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Comparative Costs of Transport:

**The Northern Tier Countries of
the Greater Horn of Africa**



Gordon J. Anyango
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Foreword

Due to the limited size of their international markets, African countries need to combine their efforts, target, and subsequently transcend intraregional trade if they want to develop their economies sustainably. This necessity is recognized and accepted in theory by a number of leaders in northern tier countries of the Greater Horn of Africa subregion. So far, however, attempts at regional integration in practice — whether at the institutional or the market level — are moving at a slow pace, mainly because the sub region has, over the past few decades, experienced prolonged civil conflicts, droughts, famine, and food insecurity in the face of increasing population growth rates and deteriorating real per capita incomes.

The realization of intraregional trade and food security objectives has also been hindered because the regional transportation network is in need of urgent overhaul. Given the complementarity between the condition of the regional transport infrastructure (road, rail, sea/lake, and air) and the timeliness and cost of cargo delivery, it is critical to assess the relative costs, ease, and timeliness of transporting cargo (especially perishable agricultural exports) using conventional and nonconventional routes. It is also essential and timely to comprehensively examine the comparative costs of transportation in the subregion. This study which compliments a similar one earlier undertaken for the countries in the East African sub region is in response to that need.

The region is bestowed with eight major ports which are located in four countries namely: *Port Sudan* in **Sudan**; *Massawa* and *Assab* in **Eritrea**; *Port Djibouti* in **Djibouti**, *Berbera*, *Bossaso*, *Mogadishu* and *Kismayu* in **Somalia**. All the ports in the region are located on the Red Sea except for the two ports of Mogadishu and Kismayu in Somalia which are on the Indian Ocean. The Port of Mombasa which is currently serving Southern

Sudan and has the potential to serve Ethiopia is also of importance to the economy of the sub region. All the ports however continue to experience myriad of operational problems.

The region is characterized by a common colonial heritage in that virtually all existing transport infrastructure, roads and railways, are connected to these ports, with little or no inter country and inter regional linkages, thus orienting all the countries to trade with overseas partners rather than with neighboring countries. This phenomenon has also encouraged the sourcing of emergency food and other supplies from outside the subregion, because of the convenience and the relative cost of doing so. Commercial air cargo air transport is also restricted in the sub region, although in emergency situations air transport has been used to deliver food stuffs, medicine, and other relief supplies, major destinations being war-torn Southern Sudan and Somalia. In addition to the inadequate investment in infrastructure, and the poor condition that characterizes it, low cost transportation solutions have been clearly threatened by cumbersome customs documentation and procedures; poor quality services; weaknesses in the policy environment; institutional and regulatory bureaucracies; poor management, and lack of competition.

The use of effective transportation cost approaches can facilitate regional trade. In addition, such approaches can expedite relief food distribution to food deficit countries and greatly assist in redressing the structural grain deficit problem that is so very much a key feature of region's food security picture.

This study extensively reviews the literature, and collects and analyzes data on various aspects of transportation costs in the region, between the main sea ports in the region - to selected destinations. By so doing, the study makes a significant contribution to earlier efforts to

quantify, investigate, examine and minimize costs of transporting goods in the region. The study emphasizes that efforts should be made to achieve the low-cost transport solution in the region which is important partly because it promotes more efficient marketing systems, and facilitates regional and international trade, which in turn enhances food security. The achievement of food security is one of the sub region's key development challenges articulated by USAID and also represents a major strategic objective of various ongoing sustainable development initiatives. By emphasizing trade and underscoring the importance of lowering transport costs so as to promote food security, this study offers a new policy option that may guide USAID's work in addressing the challenges of assuring national and regional food security in the sub region. Promoting trade and sustainable development in Africa is also in the national economic interest of the United States, as such an investment enhances market development in Africa for American goods and services. Taken together, the benefits envisaged from this study will potentially contribute towards the achievement of USAID's goals of "broad-based economic growth achieved" and "lives saved, suffering reduced and development potential reinforced", as well as enhance the ability of field missions to achieve strategic objectives within their country strategies.

Mr Anyango's innovative treatment of the concept of comparative transportation cost analysis, as well as the underlying issues and problems facing the industry, is thorough and exhaustive. His extensive use of survey research data based on responses from numerous people interviewed in several countries across the sub region as part of the study's methodology is reflective of the market-based orientation of his

investigation. His findings on constraints and weaknesses of the transport infrastructure and facilities, as well as transportation rates, demonstrate the gravity of the bottlenecks that face the industry and the urgency with which Government, at the national and/or regional levels, using donor and international financial assistance must address this problem. This report is therefore a major eye opener on the subject of transportation cost analysis in the Greater Horn of Africa and should form the basis for future policy formulation, and technical and financial assistance strategies on the subject.

This report is one in a series of studies on a joint activity of the USAID Africa Bureau's Food Security and Productivity Unit in the Office of Sustainable Development, Productive Sector Growth and Environment Division (AFR/SD/PSGE), and the Regional Economic Development Services Office for East and Southern Africa (REDSO/ESA). Funding for this study was provided by the USAID Greater Horn of Africa Initiative (GHAI).

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I am also grateful to senior officials and other employees of relevant transport organizations and associated industry stakeholders in the subregion who provided valuable information and data for this study — among them, Chemin De Fer Djibouti- Ethiopia (CDE), the Eritrean Ports

Authority (EPA), Port Autonome International de Djibouti (PAID), the Berbera Port Authority (BPA), officials of customs departments in the region, and clearing and forwarding agencies. Finally, I wish to acknowledge the information received from European Union and World Food Program Missions in Ethiopia, Eritrea, and Somalia and from officials of the United Nations Development Program (UNDP) Somalia Ports Rehabilitation Project; I note the keen interest they showed for the successful completion of the study.

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Glossary of Acronyms and Abbreviations

AAIN	Africa Action in Need
ACO	Asphalt Concrete Overlay
ADRA	Adventist Development and Relief Agency
ADT	Average Daily Traffic
AEC	African Economic Community
ASD	Asphalt Surface Dressing
BPA	Berbera Port Authority
CDE	Chemin De Fer Djibouti-Ethiopien
CARE	Cooperation of American Relief Everywhere
CCF	Centre for Containerised Freight
CFAs	Clearing and Forwarding Agents
COMAD	Compaigne Maritime et de Manutention de Djibouti
COMESA	Common Market for Eastern and Southern Africa
DPPC	Disaster Preparedness and Prevention Commission
DPV	Duty Paying Value
EC	European Community
ECU	European Currency Unit
EFTC	Ethiopian Freight Transport Corporation
EIRR	Economic Internal Rate of Return
ERP	European Reform Program
EPA	Eritrean Ports Authority
EPLF	Eritrean Peoples Liberation Front
ERITRUCKO	Eritrean Truck Owners Share Company
ERRA	Eritrean Relief and Rehabilitation Agency
ERSTAS	Eritrean Shipping and Transit Agency Services
ERA	Ethiopian Roads Authority
EU	European Union
FDJ	Djibouti Francs
FHI	Food for Hunger International
FOB	Free on Board
FTO	Freight Transport Organizations
GDP	Gross Domestic Product
GET	General Ethiopian Transport
GHA	Greater Horn of Africa
GNP	gross national product
GoE	Government of Ethiopia
GoS	Government of Sudan
GTZ	German Agency for Technical Cooperation

IDA	International Development Association
IGAD	Inter-Governmental Authority on Development
IMF	International Monetary Fund
ISA	Islamic Development Bank
KFW	Kreditanstalt für Wiederaufbau (Reconstruction Loan Corporation of the Federal Republic of Germany)
KRC	Kenya Railways Corporation
LC	letters of credit
LTCD	Logistic Transport and Coordination Division
MPOC	Mogadishu Port Operations Company
MT	metric tons
MTSC	Maritime Transport Services Corporation
MTSE	Maritime and Transport Services Enterprise
NATRACOR	National Road Transport Corporation
NCA	Norwegian Church Aid
NGO	nongovernmental organization
NPA	Norwegian Peoples Aid
NPV	net present value
OAU	Organization of African Unity
OLS	Operation Lifeline Sudan
PGE	Provisional Government of Ethiopia
POL	Petroleum, Oils, and Lubricants
PSI	pre-shipment inspection
PTA	Preferential Trade Area
PVO	private voluntary organization
REMATCO	Red Sea Marine and Trading Company
RRC	Relief and Rehabilitation Commission
RSDP	Road Sector Development Program
RTA	Road Transport Authority
RTC	River Transport Corporation
SADC	Southern Africa Development Community
SAF	Structural Adjustment Facilities
SIDA	Swedish International Development Agency
SPC	Sudan Ports Corporation
SPLA	Sudanese Peoples Liberation Army
SRRA	Sudan Relief and Rehabilitation Agency
SRC	Sudan Railways Corporation
STEM	short-term emergency measures
TEU	twenty-foot equivalent unit
TGE	Transitional Government of Eritrea
TOR	Transport Operation for Refugees

TRC	Tanzania Railways Corporation
UNTACDA	United Nations Transport and Communications Decade in Africa
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UN-ECA	United Nations Economic Commission for Africa
UNHCR	United Nations High Commission for Refugees
UNOSOM	United Nations Operations in Somalia
UNICEF	United Nations Children Fund
USAID	U.S. Agency for International Development
WB	World Bank
WFP	World Food Program
WTOE	World Transport Operation for Ethiopia/Eritrea
WVI	World Vision International

Currency Equivalents

(As of August 1996)

US\$1.00	=	145.5 Sudanese Dinars
US\$1.00	=	6.3 Ethiopian Birr (Ethiopia)
US\$1.00	=	7.2 Ethiopian Birr (Eritrea)
US\$1.00	=	177 Djibouti Franc
1FrFr	=	35.60 Djibouti Franc
US\$1.00	=	1,500 Somaliland Shillings
US\$1.00	=	57 Kenya Shillings
US\$1.00	=	1,000 Uganda Shillings
US\$1.00	=	7,000 Somalia Shillings

1. Introduction

PURPOSE AND SCOPE OF STUDY

The purpose of this study is to present a comparative analysis of in- and intra-country transport costs for cargo movement in the Northern Tier countries of the Greater Horn of Africa (GHA) subregion — namely, *Sudan*, *Eritrea*, *Ethiopia*, *Djibouti*, and *Somalia* (see map, Figure 1.1). This is as a basis for understanding the actual direct and indirect transportation costs related to domestic and transit traffic. Accordingly, the scope of the study covers identification of the current domestic and transit transportation routes that facilitate the movement of import and export cargo, and which therefore link the capitals of the various countries to the seaports in the subregion, including Port Sudan (in Sudan), Massawa and Assab in Eritrea, Djibouti, Berbera and Mogadishu in Somalia. Linkages with other ports such as Mombasa in Kenya has been inevitably considered in as far as it handles some transit traffic to these subregional countries. The study also considers the financial and economic costs associated with the movement of different types of cargo, specifically general cargo and containers, plying the identified routes. In addition, the study provides an analysis of the impacts of transportation costs and related issues on food security, trade, and investments. A similar study undertaken in respect to the East African Subregion, “Comparative Transportation Costs Analysis in East Africa,” was completed in January 1996.

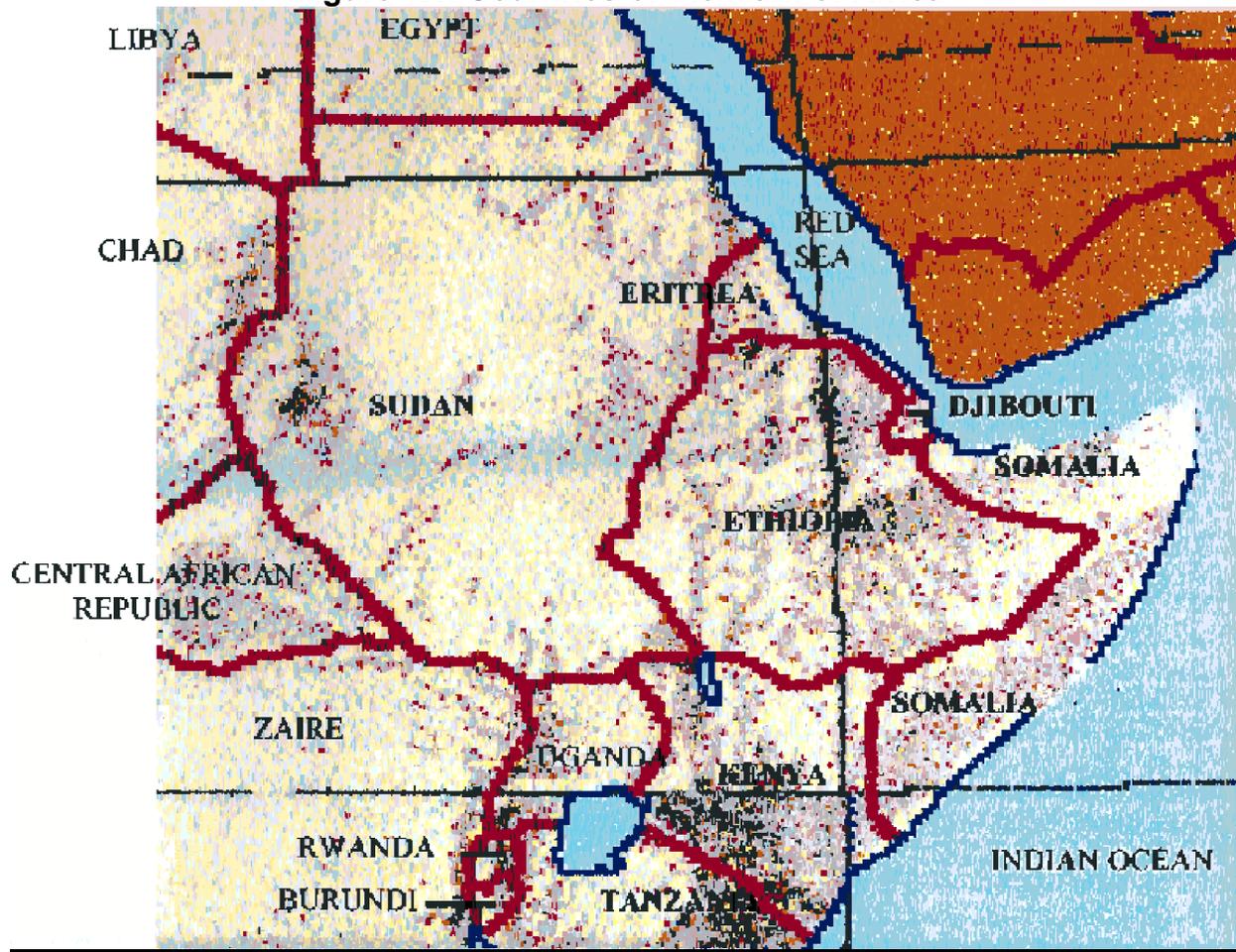
In practice, the condition of infrastructure within a given country and distances involved are the major determinants of transport costs, but there are always other indirect costs associated with movement of cargo that increase as bottlenecks become more pronounced. For example, a country such as *Sudan*, which has its port located far away and isolated from the main agriculturally rich areas of the country, will have higher transport costs

than, for example, Eritrea, where distances are shorter and if bottlenecks exist that restrict the free movement of traffic, additional indirect costs will be incurred. The GHA region has become a metaphor for or synonymous with hunger and famine and hence is characterized by food aid/imports. Available information indicates that, in the past, poor transport infrastructure and facilities, coupled with limited capacity, have adversely affected food distribution from the ports and surplus regions to the food deficit/consumption areas, thereby occasioning distortions in food prices and availability, even within neighboring regions or countries.

Sudan's history since independence from Britain in 1956 has been characterized by abrupt change of governments and violent internal conflicts. For all but 11 years since independence, the successive governments in Sudan have faced political rebellions and civil wars from the largely Christian and Animist believers in southern Sudan. These have adversely affected the condition of existing transport infrastructure due to lack of maintenance. Although the Government of Sudan (GoS) acknowledges that infrastructure, especially roads and road transport, have a central role to play in the overall development of the vast country, transport costs have remained high. Specifically in *Southern Sudan*, much of the existing transport infrastructure has been destroyed through bombings and mining of roads and bridges. This has not only resulted in raising transport costs but also led to the dependence on airfreight, as roads are totally impassable in large parts during the rainy season. Indeed, southern Sudan has virtually no locally based transport industry (no commercial cargo exist) and depends on the trucking capacity from neighboring countries.

Eritrea, the most recently independent state in Africa, suffered greatly during the liberation war with Ethiopia, and her transport infrastructure was

Figure 1.1. Countries of the Horn of Africa



largely destroyed, neglected and lacked additional new investments. Since the 1960s the country has been a net food aid recipient and/or importer, therefore transport linkages are an important aspect in the government's effort to ensure food security. Indeed, poor roads and communication have in the past interfered with food distribution from the ports and food surplus areas (such as Gash Setit) to the food deficit areas. More than 70 to 80 percent of the population depend on some form of food assistance, and, thus, the cost-effectiveness and availability of transport linkages is an essential element of the country's national objective of assuring long-term food security, increased trade and regional cooperation.

Prior to the independence of Eritrea in 1993, *Ethiopia* owned the ports of Massawa and Assab.

It also had alternative access to the international world through the port of Djibouti. The construction of the port of Assab in the 1950s was principally achieved for strategic and economic reasons, not to rely on a foreign government or country's port to serve as her primary gateway. However, with Eritrea's independence, Ethiopia has become landlocked and must now depend on a foreign port, which has prompted the government to sign bilateral agreements with Eritrea over the use of the port of Assab.

However, the increasing port congestion at the port of Assab, particularly during the bunched arrival of food imports, which have come to characterize Ethiopia, has increasingly brought into focus the need to use other regional ports such as Djibouti in a bid to ensure cost effectiveness and

transit security. The port of Assab is currently operating at or near capacity and lacks adequate storage facilities. Consequently, in September 1996, the governments of Djibouti and Ethiopia signed bilateral accords to facilitate the use of the Port of Djibouti by Ethiopian shippers and also lifted the then-existing restrictions on commercial road transport between the two countries.

Similarly, the lack of maintenance of the existing road transport infrastructure has led to the deterioration of roads in the country. The situation is worsened by the difficult topography in Ethiopia, which makes it difficult for food to be distributed cost-effectively from the ports and food surplus areas to the food deficit zones, thus exposing large sections of the population to food insecurity as distortions in food prices become prevalent.

The economy of *Djibouti* is basically dependent on the service sector. As such, the government, in acknowledgment of the poor agricultural resource potential of the country has expended lots of its resources in modernizing its transport infrastructure, particularly the port, in a bid to capture and take advantage of its strategic location, midway between the three continents — Africa, Europe, and Asia. The government of Djibouti is keen to attract more Ethiopian cargo through the port of Djibouti as their main gateway, as was the case prior to construction of Assab, and intense negotiations are said to be underway, based on the premise that the port of Assab no longer has the strategic advantage that Ethiopia had relied upon.

Somalia has been a merchant state trading with its neighbors along the East African Coast and the Arabian Gulf since time immemorial. As such, transport linkages — especially the ports — have traditionally played a significant role in enhancing and sustaining trade links. However, the outbreak of civil war in 1991 has severely disrupted the economic base and commercial links. Most of the transport infrastructure has either been damaged, looted, or suffered neglect or lack of maintenance, which has had adverse effect on the country. Currently, the ports of Mogadishu and Kismayu are inoperational. The war has also intensified food insecurity as agricultural production was disrupted in the limited production regions such as lower

Shebelle and increasingly, much of the population now depends on humanitarian assistance.

METHODOLOGY

It should be clearly understood that in practice the costs of transport are not solely determined by distance. Many factors contribute to the high level of transport costs, including, among others, the lack of adequate transport facilities, inefficient transport management, restrictive transit regulations, transit security of cargo, complicated customs and documentation procedures as well as poor communication systems between the main stakeholders involved in cargo transportation. These issues have an indirect but clear impact on transport costs: As they become more difficult, overall transport costs rise. Therefore, in order to understand the magnitude of transport costs and related issues in the region, the study team made an extensive review of the literature on the various aspects above and also visited many organizations and institutions in the subregion, collecting information and interviewing people in these organizations and institutions. The complete list of all literature reviewed, published and unpublished is included in Appendix I. Similarly, the list of all people interviewed is provided in Appendix II.

The total transport costs as defined in this study thus include the direct costs of transport and charges demanded by the transport firm used and the indirect costs of transport, which include additional costs of handling, processing, administration, and other unofficial costs incurred by the shipper. These latter charges also include the costs of increased transit times, which restrict the efficient use of scarce resources. The fact that the study team identified roads and rail as the major transport mode in cargo haulage in various countries and routes in the region warranted their being given priority consideration during the transportation cost analysis exercise.

Therefore the costs to the shipper are identified as comprising port handling charges, clearing and forwarding charges and freight charges and the cost of interest charges on the capital locked up in

goods in transit. Even though nobody pays such charges when funds are not borrowed, the consignee will forego the earning power of the capital locked up in the form of goods on their way to the market. It is assumed that normal transit time exists for both imports and exports, and that, as transit time becomes longer and over and above the normal, costs are incurred by the shipper by way of extra interest charged by banks for the period equivalent to the “longer than normal” transit time and through capital erosion related to inflationary trends in the region. However, in the case of the cargo passing through the ports of Djibouti and Assab, which are in direct competition with each other, a further analysis that includes seafreight from various overseas ports has been undertaken so that the total transport costs include sea freight and inland transportation costs.

ORGANIZATION OF THE STUDY

This study is organized around nine chapters, excluding this introductory chapter. In chapter 2, a regional economic analysis of the countries in the GHA and the historical regional transport perspec-

tive are presented. In chapter 3, a comparative analysis is made of the main existing transport infrastructure (ports, railways, roads and air). In chapter 4, a review of the existing regional transit routes and in-country linkages, considering the ports as the gateway, is presented, which also covers the existing conditions of the routes. In chapter 5, an overview of the regional transport industry is presented, while in chapter 6 a detailed description of clearing and forwarding procedures for cargo are presented. In chapter 7, a detailed analysis of the freight rates/costs of cargo movement along specified routes is discussed, while in chapter 8 a detailed comparative costs analysis by different routes and modes for different categories of cargo is made. In chapter 9, a review of the impacts of the poor regional transportation linkages, agricultural production, trade and food security, and how improvements of such constraints would impact on the same issues, are discussed. In chapter 10, we summarize our conclusions, indicate policy implications, and make our recommendations mainly on how the regional transit and domestic transport cost can be minimized.

2. Regional Economic Perspective

OVERVIEW

The Northern Tier countries of the Greater Horn of Africa have experienced severe economic problems, especially during the last decade. The economy of the subregion has been affected on the one hand by climatic problems, especially recurrent droughts, which have contributed to an overall decline in agricultural production, and on the other hand by unfavorable world market prices for agricultural produce, both of which have led to negative balance of payments positions and declining gross domestic products (GDP) for the various countries. In addition, the economic problems of the subregion have been exacerbated by civil strife, which has been experienced in a number of countries: in *Ethiopia* and *Eritrea* until 1993 and currently in *Somalia* and *Sudan*. In the following sections, we provide a detailed economic perspective for each country in the subregion.

