTAD) (1995). Handbook, *Multimodal Transport*. Fifth edition, UNCTAD, Geneva, Switzerland.

- UNCTAD. (2001). Comparative table, *Implementation of Multimodal Transport Rules*. UNCTAD Secretariat, Geneva, Switzerland.
- UNCTAD. (2003). *Review of Maritime Transport 2003*. Geneva, Switzerland.
- UNCTAD. (2004). *Review of Maritime Transport 2004*. Geneva, Switzerland.
- UNCTAD. (2005). *Least Developed Countries*. Retrieved on July 20, 2005 from world wide web:  
<http://www.unctad.org/Templates/Pages.asp?intitemID=1676&lang=1>
- Vogelaar, H. and Dijk, V.T. (2003). *Terms of Reference and Communications Strategy and Priority Investment Plan for Eastern and Southern Africa Region*. Background paper for Stakeholders' workshop, 5-7November, 2003, Lusaka, Zambia.
- World Bank (WB). (2005). *Transit Corridors*. Retrieved on June 2, 2005 from world wide web:  
<http://www.extsearch.worldbank.org/servlet/sitesearchservlet?q=transit+corridor&pst=10>
- World Customs Organization (WCO). (2005). *Conventions: Summary of Position (as of 30 June, 2005)*. Retrieved on July 20 from world wide web:  
<http://www.wcoomd.org/ie/En/Conventions/conventions.html>
- Woxenius, J., Roso, V. And Lumsden, K. (2004). *The Dry Port Concept-Connecting Seaports with their Hinterland by Rail*. The First International Conference on Logistics Strategy for Ports, 22-26 September, 2004. Dalian Maritime University Press, Dalian, China.
- World Trade Organization (WTO). (2005a). *World merchandise exports by products in 2003*. Retrieved on July 5, 2005 from world wide web:  
[http://www.wto.org/english/res\\_e/statistics\\_e/its2004\\_bysector\\_e.htm\(2004\)](http://www.wto.org/english/res_e/statistics_e/its2004_bysector_e.htm(2004))
- WTO. (2005b). *Understanding the WTO*. Retrieved July 26, 2005 from world wide web:  
[http://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/org6\\_e.htm](http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm)

## Annex I

### **Calculating in-transit inventory (carrying) cost**

Let  $V$  = Average value (USD) of a ton of imported general cargo;  $V$  is assumed constant from origin until delivery to destination.

Let  $t$  = Total dwell time of cargo in the Corridor (between berth and inland delivery point) in days.

Then using the relation  $h = (0.0005V + 0.5)t - 1.5 = Kt - 1.5$  where

$K = 0.0005V + 0.5$ , the following table is prepared in order to estimate the import trade inventory carrying cost for different value ranges and dwell time while bank interest rate, depreciation, handling warehousing tariffs and other parameters remain constant  $K$  has to be adjusted accordingly.

t	h (for V=10000)	h (for V=3000)	h (for V=1500)
10	53.5	18.5	11.0
20	108.5	38.5	23.5
30	163.5	58.5	36.0
40	218.5	78.5	48.5
50	273.5	98.5	61.0
60	328.5	118.5	73.5
70	383.5	138.5	86.5
80	438.5	158.5	98.5
90	493.5	178.5	111.0

Three graphs are available from the above data automatically generated by Excel:

- $y = 55x - 1.5$  for  $V=10000$
- $y = 20x - 1.5$  for  $V = 3000$
- $y = 12.5x - 1.5$  for  $V = 1500$

All are corresponding to  $h = Kt - 1.5 \Leftrightarrow y = ax - 1.5$  which indicates the equations are in the same pattern but having different values of slopes due to the variation in the unit value of the cargo. Such graphs can be prepared using many more ranges of cargo values for quick reference by importing community.