SUDAN

Sudan, the largest country in Africa, covers a total area of 2.5 million square kilometers (sq km). The war of attrition in the south has divided the country with an imaginary line comprising the north, which is under the central government, and the south, which is experiencing rebellion by the Sudanese People's Liberation Army (SPLA). The population of Sudan was projected to reach 29.4 million people by 1990 according to available figures, with only 18 percent of the population in urban areas and the remaining 82 percent in rural areas. The average population growth rate during the 1980-1990 period was 3.2 percent per year.

Sudan has lacked continuity in its economic policy, with the successive Islamic regimes pursuing different economic policies including a western style system. It is reported that the current

regime has declared its intentions to Islamicize the economy again. The economy of Sudan therefore has been erratic. Specifically, the economy of Sudan has been experiencing a steady deterioration due to interdependent structural problems. This has resulted in a decline in real per capita income, balance of payment difficulties, and inflation, among others. Specifically, the war of attrition being fought in the South has continued to drain scarce resources and halted development in the south.

Total GDP at constant prices has shown an inconsistent but downward trend, between 1983 and 1985 registering a significantly negative real change of -12.8 percent in 1984/85. However in 1985/86 and 1988/89 the economy experienced strong growth of 9.7 percent and 8.4 percent, separated by a two-year period of low (3.0 percent in 1986/87) or negative growth (-2.7 percent in 1987/88). Estimates of income per capita was US\$285 in 1988/89. However, the chaotic state of the economy raises doubts over the reliability of the economic data, which in any case remains scanty and outdated.

Agriculture has been the economy's most erratic sector: From being the main contributor to the GDP at 40 percent in the 1980s, it declined to only 27.7 percent in 1991. However, it is still vital for the production of food crops, raw materials, and providing a livelihood for 80 percent of the population. According to available information, the sector was employing 61.4 percent of the population in 1989. The contribution of the industrial sector, although significantly lower than that of the agricultural sector, at current prices grew marginally from 15.7 percent of GDP in 1986 to 16.9 percent of GDP in 1991, but this represented a significant real GDP growth rate of 15 percent in 1991. Similarly, the services sector grew from 30.4 percent in 1986 to 52.1 percent in 1991 at current prices, but the contribution of this

sector only recorded a meagre 0.2 percent real GDP growth rate by 1991.

Sudan has been characterized by deficits in her foreign trade since the 1973/74 oil crisis. The country's wide trade fluctuation and deficit reflect a fall in domestic production and world prices for its major export crops — cotton, gum arabic, sesame and livestock. Available figures indicate that trade deficit grew from (Sudanese Pound) S£ -673.5 million in 1984, when exports free on board (FOB) were S£ 817.3 million and imports (CIF) were S£ 1,490.3 million, to S£ -2,350.4 million in 1989, with exports FOB being S£ 3,023.0 million and imports CIF being S£ 5,373.4 million. Principal imports include oil and oil products, manufactured goods, machinery and equipment, transport equipment, and medicine and chemicals.

The SPLA, which began the civil war in 1983 and intensified in 1991, currently control much of southern Sudan. The war in the South has further taken a different dimension with some factions splitting from the mainstream SPLA mainly on ethnic lines. Consequently, southern Sudan is isolated from the central regime, a situation that has led to the proliferation of nongovernmental organizations (NGOs) and private voluntary organizations (PVOs) which provide much-needed humanitarian assistance and which mostly operate from Kenya and Uganda. In practice, the NGOs currently working in the region, particularly western Equatorial province, which is the bread basket for the entire southern Sudan region, have started agricultural rehabilitation programs aimed at initially attaining self sufficiency in food production and progressively some surplus production. The surplus production of maize, sorghum, millet, and groundnuts are bartered with basic items that are not available locally, such as blankets, clothes, household wares, soap, salt, and farm implements, among others. In the absence of any form of monetary exchange, the barter program is being used to jump-start the moribund local economy. It is also being used to facilitate the development of a normal market system for surplus food production.

The NGOs participating in the barter program include Cooperation of American Relief Everywhere (CARE), World Vision International

(WVI), and Africa Action in Need (AAIN), which use their own resources but also receive allocations for barter materials from United Nation bodies such as the World Food Program (WFP). These NGOs source all the commodities for bartering from either Nairobi or Kampala. Initially, some of the NGOs bartered directly with the farmers at various bartering centers, but, due to the overwhelming demand for barter goods, the NGOs changed the direct system and now use the agricultural cooperatives under Sudan Relief and Rehabilitation Agency (SRRA). The NGOs have set up numerous bartering centers (shops) and have helped in the renovation or building of stores for temporary storage of barter produce. All the NGOs transport the surplus bartered to their respective central stores: CARE has stores in Tambura and Ezo, AAIN in Maridi and Lasu, while WVI has stores in Yambio and Nzara. The barter rates are fixed by the NGOs but generally are very low because they are highly subsidized. The subsidy involves the NGOs distributing more barter items per unit of grain obtained. However, the NGOs are moving toward decreasing the subsidy applied to barter items.

The barter programs provide incentives that encourage local farmers to increase food production, as these bartered items are earned by the recipients rather than received as handouts. It is reported that the NGOs and PVOs are scrambling to respond to the need and level of demand they have generated. A major concern therefore is for the organizations to procure adequate barter goods at all times and sufficient transport. This is not only to maintain the program but also to respond adequately to all the farmers' expectations (for upcoming harvests and future production expansion) with surplus as initial goods of trade within the existing economic background.

ERITREA

Eritrea which has a total area of 124,300 sq km is the most recently independent state in Africa. After a liberation war lasting 30 years, Eritrea emerged as a strategic country in the Horn of Africa

principally because of its two sea ports of Massawa and Assab. The liberation war, however, led to the flight of Eritreans into exile, and, out of the current estimated population of 3.5 million people, 1 million are refugees in neighboring countries while 500,000 are internally displaced.

The evolution of the economy of Eritrea has been shaped by the different occupation forces, including Italian, British, and Ethiopian rule. Other factors include the strategic locations of its seaports of Massawa and Assab along the coastline and its rich agricultural land.

Italians focused investment mainly in developing basic infrastructure and agriculture to support the needs of Italian settlers and provide raw materials for export to Italy. This involved the establishment in the 1920s of plantations for coffee, cotton, sisal, fruits, and vegetables. Similarly, manufacturing plants also were established, particularly for light consumer goods and also in the construction industry, such that by 1930 there were some 730 companies producing industrial goods in Eritrea.

In 1941 the British assumed control of Eritrea, but their policy was largely to serve the war efforts of the time. Due to the conditions of the war, imports from Europe to East Africa were disrupted. As a result, Eritrean industries filled the gap by supplying the markets. This period therefore witnessed expansion of the economy. In 1952 Eritrea was federated with Ethiopia, and this transferred the control of Eritrean industrial infrastructure to Ethiopia.

In 1974, when the military junta — “Derge” — assumed power in Ethiopia, the economy and political axis shifted to Addis Ababa. The new regime adopted a command economy with private sector assets, including land, housing, and industries, including those in Eritrea being nationalized. The centrally planned policies were further exacerbated by recurrent droughts and famines, lack of foreign exchange to import vital inputs and intensification of liberation struggle. At independence, therefore, Eritrea inherited enterprises that were nonoperational, an agricultural sector that was severely disrupted, and damaged infrastructure.

Since independence, Eritrea has embarked on

a program to rehabilitate both its economy and collapsed infrastructure through a liberal macroeconomic policy, with the government’s role restricted to being regulatory. The government has implemented a number of important institutional, legal and economic policy reforms. Specifically, tight fiscal policies have been adopted, while the tax regime has been liberalized. As a result of substantial reductions in the tariff rates on imports, from a maximum of 230 percent to 50 percent, Eritrea has become a relatively open economy. As Eritrea still uses the Ethiopian Birr as its legal tender, the exchange rate is determined by the foreign exchange auctions in Ethiopia.

The Eritrean economy is relatively diversified in comparison to other Sub-Saharan African countries. By 1992, the share of agricultural output was 28.5 percent, while the share of industry including manufacturing accounted for 29.2 percent of GDP. Services, including trade, transport, and communication, accounted for 42.3 percent of GDP in the same year.

To date, Eritrea remains dependent on food imports and humanitarian assistance. In years of poor rains, about 80 percent of Eritrea’s population relies on food aid. However, it is understood that, since 1995, the government adopted a policy that strongly discourages donations of direct food aid. In its place, it is urging donors to provide cash to enable it to purchase food in the international market based on local needs at competitive prices. Income per head is highly approximate and currently assumed to be between US\$70 and US\$150, making Eritrea one of the poorest countries in Africa if measured by conventional GDP criteria.

Currently, fisheries are regarded as Eritrea’s greatest untapped resource, and the 1,000-km coastline has potential for sardine, anchovy, shrimp and lobster. The sector is targeted as a priority investment, with the potential to provide employment and much-needed food supplies and export earnings.

Eritrea experiences significant foreign trade especially with Ethiopia, which is its largest trading partner. Principal exports include live animals, food, and manufactured goods, while main imports are fuel, food (cereals), machinery,

and transport equipment. Eritrea, however, experiences an unfavorable balance of payments, with exports in 1994 being Birr 182 million, while imports were Birr 927 million.

ETHIOPIA

Ethiopia, with a total area of 1,224,000 sq km, is the only landlocked country within the study area since Eritrea's independence in 1993, which effectively cut off its direct access to the seaports of Massawa and Assab. Currently, Ethiopia has an estimated population of about 57 million, which is expected to grow at a rate of 3.4 percent between 1996 and 2000. It is reported that the high rate of population growth, particularly since the 1960s, has defeated any efforts to raise the standards of living of the majority of the population.

Economically, Ethiopia is classified among the least-developed countries in the world. Despite being endowed with natural resources, Ethiopia has suffered economic setbacks, primarily due to policy and technical problems, especially after the adoption of command and socialist policies in 1974. Prior to this, the economy achieved moderate expansion between 1965 and 1973, with the GDP growth averaging 4 percent per annum. The centrally planned policies introduced in 1974 and the intensification of the liberation war with Eritrea and other natural factors such as droughts led to poor economic performance and decline that reached a critical stage by 1987/88. Accordingly, by 1989/90 the GDP reflected a negative growth of -1.5 percent, which worsened to -7.7 percent by 1991/92, during which period the income per capita was US\$110. However, the economic decay due to the war and policy errors are now being reversed. Since 1992/93, GDP growth has improved and was estimated to be 5.6 percent during 1994/95. This trend has continued, such that in 1995/96 the GDP growth rate stood at 7.7 percent.

The economy is still dominated by agriculture, accounting for 54.4 percent of the GDP in 1993/94, up from 48.5 percent in 1988/89. The enhanced share is attributed to contraction of industrial

output since 1991 (11.6 percent in 1993/94) and improvements in prices for farmers' produce and increased harvests. The services sector accounted for 34.0 percent of GDP in 1993/94.

Since 1991, the government has introduced market-based reforms to improve the economy. To this end, a full Economic Reform Program (ERP) was launched in 1992 with Structural Adjustment Facility (SAF) support from the International Monetary Fund (IMF). Specifically, the government has undertaken devaluations, tariff and transport reforms, and deregulation of agricultural marketing.

In general, the economy has been characterized by low agricultural productivity, a small industrial base, shortages of skilled manpower, and weak infrastructure. The failure of agriculture to supply the country's food needs has led to dependence on food imports both in the form of aid and direct purchases. Available information indicates that as of 1993 the total work force was composed of 22.6 million people, while 30 percent of the population was unemployed. However, 80 percent of the work force were self-employed peasant farmers.

Ethiopia has been characterized by trade deficits: Export earnings stagnated between 1979 and 1985 but fell by 20 percent in 1985, mainly due to drought. In 1987, there was another sharp fall of 22 percent as famine relief diverted transport facilities into food aid distribution. Foreign trade imbalance stood at Birr -1,056 million in 1989 but improved in 1991 to Birr -582 million, due to collapse in export earnings which restricted imports. However, in 1994 increased demand for consumer and capital imports due to economic policy reforms pushed the deficit to Birr -3.6 billion. The main export earner is coffee, which accounted for 57 percent of foreign exchange from merchandise exports in 1993/94. Livestock products are the second largest export commodity, mainly hides and skins, accounting for 13 percent of export earnings in 1993/94.

DJIBOUTI

Djibouti, with a total area covering some 23,200 sq

km, is one of the smallest countries in Africa, with an estimated population of 550,000. It is located around the Gulf of Aden in the Red Sea, and its principal asset is Port Djibouti, which is located at the capital city with the same name. Djibouti is effectively a city state, with some 75 percent of the population living in urban areas and about half in Djibouti city itself. The population growth rate is reported to be about 3.1 percent per annum.

The economy of Djibouti is characterized by very limited natural resources and very little production of goods. Unfavorable natural conditions and meagre resources have created an economy based essentially on tertiary activities, namely transit trade and services centered on the port and railway.

At independence, the economy was severely affected by the closure of the railway, because of the Ogaden war between Ethiopia and Somalia in 1977/78, and has never fully recovered. The economy was further affected by droughts in 1983 and 1987, leading to large losses of livestock. The civil war in Somalia has further exacerbated the vulnerability of the economy: Djibouti was a transit point for substantial trade with northern Somalia towns and their hinterlands.

The structure of the GDP has remained uniform since independence. The agricultural sector contributed 2.8 percent in 1993, while industry contributed 21.2 percent, with services accounting for the remaining 76.0 percent. Public administration remains the largest service sector, followed by hotels and restaurants. Djibouti is rated as a lower- to middle- income country, with GNP per head of US\$780 as of 1993. Real GDP change in 1993 was 0.3 percent. The trade balance for Djibouti has been characterized by substantial deficits due to few natural resources. Exports are largely re-exports but still fall short of imports. The foreign trade deficit from 1989 to 1993 stagnated at an average of US\$-170 million annually. Livestock products, including live animals, hides, and skins, constitute main originating exports after re-exports, while principal imports are consumer goods and food.

SOMALIA

Somalia is located at the tip of the Horn of Africa and has a total area of 630,000 sq km. Somalia's population was estimated to be about 10 million in 1990. After independence in 1960, Somalia pursued a capitalist economic policy; however, when the military came to power in 1969 there was an abrupt change, with the new government committed to socialism and the creation of a substantial public sector. The socialist economic policies were affected, however, by severe drought in 1974/75, which led to diversion of resources to famine aid. The economy was further affected by the Ogaden war with Ethiopia in 1977/78 and exacerbated by another drought during 1979-80. The above factors heralded trouble for the Somalian economy, with the GDP falling by an average of 3 percent annually between 1978 and 1980.

The government of Somalia in 1981 introduced an economic stabilization program supported by IMF, but this did not salvage the economy and was abandoned in 1987. Inflation at this time was high, with the Somalia shilling (SoSh) changing at 160:1 US\$, from SomSh 6.3:1 US\$ in 1981.

Throughout the 1980s, Somalia witnessed economic decline, with real GDP growth rate falling from 8.1 percent in 1985 to -1.6 percent in 1990. The gross domestic investment as a percentage of the GDP declined from 43.0 percent in 1980 to only 16.9 percent in 1990. Similarly, in the same period, private sector investment as a percentage of GDP declined from 21.9 percent to 2.8 percent, while the public sector ratio fell from 21.1 percent to 14 percent.

The economic mainstay is agriculture, which contributed 65.5 percent of the GDP in 1990. The contribution of other sectors in order of significance included services (25 percent) and industry (8.7 percent). Agricultural production is largely nomadic pastoralism based on goats, sheep, camels and livestock. There is also cereal cultivation, mainly maize and sorghum, in the Shabelle, Juba, and Bay regions. In addition, banana and rice production (through irrigation) is a major agricultural activity in the above regions.

Since 1991, Somalia has been gripped by clan rivalry and internal strife. This has internally displaced 450,000. An additional 800,000 were exiled at the height of the war. Currently, there exists no unitary government in Somalia. However, loose regional clan federations — “governments” — have been established, especially in the North-Hargeisa and Bari, putting a form of administration in place. The situation in the South is, however, still volatile. Notwithstanding, attempts at political reconciliation continue, with talks between faction leaders to encourage community cohesion and forge a national consensus.

The intervention of United Nations Operations in Somalia (UNOSOM) in 1992 halted the human sufferings and self destruction of Somalia but did not achieve much in the political and security fronts. NGOs played a particularly vital role in providing urgently needed humanitarian assistance during UNOSOM’s tenure. However, since UNOSOM withdrawal in 1995, insecurity has become prevalent again, particularly in the south.

Principal exports from Somalia include livestock, mainly camels, goats, sheep, and cattle, to the Middle East. Others include bananas and fishery products, mainly lobsters and shrimps, also to the Gulf states. The principle imports include manufactured products, nonfuel primary products, and fuel products. The balance of trade has been negative; in 1991 for example, Somalia’s exports were worth US\$50 million, while imports during the same year were worth US\$238.1 million, with a deficit of US\$-188.1 million.

In practice, the agricultural potential has been adversely affected by the clan infighting. Currently, international and local NGOs are undertaking a rehabilitation program to revive the agricultural sector. Adventist Development and Relief Agency (ADRA), for example, is rehabilitating the irrigation canals in Johwar and also establishing a cost-recovery scheme for the project’s sustainability. The project is expected to benefit farmers’ mainly in the production of rice and livestock-keeping.

HISTORICAL REGIONAL TRANSPORT PERSPECTIVE

The transport industry in the region has evolved out of a colonial orientation that focused the development of transport infrastructure toward creating corridors to provide links with Europe. This was to support the economic agenda of the day whereby the colonized states were meant to provide raw materials for industries abroad and markets for finished products. Accordingly, the region is characterized by limited internal linkages, with main corridors linked to international gateways (seaports) that serve foreign markets. The existing transport industry thus is centered at the major regional seaports, namely Sudan, Massawa, Assab, Djibouti, Berbera and Mogadishu. In the following paragraphs, we present a detailed historical transport perspective for each country.

Sudan

The transport history of Sudan dates back to the period of Arab merchants, who operated dhows transporting merchandise from the interior to the Gulf markets through Port Sudan. Later, a railway was built, starting in 1897 under the Anglo-Egyptian condominium linking the port to the interior. Most of the track that was laid before 1930 served to provide access to the port for export of raw materials to Europe. To further enhance the exploitative focus of the railway, feeder branch lines were extended to other parts of the country, mainly to Nyala, reaching in 1959, and Wau, reaching in 1962. Prior to the late 1960s the railway remained the principal transport infrastructure in Sudan. The existing roads by then acted more as feeders to the railway.

In the early 1960s, the 187-km road from Khartoum to Wad Medani was constructed being the first paved road in Sudan. Later, in the early 1980s, construction of the current main road in Sudan, connecting Port Sudan to Khartoum via Kassala, Gedaref, and Wad Medani, was completed. While additional connections from Khartoum have been constructed, the road alongside the railway from port Sudan currently constitutes the principal transport infrastructure in

Sudan.

The main internal connection to the south was the Khartoum-Juba road which served the internal trading interests of the Arab merchants from the north with southern communities. In addition, the water transport along the Nile connected Khartoum and the south. However, currently the linkage between the north and south has been cut off, making southern Sudan a landlocked part of the country relying on linkages through Kenya and Uganda.

Eritrea, Ethiopia and Djibouti

The transport history of Eritrea, Ethiopia and Djibouti cannot be separated due to the overlap in the three countries' transport evolution. In practice until 1993 when Eritrea became independent, it was merely a province in the former unitary Ethiopia. Accordingly, Eritrean transport history and industry is largely a legacy of its occupational past, including Ethiopian rule. Its transport industry has been largely centered on the Port of Massawa. Similarly, the transport industry in Djibouti has traditionally served as the gateway to Ethiopia, particularly before 1977. Despite the decline in its significance, the transport system in Djibouti today is still transit-oriented, particularly to Ethiopia. The port of Assab, completed in 1957, has remained, however, the main import/export gateway for Ethiopia since the Ogaden war in 1977/78.

The railway linking Djibouti and Addis Ababa, which was constructed between 1897 and 1917, formed the initial focus of the three countries' transport system. The then-Franco-Ethiopian railway, opened to traffic in 1917, remained the principal route, responsible for about 90 percent of Ethiopian cargo for the next 60 years. This reinforced the position of the port of Djibouti, which became an important bunkering port, handling about 3 million MT of fuel annually, particularly prior to the closure of the Suez Canal in 1967. Likewise, the major transport systems in Eritrea were the port of Massawa and the Eritrean Railways, constructed by the Italians since 1887. The first section, covering 25 km, was opened for traffic in 1888. The railway reached Asmara in December 1891 and the terminus at Agordet in

1928. Thus, up to 1930, the Franco-Ethiopian Railway and Eritrean Railway were the main transport facilities serving the three countries.

Alongside the railway construction during the Italian occupation of Eritrea, a large network of all-weather roads were constructed, connecting to the port of Massawa as early as the 1930s. The port also was expanded and Africa's largest aerial ropeway (telepheric system) constructed in the period between 1935 and 1937, connecting Massawa and Asmara, extending for some 71.8 km, encompassing eight stations between Asmara and Massawa. It is reported that, between 1936 and 1939, about 10,700 MT had been transported by the telepheric system. During the same period, there were some 850 registered transport companies operating in Eritrea. The British further strengthened the transport infrastructure with substantial expenditure on the port, air bases and storage depots during their occupation, since 1941. By 1952, when Eritrea was federated to Ethiopia, it had a remarkable transport industry.

The outbreak of the Ogaden war in 1977, which lasted until 1978, marked the beginning of the decline of the use of the Djibouti port. Specifically, the flow of cargo through the port was adversely affected by the uprooting of the railway tracks, which cut off the link to Addis Ababa. This was compounded further by the inferior state of the road from Djibouti to Ethiopia. To secure an alternative route to the sea, the Ethiopians embarked on a program of upgrading and expanding the port of Assab, which had earlier been constructed in 1957. The port of Assab thus became the main import-export corridor for Ethiopian cargo, accounting for about 90 percent of the traffic. Notwithstanding the above developments, the Djibouti port has remained a major transshipment port in the region and in 1995 handled some 206,316 MT of transshipment cargo.

The transport history of the three countries underwent further changes with the independence of Eritrea in 1993 which however cut off Ethiopia's direct link to the seaports, making it a landlocked country.

Transport infrastructure and industry within Ethiopia and Eritrea were affected adversely by the liberation struggle and unfavorable economic

conditions. This was further exacerbated by poor government policies, mismanagement of resources and poor institutional frameworks that created overlaps in jurisdictional responsibilities, among others, and resulted in the neglect and poor maintenance of transport infrastructure.

Somalia

Somalia has had an extensive history of transport industry in the region, especially maritime. With a coastline extending some 3,100 km, Somalia is bestowed with four major ports, namely Berbera, Bossaso, Mogadishu, and Kismayu. In addition, there are other minor ports, such as Merca, Brava, and Elman, among others. The maritime transport supported Somalia's trade with its East African neighbors, the Gulf and Arabian peninsular countries. Somalia also has held a significant historical transport position linked closely with Ethiopia and Djibouti.

Somalia merchants using dhows provided a vital transport link between the coastal towns from the earlier part of this century, ferrying indigenous

goods to the Gulf region for exchange with other exotic products. Similarly, with respect to inland transport, Somalia has a long history of trade route corridors that connected its major ports to inland destinations. These corridors were in the earlier days famous for camel caravans that penetrated the interior of the region transporting goods.

Currently, Somalians are some of the leading known transporters in the region, operating large-scale trucking businesses. The dominance of the Somalians in the road transport industry evolved from two reasons: on the one hand the long history of inland transport activities of the merchants, which provided a solid base on which the industry grew, while on the other hand the absence of any other form of inland transport system within Somalia. Somalia has no railway system, a situation that not only has shaped but also has provided impetus for the growth of the road trucking industry: This factor also led to the emergence of excess internal capacity and consequently the diversification to international markets, hence the current prevalence of Somalia transporters in the region.

3. Existing Transport Infrastructure

INTRODUCTION

In this chapter we discuss the existing transport infrastructure that serves both domestic and transit traffic in the subregion, which has been noted to be in less than satisfactory condition. In *Sudan*, the existing transport infrastructure contrasts significantly with the vast size of the country. The deterioration of the economic conditions during the recent past years, including a decline in foreign finance and management problems, have reflected adversely on the entire transport sector, particularly roads, which are the dominant transport infrastructure. Accordingly, the existing transport infrastructure has deteriorated dramatically to become one of the major obstacles for economic revival in the country. In *Eritrea*, the more than 30 years of war have left the previously excellent transport infrastructure in a severely dilapidated state. Ports facilities and the road network require extensive rehabilitation to provide a basis for improved cost-effective movement of cargo as an incentive to the development of export-oriented agriculture and industry.

In *Ethiopia*, the transport infrastructure is also insignificant in relation to the size of the population and geographical area of the country. In *Somalia*, since 1991, the previously well-developed infrastructure has virtually collapsed due to damage, neglect, lack of maintenance and general insecurity. In *Djibouti*, the existing transport infrastructure is geared toward international traffic. This is attributed to a lack of adequate investments, poor resource management and poor policies of past governments. (Figure 3.1 map shows the extent of the existing transport infrastructure in the region).

PORTS INFRASTRUCTURE

The region is bestowed with eight major ports, which are located in four countries, namely *Port Sudan* in Sudan; *Massawa* and *Assab* in Eritrea; *Port Djibouti* in Djibouti; and *Berbera*, *Bossaso*, *Mogadishu*, and *Kismayu* in Somalia. All the ports in the region are located on the Red Sea except for the two ports of Mogadishu and Kismayu in Somalia which are on the Indian Ocean. The Port of Mombasa, which is currently serving southern Sudan and has the potential to serve Ethiopia, is also of importance to the economy of the region. These are discussed in detail in the following sections.

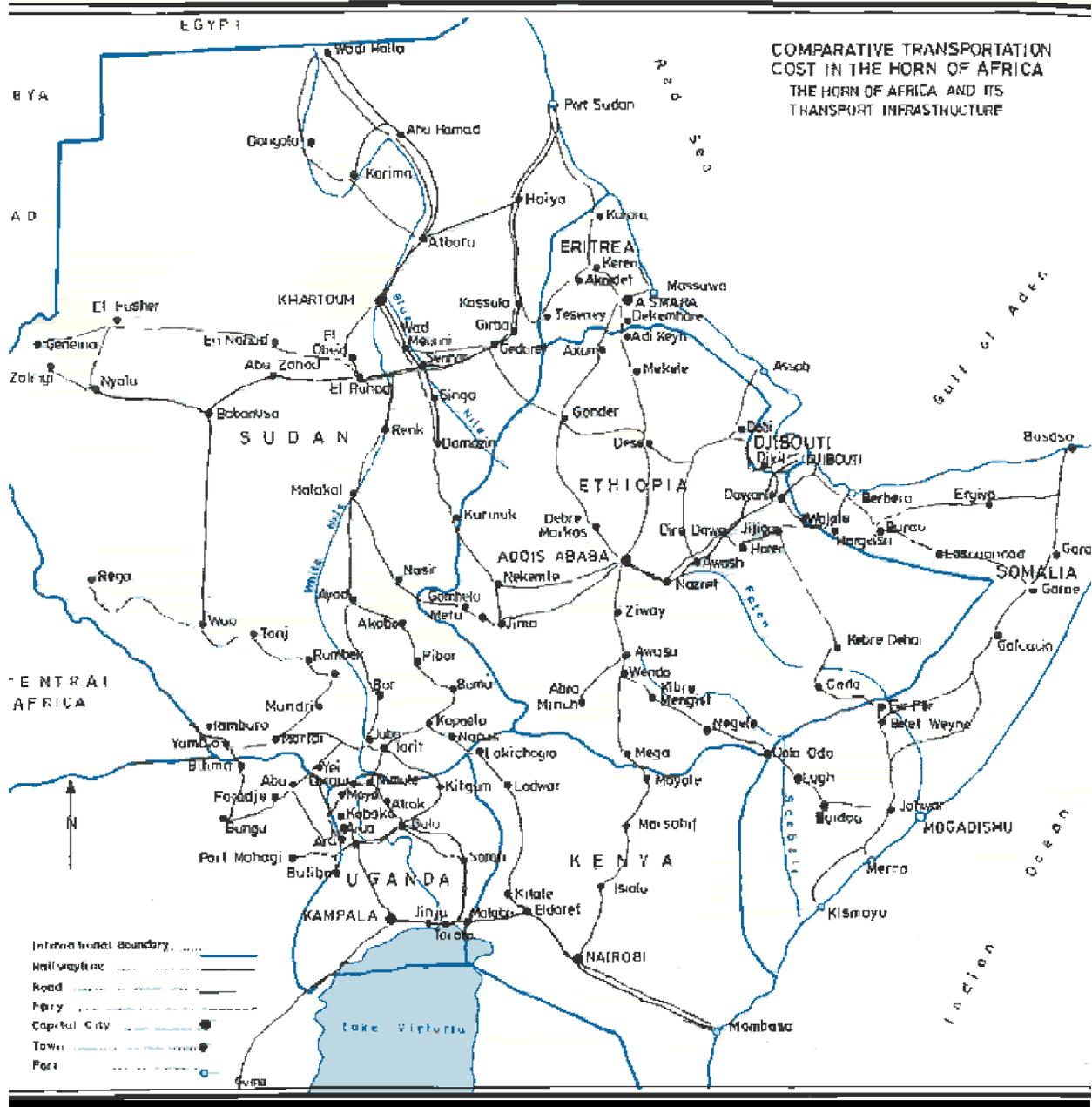
SUDAN

Port Sudan

Port Sudan is the country's only deep-water port, built by the British in 1905 on a narrow inlet from the Red Sea. The port is located within the city of Port Sudan, one of the country's principal commercial centers. It is situated some 600 miles from the capital city of Khartoum and is much further from the major agricultural centers of the country. With a World Bank loan, the port's theoretical capacity was expanded to 8 million MT in 1984. However, the actual port capacity is restricted by the small size of the harbor, and inefficient labor-intensive cargo handling operations. The port is connected to the rest of the country by a narrow gauge rail line and a road highway via Khartoum.

Port Sudan is divided into two quay areas, north and south, with a total of 14 berths. The north quays have 10 berths, one of which is permanently occupied, while the south quays have four berths: one of which is for silo vessels only and the remaining three for container vessels. The port has

Figure 3.1. The Horn of Africa and Its Transport Infrastructure



no lighters readily available for work, as the existing ones are reported to be undergoing maintenance and repairs.

The key handling equipment at the port includes 59 cranes, which comprise 35 shore cranes, 20 mobile cranes of 15 to 20 MT capacity, and four mobile

cranes of 50 to 100 MT capacity; 91 forklifts, which comprise 50 with a capacity of 3 MT, 28 with a capacity of 8 to 15 MT, and 13 with a capacity of 25 to 35 MT. The port also has 55 rollers, of which 19 are for containers, and four trailers. Notwithstanding, there remains a shortage of equipment, while the existing equipment is characterized by low availability due to

poor maintenance and lack of spare parts. Thus, to a large extent cargo handling operations remain labor-intensive and inefficient. Container-moving equipment, forklifts, and trailers do not cover all vessel discharge operations. Specifically, there is only one crane used for container vessels, which implies that container carriers use their own. There is however a large vacuvator used for loading and offloading bulk grains into the 50,000-MT silo facilities. In practice, the average offloading capacity for bulk vessels, such as those of the World Food Program, is 1,350 MT per day but can go as high as 2,000 MT at the silo and container quays.

Port Sudan's warehouse and storage areas cover a total of 58,240 square meters (sq m). Warehouses in the port are owned by the private sector, mostly individuals. In addition, there are firms that exclusively specialize in storage operation in Sudan. These include the Emirates and Sudan Investment Corporation, with 34 warehouses, each with a 12,000-MT capacity.

An alternative port called *Port Suakin*, which is about 65 km to the south of Port Sudan, was re-opened in 1991 and has a capacity to handle 1.5 million MT of cargo per year. It is understood that about a fifth of Port Sudan's traffic is being diverted to the new port. Indeed, the current policy of the GoS is to restrict all passenger liners to Suakin, thus effectively leaving Port Sudan to exclusively handle cargo ships.

ERITREA

Port Massawa

Port Massawa, which is located in the northern part of Eritrea, is an open access port to the Red Sea. It lies some 115 km from the capital city of Asmara and is served by a road highway. Previously, the port also was served by a railway and a rope-way, but these were destroyed during the liberation war. The port, which serves the import/export terminus, suffered substantial damage during the liberation war, which has severely limited its capacity to handle containerized traffic. However, the Government of Eritrea has embarked on a reconstruction and rehabilitation program to restore the infrastructure at the port.

The port has six commercial berths, all of which are operational and can handle sea vessels with a port basin breadth of between 137 and 176 sq m and with an allowable draft range of between 4.9 and 9.1 sq m. The port is also reported to have other specialized berths, which include one cement jetty, one salt jetty, and two oil terminals.

In 1996 the port of Massawa had five shore cranes with a capacity range of 5 to 6 MT; eight mobile cranes (10 to 100 MT), and 27 forklifts (3 to 10 MT). Other equipment includes one lifting truck (35 MT); two bagging, double-line units; 32 tractors, and 82 trailers. The port has benefited from much-needed equipment assistance from the WFP, which in the period between 1991 and 1994 was equivalent to US\$6,007,188. This assistance included a wide range of port equipment, comprising shore cranes; stevedoring and fumigation equipment; pilot boat and harbor tug; tractors and trailers. The other port equipment procured under the assistance comprised pallets, conveyor belts, transceivers and transformers, mechanical bagging machines, building materials, tire tubes, and spare parts.

Port Massawa's total storage capacity as of 1994 stood at 100,000 MT, of which 49,500 MT are open area, 30,000 MT are open sheds, and 20,500 MT are enclosed warehouses. The enclosed warehouses are used primarily for the storage of high-value cargo. However, additional space in the open areas can easily be secured.

Port Assab

The port of Assab, located on the southern coastline of Eritrea, is an open access port, which gives it a strategic advantage in terms of accessibility by large ships. The port has seven commercial berths capable of handling ships of drafts up to 11 sq m and a port basin breadth of 210 sq m. In addition, there are five specialized berths, including two Ro-Ro berths; one cement jetty; one salt jetty; and one oil terminal. Six of the port's berths are currently used for commercial shipping, while the remaining one is used for berthing tugs and harbor craft.

In 1996, the Port of Assab had 18 shore cranes (with a capacity range of 6.2 to 20 MT) and seven mobile cranes (of capacity range between 6 and 150

MT). Other port equipment comprised 29 forklifts (3 to 5 MT) and four lifting trucks for containers (with a capacity range of between 24.5 and 36 MT). Most of the equipment at the port is designed to handle break bulk general cargo. The port of Assab also has benefited from equipment assistance donated by WFP between 1991 and 1995 worth US\$3,336,693. The equipment includes pallets, forklifts, conveyor belts, tractors, grabs, and satellites. In addition, the port received an assortment of spare parts and tires for varied port equipment, such as cranes, tractors, and bagging machines.

The Port of Assab has a total storage capacity of 280,000 MT in the port area, which includes closed warehouses (45,000 MT); sheds (20,000 MT), and open areas (215,000 MT).

Ongoing Initiatives

The Eritrean ports of Massawa and Assab in 1996 were undergoing improvement and rehabilitation under the Ports Development Project. Phase I of the project concerned the physical rehabilitation of the port of Massawa, including reconstruction of the container berths, which had been bombed during the war. The project covers the supply of cargo handling facilities and equipment for both Massawa and Assab. These include forklifts, mobile cranes, ship handling crafts, tugboats and container handling facilities.

Similarly, at the port of Assab, there are plans to construct additional berths, numbers 13 and 14, exclusively for containers. The overall objective is to expand the capacity of the Assab Corridor to serve the region. Feasibility studies, technical designs and tender documents were prepared in late 1990. It is indicated that the project will increase the container traffic capacity by 30 percent to between 70,000 and 100,000 20-foot-equivalent units (TEUs) per year. In addition, it will reduce the waiting time for vessels, loss and pilferage at the port and substantially reduce the costs of transporting containers to Addis Ababa, hence cheaper imports and exports for Ethiopia.

DJIBOUTI

Djibouti Port

The port is situated in the Gulf of Tadjourah and is a major transport infrastructure in Djibouti and the sub-region. The port lies within the capital city of the country with which it shares the same name. Due to its convenient location relative to Djibouti's neighbors, it is an important transit port for Ethiopia and Somalia. The port enjoys Free Trade Zone Status. The port also has good linkages with other ports in countries bordering the Red Sea. The port offers plenty of spare capacity in berthage, handling and storage. The port of Djibouti has a total capacity of between 6 and million MT. It has a capacity to handle 3 million MT of container traffic, depending on the turnaround times of ships, which is, on average, 15 days. Provision of long-term storage, leasing, and repair facilities for containers is under consideration.

The port (see Figure 3.2) has 16 operational berths, all of which are in excess of 180 sq m with a total length of more than 3,262 sq m. Bunkering services are provided in all the berths. The allocation of the berths is as follows:

- three container berths including one Ro-Ro
- seven general cargo berths
- three bulk oil berths
- one general purpose berth (bulk oil, gas, and general cargo)
- one coastal shipping berth
- one berth (No. 9) reserved for military purposes (base)

Each of the general cargo berths and the coastal cargo berth has a transit shed ranging between 1,080 and 4,900 sq m. Two mooring launches also are available at the port. Quays No. 1, 2, 5, 6, 7, 8, and 13 are directly connected with the railway system, and cargo may be discharged directly into railway wagons if need be.

The general cargo sheds at the port have two mobile cranes of 32 MT and 40 MT with radius of 7.5 sq m and 11 sq m, respectively. Similarly, there is one floating crane for heavy lifts of up to 80 MT.

Several private stevedoring firms own and operate stevedoring equipment, including gantry cranes, forklifts, tractors, and trailers.

The port of Djibouti also has a container terminal that is well separated from the rest of the port with its own road and rail access. The terminal is managed by a special department within the Port of Djibouti administration. Built in 1985, the terminal berths length is 400 sq m, and it also can handle Ro-Ro vessels, as there is a Ro-Ro ramp adjacent to one of the berths. The terminal utilizes quays 1 and 2 and is equipped to handle 100,000 TEUs a year or 25 TEUs per hour. A Center for Containerized Freight (CCF) has already been constructed. The container terminal is served by the following equipment:

- two ship-to-shore gantry cranes with a capacity of 35 MT each, excluding the spreader, that are rail mounted;
- six forklifts with 42 MT capacity;
- five forklifts with 12 MT capacity;
- one forklift with 25 MT capacity;
- one forklift with 28 MT capacity;
- four terminal tractors with 30 MT capacity each;
- seven terminal tractors with 28 MT capacity each; and
- 12 trailers with 50 MT capacity each.

The Port Authority owns 19 warehouses within the port area, three of which are in the extension of the free trade zone, totaling some 47,380 sq m with a storage capacity of 672,441 MT per year (for 45 days turnaround). Approximately 13 hectares of open storage are provided in the port, or some 130,300 sq m, with a capacity of 1.850 million MT per annum. There are in addition 13.5 hectares at the container terminal that can accommodate 5,130 TEUs at a time or more than 120,000 TEUs per annum (with 15 days turnaround), which is equivalent to 1 million MT of cargo per year. There is also a cold-storage facility, built in 1983, with a capacity of 2,300 cubic meters (cu m), equipped with nine cold rooms, a freezing tunnel, and 10 plugs for reefer containers. The Free Trade Zone (commercial area) at the port has been extended and now has a storage area totaling some 124,037 sq m, mostly owned by the private sector. It also contains plots for lease for storage, establishment

of industries and other businesses. All berths, transit sheds, warehouses and open storage areas are rail served. It is understood that the WFP with EU funding will shortly construct an additional storage shed with a capacity of 7,000 MT. Similarly, oil storage at the port of Djibouti is under the responsibility of Shell, Mobil and Total oil companies, each with its own storage capacity of about 200,000 cu m, which gives a total capacity of 1.622 million cu m per year or 1.298 million MT (with a turnaround of 45 days), mainly for black products (crude oil).

The activities of the port are directed by a board of directors, headed by the Minister for Transport as Chairman and President of the Chamber of Commerce as the Vice Chairman. The private sector is well represented on the board. However, the overall day-to-day management of the port is the responsibility of the managing director.

SOMALIA

Somalia has four major ports and other smaller ports (see map, Figure 3.3). The major ports include Berbera, Bosasso, Mogadishu, and Kismayu, while the smaller ports are Wait, Gorand, Merca, Elman, and Brava, among others.

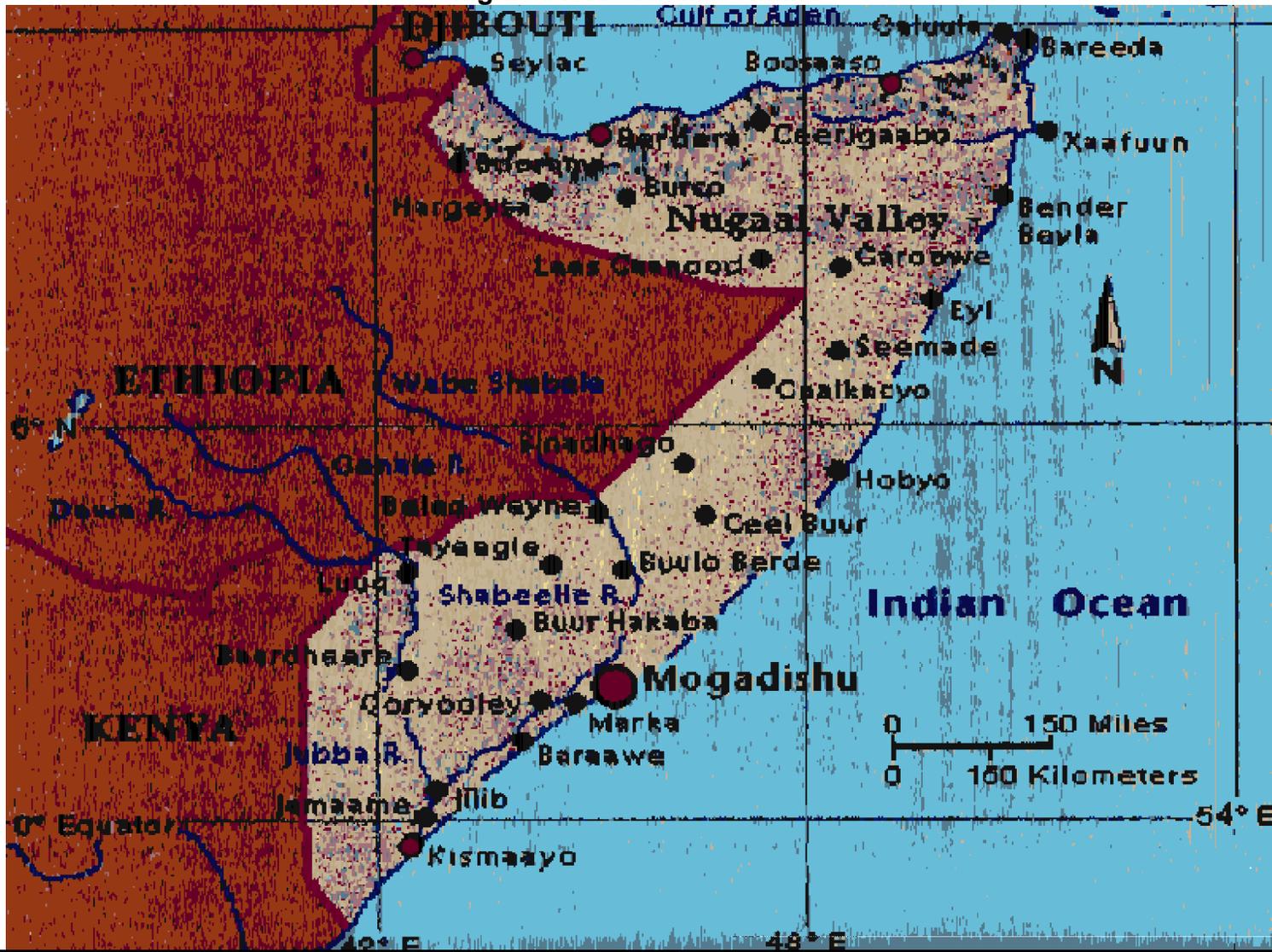
Mogadishu

Mogadishu is the largest port in Somalia and is situated at the capital city of the country with which it shares the same name. It is one of the oldest ports in the region and can accommodate large ships with a maximum allowable draft of 9 m and a port basin breadth of 240 m. The port is, however, currently closed. However, before its closure, it was managed by the Mogadishu Port Operations Company.

The port of Mogadishu has six berths: three multipurpose berths (270 m length each), one berth for livestock (120 m length); one berth with a large back-up space, ideally suited for containers (300 m), and one berth with a large back-up space and a Ro-Ro ramp.

The port has two mobile cranes of 52- and 38-

Figure 3.3. Ports in Somalia



MT capacity each and two forklifts, with spreaders for container handling of 45 and 35 MT each. However, the majority of this equipment and facilities has been looted and/or destroyed. In addition, during UNOSOM's tenure, an assortment of various port equipment was set to be procured. These included:

- four mobile cranes (cap. 20 MT/6 m each),
- one reach stacker (cap. 35 MT) with 40-ft spreader,
- one forklift (cap. 32 MT) with two 20-ft spreaders,
- five forklifts (cap. 10 MT),
- 10 forklifts (cap 3 MT),
- three Tugmasters, including goose neck,
- 10 Fiat tractors,
- six 40-ft trailers (cap 65 MT),
- 15 trailers (cap 20 MT).

The port lacks pilotage, surveying capacity, and navigational equipment, and when it was operational, berthing was only possible during daylight due to lack of lighting vessels. However, two tugs of 4,000 and 2,500 (bhp) were available for hire.

In practice, because of the closure of Mogadishu Port, cargo destined for the area is brought through Merca Port, which is situated about 100 km south of Mogadishu. Merca port does not have any infrastructure and facilities, including pier, quays, etc. Accordingly, ships discharge on anchorage in the deep sea, and cargo is brought to the beach on small fishing boats. From the beach, cargo is transported directly by road to consignees' premises.

Berbera Port

The port of Berbera is strategically situated at the confluence of the Red Sea and the Indian Ocean in northwest Somalia (Somaliland). The port is managed by the Berbera Port Authority, which falls under the Ministry of Commerce. The port is organized into five departments, namely Administration, Accounts & Personnel; Operations; Marine; Engineering; and Traffic &

Claims.

The port has a total berth length of 650 m. Though berth numbers are commonly quoted, there is no demarcation as such. There are six berths, of which five are alongside and one is Ro-Ro. The berths are distinguished as Russian and American Wharfs: Russian Wharf was built in the 1960s and covers 400 m. This section of the wharf is currently in poor condition, especially the sea-facing side. The American Wharf was built in 1986 and is 250 m long. The American Wharf also is already showing signs of deterioration.

The port has one oil jetty that operates using ship pumps to the fuel farm, but this is out of the jurisdiction of the port. There is, however, no slipway for maintenance and reconditioning of marine craft at the port. Similarly, the port does not have a container terminal.

The port equipment comprises four mobile cranes with a capacity of 15 to 25 MT, six forklift trucks with a capacity of 2.5 to 32 MT, two trawlers to haul trailers with loads up to 10 MT, one tractor head to haul loads up to 40 MT, and eight trailers to transfer cargo. The port has, in addition, two generators with capacities of 50 KVA and 100 KVA. There also is a workshop for maintenance of cargo-handling equipment and a Training Center at the port. The port has one tugboat that is operational with minor problems. Port storage comprises two warehouses with 60,000 MT capacity each. The open shed along the wharf also can be used for storage. In addition, to meet the demands, there are warehouses that are owned by the government and private individuals within Berbera but outside the port.

Ongoing Initiatives

The European Union, in collaboration with the United Nations Development Program (UNDP) and the United Nations Conference on Trade and Development (UNCTAD), have initiated a high-priority, labor-intensive civil works program at the port of Berbera. Under the program, the EU is fully funding the rehabilitation work in Somalia, while UNDP and UNCTAD are responsible for paying consultants' salaries. The rehabilitation contract worth US\$140 million has already been awarded to four separate "Somaliland"-based contractors, as follows:

- Contract Number I: This covers three areas that comprise repairs to the Russian-built wharf, construction of a gatehouse and main port entrance, and general clearing of port and surrounding area from scrap. The repairs to the Russian wharf will involve the removal of the crane rails that are currently obsolete, fixing new reinforcement in the horizontal and vertical surface up to the low tide sea level and building the quay wall, among others.
- Contract Number II: This will solely cover the repairs to the port workshop and ancillary buildings. The key areas include the workshop building, restoration of workshop electrical installations, and repairs to spare parts building.
- Contract Number III: This contract is divided into three sections and covers refurbishment of port administration building, maintenance of toilets at berths and the building of a new access road (to the port). The port administration building component will cover the supply and installation of air conditioning units, replacement of the existing electrical installations of the building and complete installation of 50 postels telephone system (EPABX).
- Contract Number IV: This contract will cover two areas: repairs to transit shed (warehouses), and refurbishment to the shed at berth No. 4.

Bosasso Port

The port of Bosasso is the guts of the economy of the Bari Region of North East Somalia. However, the port has faced administrative problems, and the board of directors has suffered from marginalization due to political considerations. Currently, the port has been placed under the administration of the Bari Regional Authority and new initiatives taken toward its management.

Bosasso has only one working berth including a Ro-Ro ramp of 120 m. Other existing berths remain inaccessible due to insufficient depth. The port, however, lacks other facilities including cargo

handling equipment. Pilotage and navigational facilities are also not available, thus berthing is possible only during daylight. However, the port has one independent surveyor. The port can accommodate ships with a breadth of up to 100 m.

The port is characterized by a lack of warehouses and storage facilities. Cargo is received under the ship's hood and taken straight out of the port for storage. The only route from Bossaso connects to Galcacio and connects the port with the neighboring southern states of Nugal and Mudug. From the port the road runs to Garda, after which it continues to Garae and Burania in Nugal before Galcacio.

Kismayu Port

Kismayu is located in the southern part of Somalia. It can accommodate ships with a breadth of up to 180 m and with a maximum allowable draft of 8 m. When the UNOSOM forces were deployed in Somalia, Kismayu port was designated as a military installation. Kismayu port has two berths; the first measuring 340 m with two Ro-Ro ramps, while the second measures 280 m.

The port has neither cargo handling, pilotage nor navigational equipment, which means berthing has to be done only during the day time. Similarly, there are no tugboats. If need be, these are hired from port Mogadishu. Kismayu port also lacks independent ship surveyors. The port has only one warehouse, with a capacity to store 3,000 MT of bagged cargo. With a daily offtake of 300 MT of bagged and general cargo, the full utilization of the port is limited due to the civil war and resultant insecurity.

As a UNOSOM-designated military port, Kismayu's functional and infrastructural improvement initiatives were directly under UNOSOM command. Unfortunately, all the initiatives undertaken during the UNOSOM mandate were considered to be under the auspices of peace keeping. At the end of the mandate, all the equipment was taken away from the port. Kismayu is now reported to be in a worse state than before the intervention.

**Table 3.1. Comparative Analysis of Port Facilities
and Cargo-Handling Equipments**

Type of Facility	Port Sudan	Massawa	Assab	Djibouti	Berbera	Bossaso	Mogodishu ¹	Kismayu	Mombasa
Deep Water Berths	14	6	7	13	5	1	6	2	16
Total Berth Length (M)				3,262	650	120	1,358	620	3,044
Storage (MT)	58,240 m ²	100,000 ²	280,000 ³	180,115 m ²	1,200 m ²	—	43,000	3,000	
Cold Storage				2,300 m ³					4,562 m ³
Container Terminals	1			1	—				1
Jetties (oil)			1	3	1				2
Type of Equipment									
Cranes									
— Mobile Cranes	24	8	6	2	4	—	—	—	96
— Shore Cranes	35	5	18	18	—	—	—	—	17
— Floating Cranes				1	—	—	—	—	1
— Gantry Cranes				2	—	—	—	—	17
Fork Lifts	91	27	29	39	6	—	—	—	—
Tractors	—	32		30	—	—	—	—	—
Trailers	4	82		112	8	—	—	—	—

1. An assortment of various port equipment for Mogadishu were set to be procured, during UNOSOM's period of operation.

2. 20,500 enclosed warehouses, 30,000 in sheds, and 49,500 in open areas.

3. 45,000 enclosed warehouses, 20,000 in sheds, and 215,000 in open areas.

4. With regard to the port of Djibouti, the equipment indicated is owned by various private stevedoring companies working at general cargo berths.

Port Elman

This is a small sea port situated about 50 km north of Mogadishu. In practice, Elman is nothing more than an open beach without any infrastructure or facilities. Ships anchor in the deep sea, and cargo is discharged under the ship's hood and delivered to the beach using small fishing boats of about 5 to 6 m. At the beach cargo is loaded directly into trucks for transportation inland. Currently, construction work is being undertaken at Port Elman to put into place some basic landing and discharging infrastructure and facilities. At Table 3.1, the facilities and equipment of the various ports in the region are compared.

IN-COUNTRY TRANSPORT INFRASTRUCTURE

In virtually all the countries in the region, in-country transport infrastructure (roads and railways) run from the existing gateways (mainly seaports) to the capital city, where they radiate to major urban centers and agriculturally high potential areas. This testifies to the initial focus and orientation of transport infrastructure development in the region that was to facilitate exploitation of local resources for export.

Railway Transport Infrastructure

There are only two operational railway systems within the region. These are the railway network in the Sudan, which is operated by Sudan Railways Corporation (SRC) and the railway serving both Ethiopia and Djibouti, operated by the Chemen de Fer Djibouti-Ethiopian Railway company. The third railway system in the region was the Eritrean Railway, which had a network between the port of Massawa to Agordat via Asmara but has been defunct since 1975. However, since 1994, the Eritrean railway has been undergoing some reactivation. Somalia has no railway system.

Generally, the railway systems in the Northern Tier of GHA countries are in very poor condition and are barely operational. The only exception is the Sudanese Railway, but, even so, railway sections that serve the drought prone areas of North Kordofan, North Darfur and the war-torn Bahr El Ghazal Regions are the least-functioning parts of the railway line because of the bad condition of the tracks.

Sudan

Sudan has the largest railway system in Africa, extending some 4,800 km, managed by the Sudan Railways Corporation, a parastatal. The main line runs from Port Sudan via Atbara (474 km) to Khartoum, covering a total distance of 787 km. It then continues to Nyala (2,096 km), where it reached in 1959, with en route stations at Kosti, Ed Nuhad, El Obeid and Babanusa. The main branch line links Port Sudan to Sennar via Haiya, El Girba and Kassala, covering a total of 1,005 km. The other branch lines include Khartoum to Wadi Halfa via Abu Hamad (907 km); Abu Hamad to Karima (covering some 248 km); and Babanusa-Wau, which was completed in 1952, being 446 km. The railway line between Babanusa-Nyala and Babanusa-Wau are in very poor condition. However, because of the newly discovered oil fields in the Mugland areas (South of Babanusa), the GoS has initiated a rehabilitation program for the railway line between Mugland and El Obeid, as the discovered oil will be transported to El Obeid for refining.

Locomotive and Wagon Availability

Sudan Railways Corporation had as of June 1996 some 93 locomotives in operation/service, which includes 10 new locomotives acquired from South Africa in 1995. The average age of these locomotives is some 15 years, with the bulk (39) being about 21 years old. SRC also has a total of 3,464 serviceable commercial wagons, comprising covered wagons, oil fuel tankers, water tankers and open wagons, among others. However, most of the wagons are more than 50 years old and thus need regular maintenance. In practice, SRC is charac-

Table 3.2. Mainline Locomotive Utilization

	1984/85	1985/86	1986/87	1882/93
Loco availability in fleet	32	30	28	14
Loco km / day	4,385	4,853	4,670	2,965
Km / loc / day	137	161.8	166.8	211.8

terized by low locomotive and wagon availability.

Ethiopia and Djibouti

Ethiopia and Djibouti are served by the *Chemen De Fer Djibouti-Ethiopien (CDE) Railway*, which is a bi-national Djibouti-Ethiopian company, founded in 1897 and open to service in 1917. At its inception, the railway was owned by France and Ethiopia and was called *Compagnie du Chemin de Fer Franco-Ethiopien (CFE)*. After independence in 1977, Djibouti assumed the former French ownership responsibilities. Specifically, a treaty was signed in 1981 that gave both Djibouti and Ethiopia equal ownership of the railway.

Differences in policy orientation between Ethiopia's former Socialist regime and Djibouti's liberal-capitalist government had over the years created operational constraints. These led to the neglect and the consequent rapid deterioration of the railway infrastructure, which has rendered the CDE barely operational.

Railway Track

The entire railway line from Djibouti to Addis Ababa, a distance of 781 km, is made of a contoured meter-gauge track and follows a sinuous course distinguished by sharp curves, steep inclines and low embankments and cuttings. The line rises from sea level at Djibouti to an altitude of some 2,400 m at Addis Ababa, giving an average gradient in excess of 30 percent. There are 35 stations including the border customs control station at Dewenle. There are no branch lines, but several industrial and service sidings exist.

The CDE track consists of 25 and 20 kg/m rails on steel sleepers of comparable weight at densities of 1,250 to 1,600 per km. Side drains are either nonexistent or clogged, and catch water drains are missing. Ballast is seriously short throughout the line, with available ballast estimated at 150 cu m/km versus the required 650 cu m/km. While curves have some ballast, long stretches of straight track have either much less than 100 cu m or none. Bridges have either been war- or flood-damaged, and some of the new ones have been rebuilt only to temporary standards. This has resulted in numerous derailments, reduced capacity and unreliability of the CDE over the years. The map in Figure 3.4 shows the existing railway line, location of emergency measures, and bridges that need rehabilitation.

The CDE has its main workshop located at Dire Dawa with outstation servicing depots at Djibouti and Addis Ababa. The Dire Dawa workshop has a general engineering workshop for maintenance of track and civil works equipment, a wagon workshop and a diesel workshop for mainline and shunting locomotives.

CDE has no signaling system, and only fixed speed reduction warning boards indicate station approaches. Telecommunications are open wire laid lines. All turnouts are manually operated with provision for padlocking. Solar power is provided at stations without a main supply.

Locomotives and Rolling Stock

Available statistics indicate that CDE has experienced a decline in the number of locomotives held, from 32 in 1984/85 to the current 13 in 1996, indi-

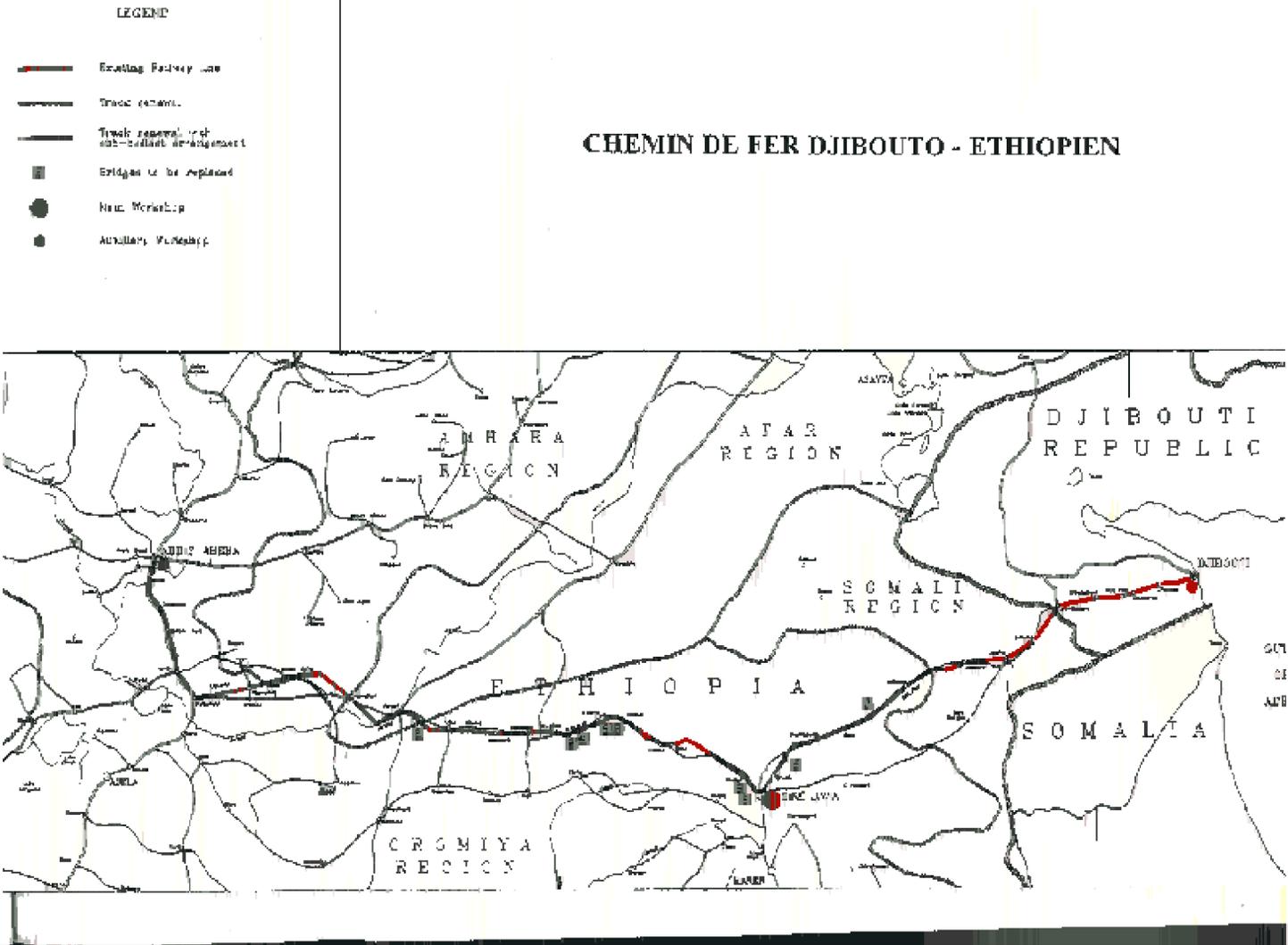
cating that some 19 locomotives have been retired from service since 1984, including 4 locomotives involved in accidents in 1988. The current stock are all of the BB 3rd series and were purchased between 1974 and 1984, with nine of them being specifically acquired in 1984/85. It is understood that the economic life of these engines is some 22 years; therefore all of them are still economically serviceable.

As of June 1996, CDE operated only an average of five to six locomotives (out of the 13) at any one time, indicating an availability of less than 50 percent. CDE locomotive availability, while nevertheless low, is quite similar to that of other African railways in the region, for example Kenya Railways Corporation (KRC) and Tanzania Railways Corporation (TRC), both of which recorded mainline locomotive availability of 46.5 percent and 50 percent, respectively, during 1993. It is understood that the

major cause of poor availability is lack of required spare parts. At present, for example, it is reported that four locomotives that have been out of service, requiring overhaul have lacked spare parts since 1993.

Despite the declining mainline locomotive stock levels and low availability, the utilization of available locomotives has registered an increasing trend, from 137 km per locomotive per day in 1984/85 to a significant 211.8 km/loco/day in 1992/93 (see Table 3.2). Similar figures available for TRC indicate the same level of utilization for class 87 mainline locomotives, 194 km/loco/day, but a much higher level for class 88 and 89 locomotives, which recorded 405 and 381 km/loco/day, respectively, during the same period. It is understood that there is scope to achieve higher levels of utilization if the idle downtime at stations that has been estimated at 5 ½ hours at each station is reduced to less than 3 hours, which is possible.

Figure 3.4. Chemin De Fer Djibouti - Ethiopien



The increasing utilization of main locomotives clearly indicates increasing overdependence on the available fleet, which, in the face of ever-declining availability, fell by 50 percent between 1986 and 1992. However, CDE has not made available its mainline locomotives for maintenance as scheduled. For example, a consultant report indicates that out of a total of 214 scheduled maintenance in 1993, comprising limited, general, and intermediate inspections, only 163 were actually carried out, representing 76.2 percent. It is indicated that such maintenance delays have caused premature wear, perhaps occasioning the low availability.

Shunting/Service Locomotives

As of 1996, CDE had four locomotives for shunting services, comprising three BB 1st series type and one BB 2nd series type. However, their operating availability is reduced to one. A consultancy report has suggested that their continued use is no longer necessary and proposes use of freight locomotives for shunting operations. CDE also has four locomotives used for internal transportation services, which are all reported to be in service except BB 12 service type, which has been cannibalized. Their availability is reported to be fairly good.

Wagons

As of January 1996, CDE had 590 commercial wagons, which comprised inter alia 282 covered wagons, 130 tanks, 52 high-sided open, and 88 flat beds, all procured between 1911 and 1988. The average capacity of the commercial wagons is 25.84 MT. Many of the wagons are fairly old and deteriorated. It is reported that the routine maintenance schedule is almost totally neglected, thus occasioning a high incidence of breakdown maintenance. It is understood that the passenger coaches are badly affected by over-loading and vandalism, and some require overhauling due to old age.

Ongoing Initiatives

In an effort to clearly define CDE's future options

and strategies with regard to development, rehabilitation and reorganization, several studies have been undertaken. These include the following three studies, all undertaken in 1995 and financed by the European Union — namely, the:

- Transurb Consult study, which examined the alternative corridors for Ethiopian imports/exports, including the ports of Massawa, Assab, and Djibouti, and the two modes of transport alongside the Djibouti corridor (road and rail). It concluded by identifying the most suitable investment scenarios and the cost involved but recommended a complete institutional modification of the CDE;
- On the basis of the recommendations of the Transurb study, the EU commissioned the Italferr study, aimed at evaluating the minimum emergency physical repair works needed and the attendant costs for intervention; and
- DANRAIL Consult study analyzed the institutional, operational, and organizational structure of the CDE, but it is understood that both the CDE and the EU denounced the final draft report of the study, citing its failure to provide an in-depth analysis of the major issues of concern. Consequently, a joint task force from Ethiopia and Djibouti was formed to review and finalize the study. The task force is understood to have visited several countries, including Burkina Faso and the Ivory Coast, to familiarize itself with the operations and management of the privatized railway systems in these countries, which are run under management contracts. The task force has now issued its draft report, and it is understood that they have recommended that the CDE board and management should be made autonomous as a basis for its commercial viability and that a number of activities currently undertaken by it directly be contracted out to the private sector.

Meanwhile, several other donors have initiated some stop-gap measures aimed at improving

CDE's operations and efficiency. Specifically, the World Bank provided US\$8 million in 1994 for the procurement of spare parts and technical assistance. Similarly, the French government has pledged a total of French Francs 55 million since 1991 for the purchase of four rehabilitated locomotives, one shunting locomotive tractor, two tracers, spare parts, training, as well as the provision of technical assistance and other small track equipment.

In addition, the European Community is currently coordinating efforts aimed at raising some ECU 130 million to rehabilitate the CDE. The project is expected to be in two phases, namely: (I) Short-Term Emergency Measures (STEM), at a cost of ECU 30,857,000, whose disbursement is expected soon after the finalization of the DanRail study by the task force; (ii) Medium-/Long-Term Measures (MLTM), at a cost of ECU 102,253,000. However, the EU has indicated that the commercial attractiveness of such heavy investment may not be justified and that donors may be reluctant to support this initiative in its entirety.

Eritrea

The railway system in Eritrea consisted of the former Ethiopian Railway and extended for about 300 km from the Port of Massawa to Agordat via Asmara and Keren. The line opened up for traffic in March 1888, and had a total of 30 stations. Available information indicates that initial plans existed to extend the line to Gonder (Ethiopia) via Humera and also to Kassala (Sudan). The railway lines' main offices, stores, workshops, and running sheds were situated in Asmara, although there was also a fair-sized running shed, with some machines at Massawa, where the locomotives for the Massawa-Ghinda section were based.

Starting from the port of Massawa, the railway line rose steeply to a maximum altitude of 2,394.5 m near Asmara and reached a maximum gradient of 35 percent (particularly on the section between Ghinda and Asmara). The entire railway line was thus characterized by numerous tunnels, arches, bridges and sharp curves, due to the difficult topography. Consequently, it is reported that the

maximum axle load then permitted was 12 MT. The railway's single-line truck consisted of a 0.95-meter gauge, weighing 27.3 kg/meter, on an average of 1,430 sleepers per kilometer, each weighing 40.4 kg.

However, since 1976, the rail has been defunct due to the damages it suffered during the liberation struggle for Eritrea's independence. All operations were suspended and the entire staff dispersed, and, thereafter, no state agency took responsibility for the line and its property. Large stretches of the track, and virtually all its rolling stock, were looted and/or destroyed completely. Attempts at rehabilitation currently are being undertaken.

Ongoing Initiatives

Since 1994, shortly after Eritrea's independence, plans have been drawn to reconstruct the national railways, wholly funded by the government of Eritrea, starting with the 117-km Asmara-Massawa section. By April 1996, rehabilitation of the line, supervised by the Ministry of Transport and achieved using locally available human and material resources, had covered some 38 km from Massawa to Demas. The government has employed skilled labor from former employees of the railway on a contractual basis.

In addition, rehabilitation of locomotives and rolling stock is being undertaken, and, currently, some locomotives have been repaired. However, the workshops are in need of re-equipping and refurbishment. Similarly, there are plans to rehabilitate the telecommunications system.

Eritrea has not asked for donor funding for the railway rehabilitation mainly because the viability of the railway has not been established. However, a transport investment study that was undertaken in 1996 was expected to determine the viability of the various transport sector investment requirements, upon which donor funding may be sought. Notwithstanding, Eritrea still hopes to inaugurate a new railway company within a year.

Roads

Sudan

Despite its massive size, Sudan has only 16,000 km of roads, many of which are concentrated in the north and radiate from Khartoum to the major agricultural (cash-crop) producing regions. Road density per 1,000 sq km, therefore, is estimated to be only 6.4 km. The major paved roads are all in the north and cover a total of some 3,500 km and essentially duplicate the railway network (see map, Figure 3.5). The first paved road in the country, constructed in the 1960s and 1970, joined Khartoum to the nearby towns of Wad Medani (187 km). The main road is, however, the highway connecting Port Sudan and Khartoum via Kassala, Gedaref, and Wad Medani (1191 km), which includes the original Wad Medani-Khartoum road. Other paved roads include Khartoum-Kosti (406 km), completed in the late 1970s, which has facilitated the connection to river transport to Juba in the south; Kosti-El Obeid road (323 km), which also is known as the Western Sudan Livestock road, completed in 1991 and partly funded by USAID; and the Nyali-Zalingi road (210 km), constructed from the rail head at Nyala toward the Sudanese border with Chad; this is the only paved road in the Darfur region.

Sudan also is served by other vital roads of compacted gravel surfaces that are passable throughout the year. These include the 260-km road connecting El Obeid in North Kordofan with Kadugli, the capital of South Kordofan (by 1994 this was the only passable road in the whole of South Kordofan), and the road between Nyala in South Darfur and El Fasher in North Darfur (217 km).

Most of the secondary and rural roads in the north are closed for a few days during the rainy periods but are useable for much of the year because of the type of desert sand soil, except where there are flash floods (Wadis). For example, in North Kordofan, there is the famous Wadi El Milk, which cuts off the road between eastern and western parts of Sudan province as well as the road to Darfur, such that a bridge is needed to cross this

wadi in the rainy season. During the famine of 1985, the WFP constructed pipes across the Wadi to facilitate the transport of relief food to Darfur, which were badly engineered and washed away in the first flash floods.

Southern Sudan

In southern Sudan there are only about 5 km of paved roads. In practice, the existing roads in the south are no more than tracks that can be used only during the dry season. Most of the roads are in a state of utter disrepair, while those usable have further deteriorated due to their overuse by military vehicles of the opposing forces and relief organizations. Log bridges are a common feature at most river crossings. It is also noted that some of the roads are mined and thus are not usable at all. The map in Figure 3.6 gives a representation of the road network in southern Sudan.

Accordingly, many parts of southern Sudan are cut off from the rest of the world, as there are no viable (roads) transport linkages. The black cotton soils that cover almost the entirety of Bahr el Ghazal, Lakes, and Upper Nile Regions as well as the low lands and riverine areas of Western Equatoria make all-weather road construction difficult and expensive. In such soils, the roads become thick mud in the rains, sucking unfortunate trucks in up to their hubcaps until the seasons change. Some food relief trucks have taken two months to travel a distance of 500 km. Even in the dry season, the lack of maintenance and the damage to roads by vehicles during the rains mean that trucks may only cover 5 km an hour for long stretches of road.

During 1994/95 USAID funded an emergency repair/rehabilitation of some portions of the main roads in Western Equatorial and southern Sudan, undertaken by a private construction firm based in southern Sudan, Terra Firma. A total of 511 km have been addressed, with the intention of returning feasible access to convoy trucks on an all-weather basis. These include Maridi-Lasu (231 km), on which, prior to the rehabilitation, a loaded truck could take up to two months to cover, but currently the journey takes only two days. Half of the total road distance has been improved to gravel

Figure 3.5. Major Roads and Railways in Sudan



- Legend:**
- Roads ————●———
 - Railways ————■———
 - Ports ●
 - Rivers ————

surface, while the remaining length is of earth surface. Others include Maridi-Madebe (61 km), which is 4 m wide and of gravel surface, and Maridi-Mvolo (219 km), out of which the section between Maridi and Mundri is 3 m wide gravel, while the section between Mundri and Mvolo is earth but with no provision for drainage outlets. This is reported to adversely affect the condition of this section during the rainy seasons. These roads can be used by trucks of up to 10 MT, but the restriction on the heavier trucks is poised mainly by the log bridges.

Other initiatives include efforts by CARE International to maintain roads in Tambura county, using labor-intensive community participation and food for work strategies. These teams fill potholes and cut the grass.

Notwithstanding the above, the discussion of the transport infrastructure in southern Sudan is considered incomplete unless its linkages to the infrastructures in the neighboring countries of Kenya and Uganda are included. Access to southern Sudan is not possible from the capital Khartoum or from Port Sudan and has to be conducted from locations in northern Kenya and northern Uganda. In practice, southern Sudan is dependent on the Port of Mombasa, the railway and road infrastructure in Kenya and Uganda, and the operational bases in both Kenya and Uganda, commonly referred to as “primary destinations.” The use of primary destinations, which are Lokichokio and Koboko in Kenya and Uganda, respectively, is due to the logistical problems of direct transit into southern Sudan. Other primary destinations that have been used in the past include Kitgum and Gulu in northern Uganda, which were, however, inoperational in 1996 due to military insurgence in their vicinity.

Koboko, which is situated some 787 km from the Malaba border crossing, has become a major transit point into southern Sudan through Uganda. Currently, as a result of the major trucking activities into southern Sudan, support facilities have been established at Koboko. The major NGOs and UN bodies operating from Koboko have warehouses and other storage facilities for their cargo at the station. Similarly, the trucking firms operating from Koboko have their private storage,

mechanical service facilities, and fuel depots.

Similarly, Lokichokio in northern Kenya, which is the other transit point into southern Sudan, has seen the growth of facilities, with an increase in the magnitude of cargo transshipment. Warehouses and other storage facilities have been built in Lokichokio, where the NGOs and UN bodies operating from Lokichokio, such as WFP, NPA, CARE, and UNICEF, have their private storage and warehousing facilities. In addition, Lokichokio has an airstrip that is used extensively for cargo airlifts into southern Sudan.

Ethiopia

The road density in Ethiopia is among the lowest in Africa, estimated at 21 km of road per 1,000 sq km and 0.43 km per 1,000 people. The entire network consists of a total of 23,812 km of trunk, major link and regional roads. Trunk roads cover 8,180 km, of which 3,478 km are paved and 4,702 km are gravel. The major link roads constitute about 7,589 km, mostly gravel, with only 178 km of paved surface. The standard of the approximately 8,043 km of regional roads varies considerably because of the different agencies involved in their construction in the last 15 years. In addition, there are some 30,000 km of unclassified low-standard, earth (dry weather) tracks and trails. The map in Figure 3.7 gives some of the principal roads in Ethiopia.

The trunk and major link roads make up the federal network system in Ethiopia and is administered by the Ethiopian Roads Authority (ERA). The trunk road network extends radially from Addis Ababa along broad movement corridors that connect major urban centers, border points and areas of high economic potential. Currently, only 11 percent and 19 percent of the paved network and gravel roads, respectively, are in good condition. Two-thirds of the regional roads, which are administered by the Regional Government Rural Road Organization (RGRRO), are virtually impassable, as they have suffered neglect and poor maintenance over the last decades.

Under the ongoing 10-year Road Sector Development Program (RSDP), financed by both the GoE and donors, several trunk roads are set to

Figure 3.7. Major Roads in Ethiopia and Eritrea



- Legend:**
- International Boundary —————
 - Roads —●—
 - Railways —●—
 - Rivers ———
 - Ports ●

**Table 3.3. Ten-Year Investment Program for Regional Roads
(1997–2007)**

Regions	Proposed Regional Road for Construction			Total Costs (million Birr)
	Ongoing	New	Total	
One	336	1,493	1,829	640,150
Two	212	798	1,010	353,500
Three	858	2,359	3,217	1,125,950
Four	280	3,070	3,350	1,172,500
Five	289	1,019	1,308	457,800
Six	75	1,081	1,156	404,600
Southern	747	2,490	3,237	1,132,950
Twelve	126	339	465	162,750
Total	2,923	12,649	15,572	5,450,200

Source: Road Sector Development Program, ERA (1996)

be rehabilitated, and, indeed, finance has been secured for some of the proposed road improvements. The program provides a comprehensive approach of integrating the implementation of key road investments with major policy and institutional reforms. Most of the issues identified in the RSDP are related to challenges faced to improve the extremely deteriorated state of the existing road network, which in many cases renders motorized transport services impossible or at very high cost, on the one hand, and the economic and strategic necessities to extend the network into areas currently not served by roads, on the other. More than half of the road network needs to be rehabilitated or reconstructed while the remainder is rapidly falling into a state in which continued and periodic maintenance will soon be insufficient.

There are many large areas in Ethiopia that are not served at all by roads. The failure to appreciate the importance of regional roads has led to serious economic and social consequences. In the recent past, absence of these roads has contributed significantly to the loss of thousands of lives because of the difficulty encountered in transporting food and medical

supplies to drought-stricken areas of the country.

As agriculture has been and will continue to be the leading economic sector, roads in general, and regional roads in particular, will play the most vital role in providing access to potential productive areas and markets. The regional roads will contribute to more intensive farming, resulting in an increase in production and, eventually, improvement of the balance of payments that will help to promote growth. Further, they will support social service coverage.

The government is giving great emphasis to rural development in general, and regional roads and transport services in particular, so that development activities take place in the isolated parts of the country, to encourage broad-based rural development that is integral to the overall strategy of the *Agricultural Development Led-Industrialization* (ADLI). As part of this effort, the government has allocated a fund for the construction of 14 new regional roads, involving about 2,217 km, in areas where access has been found vital, and the construction work is underway by private contractors. Such an expansion will have the effect of increasing economic development, agriculture in particular, strengthening intra- and

inter-regional links, and stabilizing the existing road network, which largely radiates from Addis Ababa, the capital city. Expansion of the regional roads includes the upgrading of existing tracks and trails.

During the program period, a total of about 15,572 km of ongoing and additional new regional roads would be improved or constructed as required. The total estimated cost is Birr 5,450,200 million (US\$872,032 million), of which Birr 3,270,120 million (US\$523,219 million) is foreign exchange component. Cost estimates are based on 1995 prices (see Table 3.3). The donors to this initiative currently include the EU, which has supported feasibility studies with the objective of enhancing the achievement of national food-security objectives. A total of about 5,399 km of regional roads will be constructed during the first phase of the program period.

Eritrea

The existing road network in Eritrea was built 60 years ago (mostly between 1934 and 1939) by the Italians. It consists of four main classes of roads, namely primary (which had originally been constructed to very high standards, and about 5.5 m wide), secondary, rural, and feeder roads. However, since the outbreak of the liberation war, no new roads have been constructed, while the condition of the existing ones deteriorated seriously due to damage and lack of maintenance. Currently, the total road network in the country, comprising the different types of roads, is about 5,964 km, giving a road density of 48 km per 1,000 sq km. Of these, only about 622 km are paved all-weather roads, out of which only 365 km are in good condition. 462 km are dry-weather roads, and 345 km are macadam (gravel). Some 4,200 km are feeder rural roads. The map in Figure 3.7 gives the main road system in Eritrea. The Roads Department in the Ministry of Construction is responsible for primary and secondary roads, while rural roads, which connect villages with administration centers, are the responsibility of the provincial authorities. Feeder roads are constructed by the Land Resources Department of the Ministry of Agriculture to allow access to agricultural development and conservation projects.

Most of the asphalt roads are constructed to a

width of between 6 and 7 m, with an axle load standard of between 8 and 10 MT (plans are underway to increase it to 16 MT). It is understood that roads in the highland areas are poorly aligned, in contrast to the lowland regions.

The Eritrean government has accordingly prepared an "Emergency Rehabilitation and Reconstruction Program" (ERRP) to improve the condition of the roads. The priority of the program is the rehabilitation of the existing trunk roads, bridges, and culverts, and the upgrading of some roads and construction of new ones. The program is expected to cost US\$200 million. An urgent priority of the government, therefore, is the prioritization of the ERRP to ensure that the most urgent and beneficial projects are undertaken. The main highway from Asmara-Massawa has already been rehabilitated and improved. The road from Asmara-Keren is currently under rehabilitation and improvement, and, similarly, the Keren-Akordat road is being rehabilitated. The road from Akordat-Barentu, which is of gravel surface, is presently in very poor condition. The gravel surface has deteriorated significantly, and extensive repairs and replacement to cross drainage works are necessary. However, the road base is still good. Finally the section from Barentu-Tesseney is also in similarly poor condition, and regravelling of the surface and repair of drainage works is needed.

The internal connections from Asmara to the south, particularly the Asmara-Mendefera road, are under rehabilitation, while the section from Mendefera to the border is in good condition, especially the base. Notwithstanding, some parts need resurfacing, and, in addition, the bridge on the river Mareb requires rehabilitation. The other road from Asmara to the south via Dekemhare has been resurfaced, but improvements are still going on. The section from Dekemhare to the border through Fadi is in good condition, although resurfacing is needed in some parts.

The road from Assab-Debaissinia, being part of the Assab-Addis Ababa road, is being rehabilitated and resurfaced. The government of Eritrea also has proposed to construct a new road from Assab to Massawa via Bure Trafale connecting the extreme southern parts of the country to the north.

Djibouti

The road transport infrastructure within Djibouti covers a total of 2,905 km (giving road density of 125 km per 1,000 sq km), out of which only some 453 km (16 percent) are paved. Djibouti's road system is primarily geared to international traffic. In-country road improvements have been undertaken, including the completion of Unity Highway connecting Djibouti and Tadjourah. A new road connection between Djibouti and Berbera in Somalia, which was to be funded by the EU, has been abandoned due to insecurity in Somalia.

Somalia

Somalia has a road network extending some 15,000 km (giving a road density of 24 km per 1000 sq km, out of which some 10,000 km are unimproved roads. The main roads in the country include the Mogadishu-Baidoa, with branches to Hergeisa, Berbera, Luug, and Waajit; Mogadishu-Belet Weyne and further to Galcacio (see map, Figure 3.8). Many of the major roads are in poor condition. Roads have suffered from a lack of maintenance and, hence, are greatly deteriorated. This has been exacerbated by the deliberate destruction of the bridges along the main trunk roads. This implies that during rainy season, vehicles cannot pass, and during dry seasons, passage is only possible through difficult and dangerous detours. Similarly, some road sections are virtually covered by sand deposits during the rains, particularly along the flat road sections.

Somaliland (Northwest Region)

The paved road linking the towns of Dila-Hargeisa-Berbera-Burao-Ainabo-Las Anod is the only inter-urban paved road in northwest Somalia. The road with the highest traffic volume in the region links Hargeisa to the port of Berbera. Traffic along the route is mainly related to exports of livestock and imports of food and consumer items. The paved road network comprises the following sections of road:

- Hargeisa-Dila: 91 km of road, built partly by

Italians, partly by Chinese, and partly by the Ministry of Public Works over the period 1976 to 1982.

- Hergeisa-Berbera: 147 km, built by a Lebanese contractor in 1980/1982.
- Berbera-Burao: 126 km, built by an Italian contractor in 1982 and partly by the Ministry of Public Works in the early 1970s.
- Burao-Ainabo-Las Anod: 260 km, built by the Chinese in 1977.

Many of the major cross drainage structures on the road network have been deliberately destroyed by military action during the civil war. Heavy rains have exacerbated the damage by causing severe erosion at the sites of damaged structures. The road pavement generally consists of double seal surface dressing on 300 mm of gravel or crushed roadbase on 350 to 450 subbase and has deteriorated, mainly due to a lack of maintenance.

The road to Burao (126 km), which is to the northeast of Berbera port, is in good condition. However, two bridges after Hudiza have been blown up. These are currently earth-filled to allow the passage of vehicles. This road continues to Les Anod through tarmacked surface that is in fair condition, covering a total of 386 km from Berbera. The road from Burao to Erigivo (399 km) is, however, not tarmacked, and, while trucks can easily pass most of the year, it experiences floods during the rainy seasons that make passage difficult.

In addition, there are possibilities for off-road vehicular movement throughout most of the country during the dry season. However sand dunes, land mines, and rugged desert hills are limiting factors. Most of the earth roads and several segments of the bituminous roads become impassable during the brief rainy seasons in Somalia, between March to May and October to November.

Figure 3.5. Major Roads and Railways in Sudan



- Legend:**
- Roads ————
 - Railways ————
 - Ports ●
 - Rivers ————

Axle Load Limits and Road Maintenance Funding

In Eritrea, most vehicles going to and from Massawa are characterized by heavy loading, which increasingly results in deteriorated roads. The current axle load limit is 12 MT per axle, but many vehicles can be loaded to as much as 20 MT per axle. There is no axle load enforcement or cost-recovery mechanism. However, estimates suggest that the roads sector is currently earning gross revenue (via taxation of fuel, spare parts and ownership) that is 10 percent in excess of expenditure, albeit in comparison to a rehabilitation budget that is low compared to future needs. The required annual budget for road rehabilitation and maintenance will be much higher than at present. The government therefore will have to review the question of road user charges if it is to fund rehabilitation works and a sustainable road maintenance program. There is an ongoing study focusing on, among other things, road maintenance funding aimed at establishing ways and means of ensuring cost recovery from road users.

In Ethiopia, although proclamation No.11/1990 has increased the legal axle load limit of the front axle from 6 to 8 MT and of the rear axle from 8 to 10 MT, the strengthening of the roads to cope with the increased weights has shown no improvement. Heavy goods vehicles (HGVs), which have come to dominate the haulage industry, continue to damage pavement inferior to the weight of vehicles. Although weigh bridges are installed at eight locations throughout the country, axle load limits are often exceeded and generally disregarded. In practice the culprits are taken to court, but the penalties are minuscule and do not serve as a deterrent. However, by impounding penalized vehicles for the length of the court session, the Road Transport Authority (RTA), which is responsible for enforcing regulations such as controlling vehicle weights and dimensions, has established an additional "loss of work-loss of revenue penalty" that is over and above the court verdicts.

In the meantime, recent designs of new roads and strengthening of existing roads has been

taking the proposed increases into account. The RTA is also becoming better equipped for the enforcement of regulation, and to that effect the procurement of additional size and weighing equipment, as well as workshop facilities and training, is required. There are plans to install these facilities at seven locations. The cost for the procurement of new size and weighing equipment for the identified locations, maintenance facility, and transceivers is estimated to be about Birr 1,973 million (US\$0.313 million), of which Birr 1,794 million (US\$0.285 million) is foreign exchange component. The intention is to find a workable mode of operation to protect the roads. There are no toll stations, but there is a mutual agreement for RTA and its Eritrean counterpart to collect small amounts for transit traffic at the border with Ethiopia on the Assab corridor. The collection of meagre amounts augurs well for Ethiopia, which has a high volume of traffic at Assab.

The government has proposed the establishment of a road fund that was scheduled for implementation starting July 1996; however, by November 1996 no action had been taken. The plan is to create a road fund that will consist of income generated from users through levies and duties from fuel, lubricants, vehicle importation and examination, parts and accessories of motor vehicles, tires and tubes. In addition, funds raised from transit fees and overloading fines will be channeled to the road fund. In the short run, the estimated funds to be raised from users will not solely cover the maintenance expenditures, thus the road fund has to be supported by regular government budget and bilateral assistance. It is envisaged that it will be possible to cover all costs of road maintenance from a road fund solely funded by users at the end of the RSDP period.

In spite of the poor state of roads in southern Sudan and their limitations, the problem of overloading manifests itself mainly as a result of the tendering requirements of NGOs and UN bodies for transportation of cargo. Being competitive, tenders are often underquoted, which becomes a potential incentive for

overloading.

It is reported, for example, that, although roads in southern Sudan cannot sustainably withstand trucks carrying more than 10 MT, cases abound where consignees have contracted transporters that have used fully loaded 30-MT trucks to transport cargo to destinations up to Bor. This has resulted in the rapid deterioration of the rehabilitated (largely murrum) roads in Sudan. It is an emerging concern, therefore, that cargo consignees, particularly the NGOs and UN bodies, should, in addition to seeking competitive rates, examine the rationale toward such quotations and their implications on axle load limits and road damages. This is because the concept of competitive rates has resulted in a vicious circle whereby, while the NGOs and UN bodies pay less through competitive rates to the transporter, the same NGOs and UN bodies constantly have to finance at much higher costs the rehabilitation of roads damaged by transporters.

Air Transport Infrastructure

The region is bestowed with 12 principal airports, namely Asmara, Assab, (Eritrea) Bole, Bahir Dar (Ethiopia), Djibouti (Djibouti), Khartoum, El Obeid, El Fasher (Sudan), Mogadishu, Berbera, Hargeisa, Kismayu, and Baidoa (Somalia). However, only some seven airports are of international standards: Bole, Bahar Dar,

Djibouti, Khartoum, Mogadishu, Berbera, and Asmara. As of 1994, Bahir Dar was being developed into an international airport, while Bole International Airport was earmarked for major expansion with Japanese funding. In Eritrea, a US\$100 million airport is being constructed near Tessenei to support development of horticulture in the southwestern lowlands of the country. The old airport at Tessenei was upgraded at a cost of EBirr 1.5 million. The long-term strategy is to export horticultural products directly to overseas destinations from this airport. Currently in Somalia, there is virtually no scheduled international airline connections and, similarly, very little internal commercial air transport.

Air Transport to Southern Sudan

Southern Sudan is served by four principal airstrips, including Tambura, Nzara, Yambio, and Maridi. These airstrips can accommodate airplanes ranging from small aircrafts to Hercules C-130 transport planes and Buffaloes. Tambura airstrip is made of murrum and is among the best in the region. The airstrip at Lokichokio in Kenya serves as the principal connection (gateway) to the airstrips within southern Sudan. Due to its vital role, the airstrip has recently been surfaced at a cost of about US\$250,000, funded by USAID.

4. Current Regional Routes and Intra-Country Linkages

INTRODUCTION

In this chapter we identify and review the existing domestic and regional transportation routes serving the economies of the Northern Tier countries of the Horn of Africa. The review is presented by country and includes the ports and the routes from each port, with specific emphasis on roads and railways.

EXISTING ROUTES

Northern Sudan

The major routes serving northern Sudan comprise both the road route and the railway linking Port Sudan and Khartoum.

Road Route from Port Sudan

Port Sudan-Kassala-Medani-Khartoum (1,191 km)

This is the principal route serving northern Sudan. From Port Sudan, it runs southward to Kassala for a distance of 540 km before reaching Khartoum via Gedaref and Wad Medani, covering an additional 651 km. This road is paved and in good condition. However, traffic on this route has increased so much that the surface is suffering, while large diurnal temperature changes have also caused cracks. A major rehabilitation program is underway. Despite the existence of a railway and an import oil pipeline between Port Sudan and Khartoum, this road still carries about 40 percent of the country's petroleum products, equivalent to some 500,000 MT, from the Port Sudan refinery. From Khartoum, various internal linkages to the other parts of the country exist. These include:

- *Khartoum-Kosti-Malakal (1,076 km)*: This road route runs southward to Kosti, covering

some 406 km. From Kosti, the road runs further south via Renk (170 km) and then covers an additional 500 km to Malakal. Thus, the road is the principal connection between Khartoum and the Sobat region. It is an important route for the redistribution of surplus food from the central region to the deficit areas in Sobat and Jonglei. Currently under a project funded by Iran's Ministry of Construction Crusade, a new "Peace Highway" is being constructed to link Khartoum via Renk to Malakal and further south to Juba. When completed, it will connect northern and southern Sudan; it also could be extended as a regional route linking Sudan, Kenya, and Uganda.

- *Khartoum-El Obeid-En Nahud-El Fasher-Geneina (1,649 km)*: This road route provides the internal linkages to Darfur regions west of Khartoum. From Khartoum, it runs southwestward via El Obeid (729 km) and through El Fasher (a further 600 km) to Geneina (an additional 320 km), close to the Sudan-Chad border. As the link to the perennial food-deficit areas of north Kordofan, this route is vital for the transportation of food supplies from Khartoum and the redistribution of surplus from El Fasher to areas north of Geneina.
- *El Obeid-En Nuhad-El Fasher-Nyala (817 km)*: This route is a variation of the one discussed above, with which it shares the same facilities up to El Fasher. From El Fasher it runs south to Nyala in southern Darfur, covering 217 km, which is a compacted gravel surface. Similarly, this road route provides an important linkage for the redistribution of food to the deficit areas of south Darfur and Bahr El Ghazal.

- *Khartoum-Atbara-Wadi Halfa (930 km)*: This is the main internal linkage to the northern state. From Khartoum it runs northward to Atbara for some 320 km and then for an additional 610 km to Wadi Haifa. The 320-km section from Khartoum to Atbara is currently being rehabilitated and is expected to be ready by 1997.

Rail Route from Port Sudan

Port Sudan-Atbara-Khartoum-Wad-Medani-Sennar-Kosti-Babunusa-Nyala (2,096 km)

This is the main railway route serving northern Sudan. It runs from Port Sudan via Haiya and Atbara to Khartoum and further south to Nyala through Sennar, Kosti, and Babunusa. The rail route covers a total distance of 2,096 km from the port to Nyala. The section between Port Sudan-Atbara-Khartoum is laid of 90 lb/yard rails and covers 787 km. This rail route has an alternative link from Haiya via Kassala to Sennar, where the two lines converge. This alternative route (which is laid of 75 lb/yard rails up to Babunusa) is currently not usable because of the poor condition of the Sennar Dam, over which the railway line crosses the Blue Nile, such that traffic flow is via Khartoum. There are other branch lines to the north, west, and south that provide the internal linkages and serve as feeders to the main line. These include Babunusa-Wau (446 km), Babunusa-Nyala (335 km), Rahad-El Obeid (69 km), and Atbara-Wadi Halfa.

The condition of the line beyond Sennar, however, is poor due to old age and poor maintenance. Since this section was constructed in the late 1950s, no major repair has been done. The tracks often get washed off during the rainy season, and bridges are broken. However, due to the discovery of oil fields in the Mugland area, the government is currently undertaking a rehabilitation of the Babunusa-Wau branchline.

Eritrea

The major route serving Eritrea is the road

highway linking *Port Massawa and Asmara*.

Road Route from Port Massawa to Asmara

This is the main road route serving Eritrea, connecting Massawa to Asmara, the capital city, a distance of 115 km. The entire road is paved and in fair condition, rehabilitation and improvements having been completed. However, it is a difficult road to negotiate, reflecting the rise in altitude from sea level at Massawa to some 2,400 m above sea level at Asmara. This is reflected in the average truck load of only 20 MT — basically a heavy goods vehicle without a trailer. The road splits into three major routes within Eritrea:

- The route southward to Ethiopia, which bypasses *Asmara*, leaving the main route at Nefasit, 25 km before Asmara, *through Dekemhare Adikeyih, to the border towns of Zalambesa in Eritrea and Fadi in Ethiopia*. In practice, most traffic will go through Asmara before traveling south to Dekemhare and Adi Keyih to the border (113 km). This road continues to Senafi, Adigrat, Mekele, Dessie, to Addis Ababa and is the principal connection between the capitals of Asmara and Addis Ababa. It is a paved road and has been fully rehabilitated within Eritrea but needs widening and realignment in some parts;
- The second route southward to Ethiopia is from *Asmara*, through *Mendefera, Mereb, Adi Quala, Adua, to Gonder* in Ethiopia. It runs some 86 km from Asmara to the border town of Merab. This road is paved and has been rehabilitated except for a small distance; and
- The road westward from *Asmara*, via *Keren* (91 km) and *Argodet*, and Barentu (a further 146 km) before connecting then passes to the border town of *Tessenei* (an additional 120 km), in total covering some 357 km from Asmara. The route is paved to *Hagaz*, about 20 km after Keren, and the section from Hagaz to *Tessenei* is all-weather graveled. From the border with Sudan, the road continues via *Kassala* and *Gedaref* to *Khartoum*.

It is understood that the Eritrean government is currently discussing, with the Ethiopian government and the European Union, the attractiveness of the potential road route connecting Tesseney, Om-Hajer across the Eritrean/Ethiopian border to Humera and Gonder, which is understood to be part of the original proposed Trans Africa Highway. An alternative to this proposal is the connection between Mendefera, Barentu, Om-Hajer through to Gonder. It is proposed that this would be a joint venture funding project for which a feasibility study is potentially to be funded by the European Union. The potential attractiveness of the route is related to the proposed exploitation of the Eritrean lowlands in this area for agricultural purposes.

While Eritrea enjoys good linkages with Ethiopia and Sudan, the *Assab-Obock-Djibouti* is the only link between Eritrea and Djibouti that is not paved and is understood to be in very bad condition. However, available information indicates that this road is one of the focuses of the Intergovernmental Authority on Development's (IGAD's) regional road projects. Indeed, the government of Djibouti has prepared a proposal for upgrading the Tadjourah-Obock link, with the financial support of the African Development Bank (ADB). This road has the potential to open up northern Djibouti and southern Eritrea and also to create opportunity for development of the abundant fish resources along the country's coastlines.

Ethiopia

Following Eritrea's independence in 1993, Ethiopia became a de jure landlocked country, with access to the sea through the Eritrean ports of Assab and Massawa and the port of Djibouti in the small country with the same name. However, the port of Assab is currently Ethiopia's principal port.

The Assab-Addis Ababa Corridor

The only road route from the *Port of Assab to Ethiopia* is the 882-km-long bituminous paved road that transits through Eritrea and passes through a sparsely populated area inhabited by nomads in

eastern Ethiopia through Dobi, Mile, Awash, and Nazret before reaching Addis Ababa. This corridor can be divided into two main sections: Addis Ababa-Awash and Awash-Assab, as described below.

- The road section between Addis Ababa to Awash (223 km) is paved in asphalt concrete on all its length. In its present condition, the road does not need any urgent rehabilitation, as the surface of the road is still considered fair, except for a 1.5 km section near Mehatara on the last link (Nazret-Awash), which is in poor condition. In terms of traffic flow, it constitutes the densest trunk road in the country.
- The 659-km Awash-Assab section of the corridor is paved and was built between 1969 and 1973. Since its construction, it has suffered major deterioration due to age, minimal periodical maintenance, and increased traffic (of more than 400 vehicles per day), 90 percent of which are heavy commercial vehicles. This road section is cut into two links, mainly due to the various stages of the rehabilitation of the trunk road. These are Awash-Mille (308 km) and Mille-Assab (351 km), but the entire link is defined as being in poor condition. Available information indicates that finances have been secured from the Islamic Development Bank (IDA) for the rehabilitation of part of the Mille-Assab (196 km) section, from asphalt surface dressing (ASD) to asphalt concrete overlay (ACO) at a cost of Birr 247.5 million. In addition, it is proposed that the road sections between Awash and Mille (308 km) and between Modjo and Awash (155 km) be upgraded with an asphalt concrete overlay at a cost of Birr 408.3 million and Birr 224.5 million, respectively, but no fundings have been secured yet. Possible financiers of the Awash-Mille road are IDA and GoE, while for the Modjo-Awash section, funds are expected from IDA.

The *Assab-Addis Ababa Corridor* is responsible for the movement of Ethiopian transit

traffic to and from the port of Assab, which increased from 685,949 MT in 1991 to a significant 2,725,270 MT in 1995, equivalent to a 400 percent increase in five years. The number of truck movements also showed a significant increase, from 15,025 trips in 1991 to 44,674 in 1995.

Djibouti/Ethiopia

There are three major routes between Djibouti and Ethiopia. These are

- The 781-km Chemen de Fer Djibouti-Ethiopian Railway;
- The 910-km road via Galafi; and
- The 840-km road via Dewenle.

Chemin De Fer Djibouti - Ethiopien Railway

The railway transits through the small country of Djibouti via Dire Dawa, Awash, and Nazret before reaching Addis Ababa. The current condition of the railway route is discussed in detail in Chapter 3. In its significant operable section (Djibouti-Dire Dawa), the CDE operates block trains with a rated capacity of 450 MT, but the normal net weight is 300 to 350 MT. This low freight tracking capacity is attributed to, among other factors, the poor state of the track and track bed, as well as the locomotive's drawing power vis à viz the steep inclines/gradient. During its peak, CDE moved about 90 percent of Ethiopia's international freight. However, the outbreak of the Ogaden war in 1977/78 compelled Ethiopia to invest heavily in roads and ports (by then the current Eritrean ports were part of Ethiopia). Thus, the 882-km road link between port Assab and Addis Ababa was constructed, and, consequently, Ethiopian goods were relocated from port Djibouti, which relies on CDE as its main feeder, to port Assab via the road link. The port infrastructure and equipment also were upgraded to compete with the port of Djibouti. Currently, the port of Assab handles 80 to 85 percent of Ethiopia's international traffic, whereas about 15 to 20 percent of the Ethiopian exports and imports pass through the port of

Djibouti.

The Road Route via Galafi

This road runs in a northwest direction from the port of Djibouti through the border town of Galafi and joins the bituminous Assab-Addis Ababa road at Dobi, thereafter sharing the same facilities. The road is paved throughout Djibouti and Ethiopia.

The Road Route via Dewenle

This road traverses Djibouti through the border town of Dewenle and runs almost parallel to the railway to Awash, where it joins the Assab-Addis Ababa corridor. This road is paved from Djibouti up to the border with Ethiopia, except for a 10-km stretch between Ali Shebi and Gelile that is due for improvement under financing from Islamic Development Bank. Within Ethiopia, the road is an all weather gravel facility from Dewenle, Dire Dawa to Awash, except for the Dire Dawa-Kulubi section (53 km) which is asphalt dressed, although the section of this link, between Kulubi to the junction with Harer road (31 km) is deteriorated and has been described as poor. Available information indicates that the 214-km gravel section between Dewenle and Dire Dawa, which forms the first Ethiopian part of the trunk road, has been undergoing rehabilitation and had been closed for traffic, except food-aid trucks before its opening in 1995. Similarly, the 237-km gravel road section between Kulubi and Awash, built in 1963 with the characteristics of a primary road, is currently in poor condition, presenting serious failures of the running and drainage surface, and requires rehabilitation. Similarly, the link between Dewenle and Dire Dawa normally has the lowest traffic flow, since, apart from the traffic between Djibouti and Dire Dawa (mostly relief supplies), there is almost no local traffic. However, under the ongoing trunk road rehabilitation program, the whole of the road within Ethiopia, from Awash to Dewenle, is proposed for rehabilitation. The Awash-Kulubi section (237 km) and the Dire Dawa-Dewenle (214 km) both will be upgraded from gravel to ACO at a cost of Birr 323,65 million and Birr 310 million, respectively, while

the section from Kulubi to Dire Dawa, which is currently ASD, also will be upgraded to ACO at a cost of Birr 76,781 million. It is understood that IDA is likely to finance the upgrading of the Kulubi-Dire Dawa-Dewenle section of the road.

It is understood that a joint commission of the two countries (Ethiopia and Djibouti) recently approved a scheme for the joint seeking of funds for the above two roads to connect their countries, as regional projects.

Potential Regional Linkage Routes to Addis Ababa

Mombasa-Nairobi-Thika-Nyeri-Nanyuki-Isiolo-Marsabit-Moyale-Yabello-Dilla-Awassa-Modjo-Addis Ababa (1,992 km)

This regional road route (part of the internal Rift Valley Lakes Corridor) connects Addis Ababa with the port of Mombasa and is part of the Trans African Highway. It extends for some 1,992 km, of which the Mombasa-Nairobi-Isiolo-Moyale section is 1,222 km, while Moyale-Yabello-Dilla-Awassa-Modjo-Addis Ababa is some 770 km. The entire route is paved, except for the 510-km section from Isiolo to Moyale in Kenya. However, a project profile on the section was completed in 1994 by IGAD to seek funds, which have not been secured yet. Due to the length of the section and the heavy financial resources needed, it has been divided into four sections, upon which financial requirements can be apportioned accordingly. These include the Isiolo-Merille River (136 km), Merille River-Marasabit (128 km), Marsabit-Turbi (121 km), and Turbi-Moyale (125 km). It is understood that both the Governments of Kenya and Ethiopia are seeking funds to tarmac the road sections in a bid to boost bilateral and regional trade and other economic activities. It also is expected that once the road is fully improved, it will ease transportation difficulties, particularly with regard to food supply in the food-deficit areas of northern Kenya and southern Ethiopia.

Within Ethiopia, as part of the ongoing rehabilitation of major trunk roads, finances have been secured from the EU to upgrade the road sections between Modjo and Addis Ababa (72 km)

through resealing, at a cost of Birr 90.91 million, and the section between Modjo and Awassa (200 km) from ASD to ACO surface, at a cost of Birr 252.5 million.

Internal Linkages from Addis Ababa

From the capital city, Addis Ababa, various internal routes radiate, providing linkages to the other parts of the country. The main internal linkages include:

- *Addis Ababa-Zalambessa* (referred to as the Northern Corridor), about 933 km connecting Addis Ababa with Zalambessa on the Eritrean border. The road passes through Debre Berhan, Dessie, Woldiya, Maichew, Mekelle, and Adigrat, in fact being the same route as the Massawa-Dekemhare-Mekelle from Eritrea. This is a priority road, according to the Ethiopian Road Sector Development Program, and has been earmarked for rehabilitation, mainly because of its importance to regional integration, access to the alternative port of Massawa, and its provision of a door to new economic zones. It is the road that serves the Tigray province of Ethiopia, and its condition has a great impact on costs of transportation for relief supplies and imports and exports via Massawa. The section Addis Ababa-Woldiya (521 km), currently classified as having ASD, is proposed for ACO, at a cost of E Birr 691 million. Funding is expected to be provided by the EU. The section between Woldiya and Zalambessa (412 km) is currently gravel surface and has been proposed for upgrading at a cost of E Birr 591 million, with funding expected from IDA.
- *Addis Ababa-Mereb River* (Northwest Corridor), about 1,162 km, connecting Addis Ababa with Eritrea via Gonder. It traverses through the towns of Debre-Markos, Bahir-Dar, Gonder, Axum, Adowa, and Rama. The section Addis Ababa to Debre Markos (299 km) is to be rehabilitated from ASD to ACO at a cost of E Birr 421 million, but no funding has been secured yet. The condition of the road

beyond Gonder is said to be in critical condition and has an excessive negative impact on transportation costs. However, it is reported that under the ongoing trunk road upgrading, the road sections Debre Markos-Gonder (439 km) and Gonder-Mereb River (424 km) are to be upgraded from gravel surfaces to ACO at a cost of Birr 629.4 million and Birr 607.9 million, respectively, but no fundings have been secured yet.

- *Addis Ababa-Metema* (western part of Gonder): This road route forms part of the Northwest Corridor described above. From Gonder, it runs westward for some 210 km to Metema on the Ethiopian border with Sudan. According to the ongoing RSDP initiatives, finances estimated at Birr 148.397 million have been secured from the GoE for the construction of the 175-km major link road between Azezo and Metema, to help open up and tap the rich agricultural potentialities in the region.
- *Addis Ababa-Kurmuk* (Western Corridor), about 775 km, connecting Addis Ababa with Kurmuk on the Ethiopian/Sudanese border, via Ambo, Nekemte, and Asosa. It is paved (ASD) up to Gedo (185 km), but this section is proposed for rehabilitation to a ACO (at a cost of E Birr 255 million) in the ongoing rehabilitation of trunk roads. The feasibility study for this section is being financed by Kreditanstalt fur Wiederaufbau (KfW), and it is assumed that KfW also will finance the rehabilitation work if the project is found feasible. The rest of the sections from Gedo are proposed for upgrading, although funding has not been secured. The road has great potential to connect Ethiopia and Sudan, specifically Addis Ababa and Khartoum via Ed Damazin and Kosti.
- *Addis Ababa-Jimma* (Southwestern Corridor), 335 km, extends to Kefa region in the southwest via Weliso (Giyon) and Welkite towns and is currently categorized as having an ASD. Under Phase I of the ongoing

rehabilitation of trunk roads program, finances have been secured from the EU to the tune of Birr 423 million to rehabilitate this road to an ACO surface. From Jimma, this road route splits into two:

- *The Jimma-Mizan* (198 km) road route, which forms part of the Southwest Corridor. It splits into two at Mizan: (i) one to Tepi and (ii) the other to Maji. Currently, this road is of gravel surface, but finances have been secured from the government of Ethiopia to upgrade it to an ASD at an estimated cost of Birr 196.5 million. This road has the potential to link Addis Ababa with Juba and other towns in southern Sudan if fully developed.
- *The Jimma-Gambella* road route (about 441 km), with a potential extension to Itang, connects Jimma with Gambella in the Ilubabor region in the extreme south west through the towns of Agero, Bedelle, Metu and Gore. Under the trunk road rehabilitation program, the sections between Bedelle-Dembi (63 km) and Metu-Gambella (176 km) are proposed for Asphalt Surface Dressing (ASD) from gravel surface at estimated cost of Birr 72.5 million and 191 million, respectively by the Government of Ethiopia. However finances have not yet been secured for the project.
- *Addis Ababa-Alemgena-Hossaina-Sodo-Arba Minch-Jinka-Omorate* (Southern Corridor, about 692 km) connects the capital with Gamo Goffa Province via the towns of Alemgena, Hossaina, Sodo, Arba Minch, and Jinka. From Addis Ababa, the road proceeds via Alemgena and covers 232 km to Hossaina. The road then runs to Sodo from Hossaina, covering 96 km, and then to Arba Minch for an additional 118 km. From Arba Minch, the road has two extensions: (a) Arba Minch-Jinka (246 km) and (b) Arba Minch-Yabello (245 km), where it joins the Addis Ababa-Moyale (Rift Valley Lakes Corridor). It also is noted that the road route has potential linkages to Lokitaung (Kenya) via Turmi and Kalem, near the

borders of Ethiopia, Kenya, and Sudan. According to available reports, it is indicated the entire road route is graveled, and, under the ongoing upgrading of trunk roads program, it is proposed that the section between Alemgena-Hossaina-Sodo (328 km) is to be upgraded to an ASD at a cost of Birr 335.2 million, while the section between Arba Minch-Jinka (246 km) is proposed to be upgraded from gravel to an ASD at a cost of Birr 110.6 million.

Somalia

Somalia is served by five routes: one from the northwestern Port of Berbera, two from the central Port of Mogadishu, and single routes from both Bossaso and Kismayu. The corridors are served entirely by road, since Somalia has no railway line. There also are two routes connecting Djibouti and Somalia:

- *Djibouti-Borama-Hargeisa*, which has a paved surface and forms part of the circuit of the Berbera-Hargeisa-Djibouti loop. Available information indicates that the daily traffic level on the road between Djibouti and Hargeisa averages about 20 trucks.
- *Djibouti-Berbera*, which runs along the Gulf of Aden coastline, joining the two ports. It is understood that funding had been secured from the EU for upgrading this road to asphalt surface, but this was discontinued after the outbreak of the civil war in 1991.

Berbera-Hargeisa-Wajale-Jijiga-Harer-Dire Dawa-Awash-Nazreet-Addis Ababa (1,001 km)

The port of Berbera is connected to the hinterland by an all-tarmac road via Darburuk to Hargeisa (147 km), which is the principal town in northwest Somalia. The first 20 km from the port is in poor condition, especially within Berbera town. Thereafter, the condition of the road is satisfactory, except for flash flood crossing sections, broken edges, and sand deposits. The section of the road

from Darburuk to Hargeisa (about 70 km) is in good condition. This road is characterized by a steep rise in altitude, as the elevation rises from below sea level at Berbera to about 3,570 m over the 147-km distance. The deteriorated sections between Darburuk and Hargeisa also are being repaired, including filling of potholes and crevices. From Hargeisa, the road continues to Wajale (83 km). This section also is tarmacked and in good condition, except for the last 20 km from Kalabayd, which is of rough surface. From Wajale, the road then proceeds to Jijiga (154 km) and Harer, an additional 102 km. It then passes via Dire Dawa to Awash, where it joins the roads from Assab and Djibouti to Addis Ababa.

All the bridges between Darburuk and Hargeisa — four in number — were blown up during the civil war. In practice, therefore, vehicles have to detour from the main road and pass via side trucks to cross the steep river beds at the bridge points, before climbing to join the main road again. The soft sand deposits across such river beds make crossing difficult, particularly for loaded cargo trucks. Volunteers clear the displaced sand as soon as enough has accumulated to cause difficulty to passing vehicles. The European Union is planning to rehabilitate the bridges, and engineers have already carried out preliminary surveys.

Berbera-Sheik-Burao (126 km)

The road to Burao (126 km), which is to the southeast of Berbera port, is in good condition. However, two bridges after Hudiza have been blown up. These are currently earth-filled to allow the passage of vehicles. After Burao, the road continues to Ainob, where it branches into two:

- *Burao-Les Anod*, which has a tarmacked surface in fair condition that covers about 385 km from Berbera.
- *Burao-Erigivo*, which is not tarmacked and covers about 399 km. While trucks can pass easily during most of the year, the road experiences floods during the rainy seasons that make passage difficult.

Mogadishu-Johwar-Belet Weyne-FerFer-Kebri Dehar-Dege Bur-Jijiga-Harer-Dire Dawa - Awash-Nazreet-Addis Ababa

This potential regional route basically serves central Somalia. From the port of Mogadishu, the road takes northward direction via Jowhar. The road, although paved up to Bulu Burti (216 km), is in poor condition. It continues to Belet Weyn, covering some 116 km (gravel). After Belet Weyne, the road proceeds to the Somalia/Ethiopia border town of Fer Fer. The road then continues through Gode, Kebri Dehar, and Dege Bur (becoming part of the *Ethiopian Southeastern Corridor*) to Jijiga, which is a distance of about 655 km. From Jijiga, this road route shares the same facilities with the route from Berbera, noted above. It is understood that the route normally takes the longer distance via Jijiga from the border town of Fer Fer instead of the direct and shorter route via Gode to Ginir-Asasso and then to Addis Ababa due to the difficult mountainous topography around the Bale mountains (4,307 m), which is a major constraint to heavy trucks hauling cargo. It is reported that the section between Jijiga and Gode (569 km), which is classified as gravel, is proposed to be regraded by the government of Ethiopia at a cost of Birr 172.9 million, but finances have not been secured yet. Similarly, the Harer-Jijiga section (102 km), which is currently under gravel, is proposed for ASD by the government of Ethiopia at a cost of Birr 102.8 million, but no funding has been secured yet.

Mogadishu-Baidoa-Lugh-Dolo Odo-Negele-Kibre Mengist-Awassa-Ziway-Modjo-Addis Ababa

This route, which is paved and in good condition, runs to Baidoa (256 km) from the Port of Mogadishu. From Baidoa, the road then runs to Lugh, which is under gravel, and then proceeds to the border town of Dolo Odo. From Dolo Odo, the road continues into Ethiopia, passing through Negele to Kibre Mengist, which is graveled, covering some 426 km. From Kibre Mengist, the road passes via Wendo and Yirga Alem to Awassa,

an additional 176 km, out of which only the section between Wendo and Awassa (42 km) is paved, while the rest is graveled. At Awassa, the road route links and shares similar facilities with the road route linking Mombasa-Nairobi-Moyale-Addis Ababa, which is part of the internal Rift Valley Lakes Corridor described above.

Linkages from Other Ports in Somalia

The regional routes described above constitute the core of the network. However, there are other connections from Somalia's two other ports that complete the road network. These are

- **Bosasso-Garda-Galacio-Bulo Burti-Mogadishu:** This is the main internal network linking the northern states of Mudug, Nugal, and Bari to the central states of Middle Shabelle, Hiram, and Galgudug. The road joins the ports of Bosasso and Mogadishu. This road route provides important linkages between the fertile agricultural and food-surplus areas of Juba, Shabelle, Bakool, and Hiram with the deficit areas in the north. Import commodities through the port of Bosasso include juices, powdered milk, and shoe polish, while exports comprise mainly sheep and goats.
- **Mogadishu-Gelib-Kismayu:** This route provides the internal link between the central states and the southern parts of the country. It runs from Mogadishu parallel to the coastline to the port of Kismayu in the lower Juba area.

Southern Sudan

As already indicated, the division and isolation of southern Sudan from the north and the central regime has led to the emergence of distinct transport routes specifically serving the region. There are four main road routes to southern Sudan that originate from the port of Mombasa in Kenya. The main route section runs via Nairobi to Eldoret, after which there are two variations to southern Sudan: the route via Lokichokio, the primary destination in northern Kenya, and three via

Malaba to the primary destinations in Uganda, namely Kitgum and Gulu (via Lira) and, similarly, Koboko via (Kampala and Pakwach). These road routes are described in the following sections.

Mombasa-Nairobi-Nakuru-Eldoret-Kitale-Lokichar-Lodwar-Kakuma-Lokichokio-Narus-Kapoeta-Torit-Juba (1,897 km)

This is the only route to southern Sudan through Kenya via Lokichokio, the primary destination and transshipment point near the Sudan border. From Mombasa, the road route follows the main Nairobi-Mombasa highway, covering a distance of 485 km to Nairobi. The route then proceeds to Nakuru, covering a distance of 156 km from Nairobi. From Nakuru the road proceeds using the Nakuru-Eldoret highway to Eldoret (157 km). After Eldoret, the road runs to Kitale, an additional 69 km. The entire road section from Mombasa to Eldoret is paved and in good condition. The road then passes through Kapenguria to Lodwar, which is 304 km from Kitale. From Lodwar, the route passes via Kakuma to Lokichokio, covering an additional 345 km.

After Lokichokio, the road passes via Narus, covering a distance of 45 km, and then proceeds to Kapoeta, an additional 65 km. From Kapoeta the road takes a westward direction to Torit, some 130 km, and proceeds to Juba, an additional 142 km from Torit. Thus, from Lokichokio, the route covers a distance of 382 km to Juba, making the entire route a distance of 1,897 km. Currently, the road connection to southern Sudan from the Lokichokio primary destination in Kenya is closed. Therefore, cargo movement into southern Sudan depends entirely on airlifts from Lokichokio to the various destinations, including Tambura, Maridi, Thiet, and Yambio, among others.

Mombasa-Nairobi-Eldoret-Malaba-Tororo-Mbale-Soroti-Lira-Kitgum-Madi Opei-Lopodi-Torit-Juba (1,780 km)

This route shares the same facilities with the one described above to Eldoret, after which it runs to Malaba at the border (953 km). After crossing the border at Malaba, the route covers 18 km to Tororo

and then branches to Mbale, leaving the main Malaba-Kampala route, and proceeds to Lira (292 km from Malaba) and finally to Kitgum, the section between Lira and Kitgum being a distance of 125 km. After Kitgum, the route runs via Madi Opei to Lopodi, 80 km after Kitgum. From Lopodi, the route runs to Torit, for an additional 210 km, and finally to Juba, which is 120 km from Torit.

Mombasa-Nairobi-Eldoret-Malaba-Tororo-Mbale-Soroti-Lira-Gulu-Atiak-Nimule-Juba (1,659 km)

This route shares the same facilities with the above from Mombasa to Malaba (953 km) and then from Malaba to Lira (292 km). After the Lira junction, the route proceeds to Gulu (primary destination), which is 104 km from Lira (a total of 396 km from Malaba). From Gulu the route passes via Atiak to Nimule (112 km) and then proceeds to Juba, covering an additional distance of 198 km from Nimule.

Mombasa-Nairobi-Eldoret-Malaba-Kampala-Masindi-Paraa-Pakwach-Koboko-Oraba-Kaya-Yei-Juba (1,909 km) or Yei-Tambura (2,264 km)

This road route from Mombasa through Kenya to the Kenya-Uganda border at Malaba (953 km) shares the same facilities with the above route, which is paved and in good condition. The road between Malaba and Kampala (222 km) is also paved and in fairly good status. From Kampala, the route goes to Masindi through Luwero, covering a total distance of 212 km. After Masindi, the road runs northward via Paraa, where there is a ferry crossing, and then to Pakwach, where there is another ferry crossing. From Pakwach, the road runs to Koboko via Arua, a distance of 387 km from Masindi.

From the Koboko transshipment point, the route runs northward through Oraba border post, which is 25 km from Koboko. After Oraba, the road crosses into Sudan at Kaya, passing via Keleba-Midoru-Piowa to Yei, which is 80 km from the border. However, at Yei, two distinct routes emerge:

- The route through Gobul and Dikala, to Juba, an additional 110 km from Yei, and
- The route through Maridi and Yambio to Tambura, an additional 465 km from Yei.

There are constant changes to the above original routes to suit the prevailing military/security conditions. Therefore, some of the above direct and shorter original routes to destinations inside Sudan are currently not operational. For example, it is not currently possible to transit cargo to western Equatoria via Yei, since the road route from Koboko via Oraba through Kaya to Yei is closed. This route shares the same facilities with the original route above to Koboko (1,774 km), at which point it runs south to Arua, covering a distance of 66 km. The road then crosses the border into Congo (formerly Zaire) at Vurra and runs to the northern Congo border with Sudan, covering 200 km. The road crosses the border into southern Sudan at Aba and then connects to Lasu after 47 km by passing Yei,

covering a total distance of 313 km from Koboko. After Lasu, the route passes through Logo and Naam before reaching Maridi, covering 180 km. It then covers an additional 120 km from Maridi to Yambio and then proceeds to Tambura, which is 188 km from Yambio. Unfortunately, with the military situation affecting Congo since November 1996, this route also has been abandoned, so that southern Sudan can be reached only by air connection via Lokichokio.

Internal Linkages

Southern Sudan suffers from a lack of adequate internal linkages due to the poor condition of most of the internal roads. However, some donors and NGOs have funded the rehabilitation of some roads, especially those serving the surplus food production areas of western Equatoria. These include Maridi-Lasu (231 km), Maridi-Madebe (61 km), Maridi-Mvolo (219 km), and Maridi-Rumbek-Tonj.

5. The Existing Transport Industry

INTRODUCTION

In this chapter, we examine the structure of the national and subregional transport industry. Land-locked countries such as Ethiopia rely on transit systems that traverse other states. In this context, the available facilities and the necessary procedures have a great bearing on both cost of transport and transit time. The transport industry sectors discussed here include ports, rail, road, water (river), and air.

PORTS

Port Sudan

Port Sudan is managed by the Sea Ports Corporation (SPC), created in 1974 to administer Sudanese ports, which were previously managed by the Sudan Railways Corporation (SRC). In 1977, SPC was transferred from the Ministry of Defense to the Ministry of Transportation, where it remains today. The chairman of the corporation manages a small office in Khartoum that includes the Planning Department. The chief operating officer in Port Sudan is the general manager, who has five directors responsible for shore operations, marine operations, engineering, finance, and personnel. It is indicated, however, that managerial, supervisory, and technical skills are limited.

The port has operated at or near the limits of its capacity in the past, featuring delays and congestion. However, although the theoretical capacity was increased to 8 million MT in 1984, the port's effective capacity remains limited by the small size of the harbor.

Port Sudan handled a total of 859 vessels in 1995, out of which general cargo vessels constituted 41 percent, container vessels 22

percent, and POL vessels 13 percent. The other vessels were livestock carriers. The average vessel load for imports in 1995 was 2,825 MT, while that of exports was 805 MT. The ports' berth utilization declined from 77 percent to 69 percent between 1994 and 1995, due to the reduction of visiting vessels. Consequently, vessel off-shore waiting time dropped from 2.29 days per vessel in 1994 to 1.66 days per vessel in 1995. Similarly, berthing time was reduced from 4.83 days per vessel in 1994 to 3.76 days per vessel in 1995.

Available statistics indicate that the port has experienced a decline in its throughput by nearly 1 million MT, from a high of 4,266,843 MT in 1990/91 to 3,335,752 MT in 1994/95, equivalent to 22 percent. Imports constituted 79 percent of the total metric tonnage in 1995 while exports represented 21 percent (see Table 5.1). Principal imports in 1995 consisted of crude oil and oil products, which represented 53 percent of imports, wheat flour, cement, and wheat. The principal exports, on the other hand, comprised molasses, peanut cakes, and sesame. Between 1990/91 and 1994/95, all traffic was exclusively domestic cargo.

The Port of Massawa

The port of Massawa is managed by the Eritrean Ports Authority (EPA), a parastatal under overall guidance of the Department of Marine Transport in the Ministry of Transport and Communications. In 1995, the port of Massawa handled a total of 415 ships, out of which 278 (67 percent) were dry cargo vessels, 59 (14.2 percent) were tankers, and the remaining 78 (19 percent) were passenger vessels. These represent an overall increase of about 299 percent from a total of 104 ships that were handled at the port in the first six months of 1991.

Available data indicate that the port of Massawa

Table 5.1. Port Sudan Throughput, 1991–1995 (MT)

Year	Imports	Exports	Total
1990/91	3,714,226	552,617	4,266,843
1991/92	3,220,434	490,642	3,711,076
1992/93	2,673,705	1,023,541	3,697,246
1993/94	2,927,264	1,061,948	3,989,212
1994/95	2,595,950	739,802	3,335,752

Source: Sudan Port Corporation.

has handled inconsistent but generally increasing traffic, from 431,748 MT for the last six months of 1991 to 702,808 MT in 1995 (see table 5.2, overleaf). Imports (of dry cargo and refined oils) comprised 99.7 percent of the total port throughput in 1991, declining marginally to 95.9 percent in 1995, thus indicating low export capacity. More than 40 percent of imports via Massawa consists of manufactured products (including materials), followed by food (27 percent), machinery and transport equipment (15 percent), and chemicals (9 percent). Imports also include refined oil products, which have increased 700 percent between 1991 and 1995. Exports have risen dramatically, however, from a low of 1,259 MT in 1991 to 28,663 MT in 1995. Salt is, at present, by far the largest Eritrean export, followed by beverages and tobacco. Other exports include soap and detergent, candles, matches, bottles, shoes, and textiles. Agricultural exports have been very limited so far.

The port mainly handles local cargo; however, transit cargo to northern Ethiopia, particularly Tigray and Gonder provinces, also passes through Massawa. Transit traffic constitutes only a small proportion of traffic passing the port of Massawa. In 1994, transit traffic amounted to 102,000 MT, comprising food aid cargo (28 percent of total Ethiopian food imports, including as much as 7 percent of total Ethiopian wheat imports) and oil products destined mainly to the Tigray province of Ethiopia, with nonaid cargo amounting to only 3,000 MT, mostly construction

materials and manufactured goods. Out of the total cargo traffic handled at the port of Massawa in 1995, containerized cargo constituted only 6.8 percent (47,561 MT, equivalent to 3,404 TEUs). An additional 2,025 empty containers or 2,128 TEUs also were loaded.

The discharge at Port Massawa was as low as 1,000 MT per day in 1995. This is attributed to, among other factors, a lack of adequate equipment, such as grabs, and a high rate of equipment breakdown (less than 50 percent of the equipment is in good condition at any one time), both of which are exacerbated by the limited covered cargo space at the port. In addition, the port is reported to suffer from a confused traffic pattern, hence congestion and traffic jams. The port's off-take capacity also depends largely on truck availability, which is constrained by scheduling activities despite an apparent overcapacity.

The Port of Assab

The port of Assab handled a total of 600 ships in 1995, out of which 71.5 percent (429) were general cargo vessels and the remaining 28.5 percent (171) were tankers. This represents an increase of 300 percent since 1991, when the port is reported to have handled a mere 150 ships, although only in the last six months of the year. The total cargo throughput at the port also has increased sharply over the last five years. For example, the total

Table 5.2. Port of Massawa Throughput 1991–1995 (MT)

	1991 ²	1992	1993	1994	1995
Dry Cargo					
— Imports	405,796 (94%)	484,373 (84.9%)	280,086 (70.9%)	612,567 (78.4%)	511,223 (72.2%)
— Exports	1,259 (0.3%)	10,981 (1.9%)	10,135 (2.6%)	21,746 (2.8%)	28,663 (4.1%)
	407,056	494,354	290,221	634,313	539,885
Refined Fuel					
— Imports	24,693 (5.7%)	75,226 (13.2%)	104,598 (26.5%)	146,703 (18.8%)	162,922 (23.2%)
	431,740	570,580	394,819	781,016	702,808

Source: Eritrean Port Authority (EPA).

traffic handled at the port rose from 702,589.8 MT in 1991 to a peak of 2,792,606.10 MT in 1995, thereby registering an increase of about 297 percent. It is noted, however, that containerized traffic constituted only 7.3 percent (205,038 MT, equivalent to 15,413 TEUs), while the remaining cargo was both general cargo and fluids. Import traffic rose from 636,171.3 MT in 1991 to 2,442,588.9 MT in 1995, out of which 99 percent (2,422,909 MT) was transit traffic to Ethiopia. However, export traffic handled at the port has been inconsistent but generally on the increase, rising from 66,418.5 MT in 1991 to a peak of 381,541.87 MT in 1994 before declining to 350,017 MT in 1995 (see Table 5.3).

The bulk of the cargo handled at the port of Assab is basically transit traffic to and from Ethiopia. Imports include food aid, oil products, construction materials, and manufactured (capital) goods, while exports include coffee, hide and skins, gum, arabic, and khat. In addition to the Ethiopian traffic, the throughput at the port of Assab includes (a) transshipment traffic to and from the port of Djibouti, which, for example, has handled an average of some 5,000 MT of Ethiopian coffee per month during the first four months of 1996; and (b) local traffic, destined to the port of Massawa, mostly transporting refined oils from the refinery at the port of Assab. In 1995, for

example, a total of 321,354.5 MT of refined fuel designated as export traffic is understood to have been destined to Massawa.

In order to support food import activities, Assab has eight single-line bagging units, whose actual capacity stood at about 460 MT per day by 1994, although the rated capacity for each bagging unit was 750 MT per day. However, only two bagging machines could be utilized per vessel. According to available statistics, under normal circumstances, the discharge is 3,500 MT per day but could be increased up to 5,000 MT per day. This is not achieved, however, due to frequent breakdowns of the equipment due to age and lack of spare parts. The off-take from Port Assab is estimated to be 100,000 MT per month, depending on availability of trucks from Ethiopia.

The Port of Djibouti

The port of Djibouti is a major gateway for the region. As indicated, the port is an important transit port for goods destined to Ethiopia and Somalia. It also has good linkages with other countries bordering the Red Sea. The port handled a total of 892 vessels in 1995.

The total traffic passing through the port of Djibouti in 1995 amounted to 1,230,135 MT, which rep-

Table 5.3. Port of Assab Cargo Throughput 1991–1995 (MT)

	1991 ¹	1992	1993	1994	1995
Imports					
— Dry Cargo	357,562.00	1,081,950.6	947,145.50	1,134,693.70	1,236,136.30
— Refined Fuel	278,609.30	992,660.1	971,350.80	1,175,431.30	1,206,452.60
	636,171.30	2,074,610.7	1,918,526.30	2,310,125.00	2,442,588.90
Exports					
— Dry Cargo	47,673.00	94,165.70	98,808.70	21,746.47	28,662.70
— Refined Fuel	18,745.50	258,946.60	273,181.00	359,795.40	321,354.50
	66,418.50	353,112.30	371,989.70	381,541.87	350,017.20
Total Dry Cargo	405,235.00	1,176,116.30	1,045,984.20	1,156,440.17	1,264,799.00
Total Refined Cargo	297,354.80	1,251,606.7	1,244,531.80	1,535,226.70	1,572,807.10
Grand Total	702,589.80	4,427,723.0	2,290,516.00	2,961,666.87	2,792,606.10

1. Represents the last six months.

Source: Eritrean Port Authority (EPA).

resented an average annual growth of 4.4 percent since 1985, when a total throughput of 1,126,247 MT was recorded, but an average annual decline of 8 percent since 1990 is also apparent. There were overall traffic decreases in six of the 10 years, with significant declines in 1989, 1992, and 1993. However, traffic throughput at the port recorded significant increases of 69.8 percent and 41.4 percent, peaking at 1,482,452 MT and 2,095,981 MT in 1990 and 1991, respectively. In 1995, dry cargo traffic amounted to 934,263 MT (76 percent), of which imports comprised 67 percent, while petroleum products and other bulk liquids amounted to 295,872 MT (24 percent), of which imports comprised 68.3 percent. Equivalent import proportion for dry cargo traffic was 82 percent in 1985, 68 percent in 1990, and 73 percent in 1993, compared to 59 percent in 1985, 55 percent in 1990, and 63 percent in 1993 for petroleum products and other liquid products. Imports of petroleum products through the port have declined, however, from 329,584 MT in 1985 to only 202,113

MT in 1995, which reflects the increased use of Assab for Ethiopian petroleum needs. Table 5.4 summarizes the port throughput since 1990.

Dry cargo traffic through the port of Djibouti is made up of three different categories: domestic, transit, and transshipment. Domestic traffic in 1995, at 262,397 MT, was equivalent to 28 percent of the port throughput, compared to 43 percent and 36 percent in 1985 and 1990. Domestic traffic comprises almost exclusively imports: 260,000 MT or 99.1 percent in 1995, compared to 86 percent and 95 percent in 1990 and 1985, respectively. Similarly, transit traffic (mainly to Somalia and Ethiopia) amounted to 158,067 MT in 1995, compared to 225,850 MT in 1985, a decline of 30 percent. It is noteworthy that while transit traffic to Ethiopia declined 38 percent, from 211,427 MT in 1985 to 131,256 MT in 1995, similar traffic to Somalia has almost doubled, from 14,423 MT in 1985 to 26,811 MT in 1995, with a peak of 53,669 MT in 1992. The declining Ethiopian transit traffic (imports and exports) has been a major

Table 5.4. Port Djibouti: Cargo Throughput 1990–1995

IMPORTS	1990	1991	1992	1993	1994	1995
Domestic (Djibouti)	210,962	378,539	388,807	416,858	343,596	260,000
Transit Ethiopia	71,113	238,481	128,114	96,894	111,653	111,815
Transit Somalia	3,592	10,577	53,429	15,894	18,603	26,584
Transshipment	179,533	322,584	245,363	121,031	176,726	227,700
POL	439,549	324,289	368,676	297,554	319,345	202,113
Subtotal	904,749	1,274,740	1,134,389	948,234	969,923	828,212
EXPORTS						
Domestic (Djibouti)	34,397	47,922	1,437	1,207	665	2,397
Transit Ethiopia	26,414	30,265	11,523	10,217	26,672	19,441
Transit Somalia	362	726	240	311	376	227
Transshipment	154,765	538,362	326,662	227,702	263,822	286,099
POL	194,671	54,512	51,249	53,060	27,489	4,203
*	81,670	59,600	75,031	51,933	55,815	43,524
*	85,424	90,122	82,723	64,959	51,009	46,032
Subtotal	577,703	821,511	548,865	409,389	425,848	401,923
Combined Cargo						
Domestic (Djibouti)	245,359	426,461	340,244	418,065	344,261	262,397
Transit Ethiopia	97,527	268,746	139,637	107,111	138,325	131,256
Transit Somalia	3,954	11,303	53,669	16,208	18,979	26,811
Transshipment	334,298	860,946	572,025	343,733	440,548	513,799
POs	634,220	378,803	419,925	350,614	346,834	206,316
*	81,670	59,600	75,031	51,933	55,815	43,524
*	85,424	90,122	82,723	64,959	51,009	46,032
GRAND TOTAL	1,482,452	2,095,981	1,683,254	1,357,623	1,395,771	1,230,135

Source: Port Autonome Internationale de Djibouti

concern to the Port of Djibouti Authority and indicates the preference of Assab for most of Ethiopia's importers and exporters since the late 1970s. Total transit traffic represented 39.5 percent in 1985, declining to 14.9 percent in 1990 and 17 percent in 1995.

Finally, transshipment cargo, which amounted to only 101,025 MT in 1985, representing 17.6 percent of total dry cargo throughput, was recorded at 513,799 MT or 55 percent in 1995, indicating the relatively fast growth of this traffic category. The increasing transshipment traffic was responsible for the dramatic increases in port throughput in 1990 and 1991. Djibouti has been used increasingly by shipping lines

as a relay point for containers to and from Saudi Arabia. Accordingly, container traffic, which until 1989 averaged less than 25,000 TEUs per year, recorded significant increases, to 36,305 TEUs in 1990, 91,829 TEUs in 1991 (which represented an exceptional year due to the Gulf War), and 83,903 TEUs in 1995. In 1996, container traffic is projected to exceed 100,000 TEUs. Specifically, some 10,000 MT of Ethiopian cargo, which includes some 5,000 MT of coffee, is currently being transhipped via the port of Assab on a monthly basis as a result of the weaknesses in inland transportation arrangements between Djibouti and Ethiopia. However, since September

1996, the two countries have taken measures to address the transport weaknesses. The Port of Djibouti Authority has made specific efforts to position itself as the major gateway to Ethiopia by increasing its overall share of Ethiopian imports and exports to as much as 80 percent.

Port of Mogadishu

Prior to the civil war, Mogadishu was a very busy port. However, since 1991 the port has been at the center of a bitter struggle over its control by different clan warlords. The civil war has adversely affected the port business, and, currently, the port is not operational. For the two years that UNOSOM forces were stationed in Somalia, the port was operational but was closed soon after the withdrawal of UNOSOM in 1994/95 due to the escalation of war. Port administration has been the responsibility of the Mogadishu Port Operations Company (MPOC).

Under the ongoing UNDP-Somali Ports Rehabilitation Project, Mogadishu and Kismayu ports were the initial focus, primarily on management, infrastructure rehabilitation, and local capacity building. However, the escalation of war and subsequent closure of Mogadishu port after the pull-out of UNOSOM curtailed the implementation of the project.

Kismayu Port

The full utilization of the port for commercial operations is currently limited due to the civil war and the resultant insecurity. As already indicated, Kismayu port would have benefited from the initial focus of a UNDP-sponsored Somalia Ports Rehabilitation, which has been shelved.

Berbera Port

Berbera is currently the busiest port in Somalia, having recently experienced an increase in traffic — both imports and exports. The port receives on average some 81 ships per month from Brazil, Italy, America, the Far East, Africa, and the Gulf regions. On average, more than 50 percent of the ships calling at the port are livestock carriers. In 1994, exports of sheep and goats through the port

were about 2.2 million, while in 1995 this rose to about 2.8 million. Similarly, the port handled about 58,000 herds of cattle and 73,000 camels as exports in 1994. In 1995, exports through the port comprised 94,000 herds of cattle and 103,000 camels. In practice, most of the livestock is shipped to Gizan in Saudi Arabia.

The port handles an average of 150,000 MT of all cargo as imports annually. Transit cargo to Ethiopia accounts for about 30 percent, while 70 percent is accounted for by imports to Somalia (30 percent) and local imports to (Somaliland), comprising 40 percent.

In practice, cargo at the port is discharged manually by labor gangs who get into ship hatches and arrange cargo onto slings. The ships' derricks are used to discharge the cargo from the hatch to the quay. The gangs can handle 1,000 MT in three shifts a day. Currently, the port of Berbera generates about 90 percent of the revenue of the self-declared independent northwestern region based in Hargeisa.

Security is currently a major component of the operational system of Somalia ports. At Berbera, security is provided by local police and has been satisfactory for normal port operations.

Bosaso Port

The port of Bosaso is currently under the administration of the Bari Regional Authority. Prior to the civil war, Bosasso was a thinly inhabited town compared to the southern cities of Mogadishu and Kismayu. However, the outbreak of the civil war reversed the trend, with the relative peace in the northern areas attracting many immigrants. The population of Bosasso is reported to have quadrupled to 100,000 people since 1991. Ships and dhows crowd the docks, bringing imported commodities across the Gulf of Aden and carrying away livestock. This has provided the impetus for trade, and, currently, imported goods are abundant in the sprawling market. Import commodities are as diverse as juice, powdered milk, and shoe polish, while exports comprise mainly sheep and goats. In 1995 alone, it is indicated that 10 million goats and sheep were exported to Saudi Arabia through Bosasso Port.

THE RAILWAY SYSTEM

Railway Freight Transport Industry in Sudan

The railway system in Sudan is operated by the Sudan Railways Corporation, which was incorporated in 1967 but functions as a parastatal organization responsible to the Ministry of Transport. The SRC's main operational headquarters are in Atbara, although its chairman and general manager for administrative and financial affairs are based in Khartoum. In 1976, Sudan Railways was regionalized, and, in 1982, its operational management was further decentralized, with the principal operational responsibilities vested in five regional managers, with headquarters at Atbara (northern region), Port Sudan (eastern region), Khartoum (central region), Kosti (southern region), and Babanusa (western region).

Sudan Railways operates block trains to move a large proportion of cargo. However, a lack of communication over the years has been the major constraint in the transfer of wagons between stations. The situation is changing, however, and available reports indicate that radio communication was recently introduced between the main stations to facilitate the followup and tracking of wagons. It is reported that general wagon turnaround has improved from 31 days in 1994 to 23.7 days in 1995 on the main corridor linking Port Sudan to Khartoum.

Freight (billed loads) metric tonnage hauled by SRC in the years 1994/95 stood at a total of 1.76 million MT, surpassing the previous year level of 1.75 million MT by a slight margin. These were mainly government goods. Export traffic constituted 30 percent of SRC's total freight in 1994, but this dropped to 12.5 percent in 1995 due to the declining Sudanese international trade. Most of SRC's traffic flow is between and among Khartoum, the central states, and Port Sudan. Various kinds of imports are moved to Khartoum, and agricultural and livestock products also are moved from Khartoum and the central states to Port Sudan for export. As such, SRC's principal

business is basically the domestic market. The railway sections between Kosti, El Obeid, El Rahad, Babanusa, Wau, and Nyala are the most important for relief operations. These sections serve the drought-prone areas of North Kordofan, north Darfur, and the war-affected areas of Bahr el Ghazal. Unfortunately, the sections to these latter regions also happen to be the least-functioning part of the railway because of the bad condition of tracks.

Eritrea Railway Transport Freight System

The railway system in Eritrea consists of the former Northern Ethiopia Railway, which covered about 300 km from Port Massawa to Agordat. In practice, it has not been operational since 1975, when all operations were suspended and the entire staff dispersed, and thereafter no state agency took responsibility for the line and its property. Large stretches of the track and virtually all its rolling stock were looted and/or destroyed completely during the liberation war.

Railway Freight Transport Industry in Ethiopia and Djibouti

The railway system in Ethiopia and Djibouti, Chemen De Fer Djibouti-Ethiopiens, is run by a board of directors composed of 12 members (six from each country), headed alternately by the transport ministers from the two countries. CDE's general manager, together with the financial and personnel directors, are based in Addis Ababa (with units representing them in Djibouti), while the technical management and commercial director are based in Djibouti. It operates train services for both passenger and cargo traffic between Djibouti and Dire Dawa and occasionally to Addis Ababa. CDE operates block trains, particularly along its busiest section (Djibouti-Dire Dawa), with a rated capacity of 450 MT, but the normal net weight is 300 to 350 MT. This low freight tracking capacity is attributed to, among other factors, the poor state of track and track bed as well as the locomotive's drawing power vis à vis the steep incline/gradient.

During its peak, CDE moved about 90 percent of Ethiopia's international freight. However, as

Table 5.5. CDE International Freight (MT)

	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94
Exports	101,131	99,659	87,189	77,925	95,000	70,000	72,665	69,363
Imports	170,489	145,850	145,472	138,988	130,000	110,000	100,322	94,690
Total	271,620	245,509	234,661	216,913	225,000	180,000	172,987	164,053
Domestic	63,758	70,326	64,374	78,465	90,000	50,000	60,965	46,520
Grand Total	335,378	315,835	299,035	295,378	315,000	230,000	233,952	210,573

Source: CDE Annual Reports

already indicated, the outbreak of the Ogaden war in 1977/78 compelled Ethiopia to invest heavily in roads and ports (by then the current Eritrean ports were part of Ethiopia). Thus, the 882-km road link between port Assab and Addis Ababa was constructed, and, consequently, Ethiopian goods were relocated from port Djibouti, which relies on CDE as its main feeder, to port Assab via the road link.

CDE freight metric tonnage over the years has been on the decline, in general terms. Total freight traffic fell from a high of 335,378 MT in 1986/87 to a low of 210,573 MT in 1993/94, which represents a decline of about 37 percent. Specifically, export traffic declined from a peak of 101,131 MT in 1986/87 to 69,363 MT in 1993/94, a fall of 31 percent. Similarly, import traffic during the same period fell from 170,489 MT to 94,690 MT, representing a 44.5 percent decline (Table 5.5). Comparative statistics from other regional railway corporations indicate that, for example, KRC carried some 2.5 million MT in 1992/93, while TRC had 1,203 million MT in 1993.

The existing commercial wagon fleet is reported to be insufficient to handle the transportation of goods. CDE's limited capacity is illustrated by the fact that, as of June 1996, for example, some 20,000 MT — equivalent to some 80 train loads — were waiting to be transported from the Port of Djibouti. Presently, the wagon turnaround is estimated to exceed 10 days but ideally should not be more than eight days. Another factor that can be attributed to the poor

traffic levels of the CDE includes the poor condition of the track (old age and poor maintenance), which limits the load haulage to only 250 MT per trip and causes regular derailments.

ROAD FREIGHT TRANSPORT INDUSTRY

Road Freight Transport Industry in Northern Sudan

Sudan's heavy haulage road freight industry comprises large trucks with a capacity range between 35 and 60 MT. The other category comprises medium- to small-size trucks with capacities of 15 to 25 MT. Available information indicates that, as of June 1996, there were seven major private transport companies in the large trucks category using different makes of long-haul and trailer trucks. These transport companies collectively control the on-the-road transport business in the country, especially between the major destinations of Port Sudan, Kassala, Khartoum, Medani, Sennar, Kosti, Gedaref, and El Obeid. Being private, these companies are reported to be properly managed and vehicles well-maintained. All of the transport firms have offices at the various destinations. They also have radios for communicating between different offices.

During the past two years, the deteriorating

Table 5.6. Major Transport Firms, Their Fleet Size, and Capacity

Company	Make	Number		Capacity
		1996	1994	
El Roubi	GMC	27	60	50 MT
Int'l Regions	DAF	97	98	40 MT
	DAF tankers	40	40	10,000 gallons
Eltaysseer	Scania	15	25	50 MT
	Scania tankers	7	7	10,000 gallons
Keer	Scania 6x4	0	44	50 MT
	Magirus 6x4	49	49	50 MT
	Fiat	40	40	50 MT
	Mack	8	8	40 MT
	DAF	24	24	40 MT
	Magirus 6x6	28	28	20 MT
El Naorus	Styer	200	250	45 MT
	Scania	70	180	55 MT
Ghareeb	Renault	2	20	35 MT
	Fiat NP	20	35	45 MT
Abbarci	Fiat	75	130	40 MT
	Fiat tankers	10	70	13,000 gallons

performance of the Sudanese economy has severely affected the transport sector due to lack of goods to transport and inflation which are seriously threatening major transport firms. This is reflected in the decline of combined fleet size of the seven major transport firms from 1,108 trucks in 1994 to 712 trucks by June 1996 (Table 5.6).

There also are many smaller firms using trucks in the range of 15 to 25 MT capacity working as subcontractors for the off-the-road areas where larger trucks cannot reach. The fleets of the small companies are usually old and poorly maintained and, hence, susceptible to breakdowns. More often than not, these smaller companies act as “truck mobilizers” for individual truckers, particularly for the transport of relief food to the drought-prone and food-deficit areas of north Kordofan and north Darfur, which are quite remote and where drivers are often reluctant to go. In most cases, most of the trucks going to such areas are individually owned and comprise mainly two types of Hino truck, the

ZY (25 MT) and the KY (15 MT), which have demonstrated their ability to haul at full capacity over any type of terrain.

Overall, the transport industry in Sudan is going through hard times due to the poor economic situation in the country, especially inflation. As such, transport companies experience great difficulties in securing spare parts, fuel, and tires. It is reported that, were it not for payment in hard currency truck operators receive from international organizations, particularly WFP, for relief transport, they would have gone out of business a long time ago.

River Transport Industry in Sudan

For centuries, river transport (particularly the Nile River) used to be one of the dominant modes of transport in the Sudan, particularly the southern regions. The section of the Nile River between Khartoum-Kosti-Malakal and Juba (1,755 km) is

the most important route corridor. The journey along the corridor takes about 10 days upstream and seven days downstream.

Along the Nile in northern and central Sudan, some small ferries are used connecting eastern and western banks. The river mode of transport also was used to transport passengers and cargo by use of barges between Sudan and Egypt, but this has been stopped due to the currently strained relationship between the governments of the two countries during the past several years.

The River Transport Corporation (RTC), a parastatal established since the colonial era, is the main cargo and passenger carrier between northern and southern Sudan. The opening up of the 406-km road between Khartoum and Kosti in the 1970s forced RTC to halt its operation between these two cities, thus making the corridor route commence at Kosti. RTC owns and operates four pushers and 16 barges, with 450-MT capacity each. These include *Tabaldia*, with a capacity of 1,800 MT (equivalent to four barges of 450 MT each) and in fairly good condition. All the barges are covered. The other pushers, which were undergoing rehabilitation in 1994, include *Talha*, *Gemmeiza* and *Doma*, each with a 1,800-MT capacity, which is equal to 450 MT per barge. Their actual total carrying capacity stood at 4,550 MT, while the potential capacity was 5,450 MT as of 1994, notwithstanding the pushers undergoing rehabilitation. All RTC's barges and pushers are rented by WFP. WFP uses the Kosti-Malakal-Juba corridor to haul relief supplies to the south under a special tri-partite agreement between the UN, GoS, and Sudanese rebel groups.

The private sector owns and operates the rest of the fleet. These include five pushers that are in fairly good condition, with a capacity range of 450 to 1,800 MT, and nine barges with a capacity of 120 to 450 MT. They include *Biarritz*, with an actual capacity of 1,200 MT (the potential is for 1,800 MT); *Ghareb El Nuer*, with a capacity of 359 MT; and *El Canal*, with a capacity of 600 MT. However, *Malakal*, with a capacity of 450 MT, was undergoing rehabilitation in 1994.

Road Freight Industry in Ethiopia

In Ethiopia, the road freight transport industry has experienced tremendous transformation since the early 1980s. For a large part of the 1980s, commercial road transport throughout the country was closely regulated and controlled by the GoE. Tariffs were set and enforced by the Road Transport Authority, which also determined the routes, licenses, and promulgated safety and axle load standards. On the freight side, road transport services were controlled by the National Road Transport Corporation (NATRACOR), later renamed Freight Transport Service Corporation (FTC), using its own trucks as well as those belonging to the private carriers called 'Associates.' By 1984/85 the total fleet owned by the private sector (there were about 4,500 owners) amounted to some 5,790 trucks of various sizes as compared to the FTC's own fleet of about 1,100 large tractors trailers (25 to 35 MT each). FTC assigned traffic (commercial freight) and issued travel permits to private sector owner operators on a load-by-load basis and received 5 percent of their freight revenues for dispatching and revenue-collection services. While this close regulation and control of the trucking services were in line with the government's development philosophy and with its perceived internal security needs, it did not provide an adequate basis for expansion of the industry. Specifically, tariffs were insufficient to enable the private truckers to fund adequate maintenance or to replace old vehicles (estimated at an average of 11 years by 1988) when necessary, except under the most favorable road conditions, which were not forthcoming in most operating areas.

The most significant characteristic of the road freight transport system in Ethiopia, over the years, is that all significant freight movements were concentrated on Addis Ababa. For example, by 1983 the capital (Addis Ababa) received or originated 63 percent of all dry freight, 75 percent of fuels and lubricants, most of which was for transshipment. The primary truck route is the Addis Ababa-Assab highway, which is the most important export-import corridor for Ethiopia. It is estimated that about 22 percent of dry freight and

almost 40 percent of all freight move between these two cities.

In addition, the noncommercial freight transport sector, mainly comprising the movement of relief supplies donated by international NGOs and donors, was coordinated by its dominant receiver, the Relief and Rehabilitation Commission of Ethiopia (RRC), which operated its own donated fleet of some 360 long-haul capacity vehicles since 1979. In practice, all vehicles donated by as many as 20 organizations, both UN agencies and international NGOs for the transportation of relief supplies, were registered as owned by RRC, but a significant number of these trucks — about 1,000 (both long- and short-haul) — also were operated directly by these donors to ensure that supplies reached beneficiaries as required. Ownership of trucks, imported duty-free by these organizations, was required to eventually revert to the RRC without any compensation. These included the operations of the World Food Program Transport Operations in Ethiopia (WTOE), the Norwegian Church Aid (NCA), and Catholic Relief Services (CRS), among others. The United Nations High Commission for Refugees (UNHCR)/German Agency for Technical Cooperation (GTZ), working together with the Ethiopian government also established the trucking company Transport Operation for Refugees (TOR).

Toward the end of the 1980s it became clear that the pace of fleet renewal, as far as the private sector is concerned, was lagging behind, not only creating problems for the individual carriers trying to stay in business but also leading to a gradual curtailment of the supply of the industry, with severe consequences for the whole economy. Since the early 1990s, the GoE has tried to help improve and coordinate the management of the sector. Food aid organizations, among them RRC and WFP, have also been working to better coordinate the movement of relief cargo. However technical problems of excessive vehicle mix (multiple makes and models) severely hindered such opportunities. The change of government policy in 1991 provided the major incentive to focus on the expansion of the private-sector trucking industry in Ethiopia. In addition, many of the RRC/DPPC's trucks were approaching the end of their economic lives, and new trucks would be required to continue

operations. The incentive was provided by way of making available funds in foreign currency for the potential private sector operators through donors' participation. For example, the Swedish International Development Agency (SIDA) financed the purchase of 100 new trucks and drawbars under the condition that they be operated by the private sector.

The policy changes enunciated by the then Transitional Government of Ethiopia (TGE) drastically changed the road transport sector, focusing on private-sector operators to compete with state-owned enterprises. The beneficiaries of the SIDA-funded trucks, who were selected on a lottery system, were required to make a 25 percent downpayment and came together to form Alpha Transporters Association, one of the pioneer truckers' associations in the country. To date, private road transporters have formed about 28 different truckers' associations, comprising about 6,500 individual truck owners/operators, to promote and enhance their business interests. Some of the other existing truckers' associations include *United Freight Transport Association*, *Unity Freight Transport Association*, and *Misrak Freight Transport Association*. Membership is normally limited to 300 members per association. The Ethiopian Freight Transport Corporation (EFTC) has been restructured since 1994 into five different companies owned by the government. These include COMET Transport Enterprises (476 vehicles), and BEKELCHA (2,082), SHEBELLE (1,015), all of which are freight companies, WEIRA (304 vehicles), which deals with fuel only, and Addis Mechanical, which handles the workshops for the maintenance of the fleets of the four companies. In addition, the tariffs have been deregulated and restrictions on cargo allocations abolished.

The RTA indicates that by June 1996 there were some 17,476 freight vehicles operational in the country (owned by the GoE, parastatals, individual ministries, private operators, and NGOs), about 60 percent or 12,600 vehicles of which are registered as capable of full commercial operations (Table 5.7). Only 4,427 (25 percent) were of a capacity exceeding 12 MT. Further information indicates that, while the annual growth

Table 5.7. Dry Cargo Vehicles Registered by Capacity and Ownership (1994/95)

Capacity (MT)	Government	Commercial	Private Commercial	Others	Total
0.5 - 1.5	815	1,414	212	1,612	4,053
1.6 - 3.5	250	1,848	49	128	2,275
3.6 - 7.0	377	1,181	90	118	1,766
7.1 - 12.0	1,215	3,271	261	208	4,955
12.1 - 18.0	540	810	52	18	1,420
Trailer	502	1,385	168	255	2,310
Truck-tractor	147	167	77	5	396
Semi-trailer	43	191	64	3	301
Total	3,889	10,267	973	2,347	17,476

Source: Ethiopia Road Transport Authority, 1996.

rate of available vehicle capacity between the years 1981 and 1989 was -13.3 percent, indicating that there was no capacity replenishment, the equivalent annual growth rate for the period 1988 to 1995 was a significant 87.4 percent. It is understood that these increases, however, have not helped much to recuperate the supply gap created in the earlier years, such that Ethiopia may still have an inadequate heavy commercial dry cargo truck capacity.

Further information indicates that the average age of the vehicles is in the range of 10 to 12 years. The private commercial fleet is underutilized, and a number of small and under-capitalized operators have a hard time staying afloat. By 1994, the private fleet was operating at only 55 percent capacity. Similarly, truck availability rates still remain low (50 percent).

Road Freight Transport Industry in Eritrea

The road freight industry in Eritrea has followed quite a similar pattern to that of Ethiopia, up to the

period of the end of the liberation war. Specifically, prior to the privatization of the trucking industry in 1992, there were numerous restrictions on freight transport in terms of types of goods carried, routes followed and destinations among others. Indeed, prior to 1992, the Eritrean Road Freight Industry was almost exclusively in the hands of NGOs and Government Relief and Rehabilitation Agencies, notably the WFP Transport Operation in Eritrea.

Currently, the Land Transport Department of the Eritrean Ministry of Transport has overall responsibility for supervision and regulation of the road freight industry which has a total of some 2,500 vehicles of various types and sizes, mostly owned by private associations and companies. The oldest trucking organization is the Eritrean Relief and Rehabilitation Agency (ERRA), which was established in 1975 as Eritrea Relief Association (ERA) and was based in Khartoum, Sudan, until 1991. It was founded as a nonprofit, voluntary Eritrean organization in exile, but now it has become a government agency/parastatal with

headquarters at Asmara. In 1994, ERRA's logistical capacity was supplemented with 50 trucks (with a capacity of 20 MT per truck) and trailers operated by WFP under the former World Transport Operation for Eritrea (WTOE). Initially, ERRA was to manage their operation for an extra year and then hand over the entire operation to the *Association of Disabled Fighters*, an organization of disabled veterans, now a share company called LILO. By January 1995, ERRA had a total fleet of 160 trucks (predominantly Mercedes) of between 5 and 20 MT capacity, but the condition of the trucks is poor despite the number, such that availability is low. ERRA owns a small garage for services and little repairs and has a store for spareparts with an inventory of some US\$2 million.

ERRA's operation is complemented by *TransHorn*, a stock company that has a fleet of about 200 operational trucks, with a capacity ranging from 20 to 35 MT. TransHorn took over the assets from the former Eritrea People's Liberation Front (EPLF). The other trucking organization is the *Eritrean Truck Owners' Share Company*, a share company formed at the end of 1992 that comprises about 500 to 600 owner-operators. Its changing to a share company was caused by some inherent difficulties of running an association. For example, concern was raised by the fact that once a member left the association after a given time period, five years, for instance, one was not entitled to any accrued profit or dividend. A membership entry requirement is the payment of Birr 500 per share, for a maximum of 55 shares. Most of the members own between one and five trucks, with the highest ownership being 12 trucks. The association has a fleet of some 928 dry cargo trucks and 47 fluid cargo trucks, predominantly Fiat (682 N3). This fleet is old and comprises both long-haul and short-haul vehicles. In addition, the association has garages/workshops and stores and also imports spare parts. One of the main objectives of the association is to search for cargo for the trucks. This is in recognition of the difficulty to individually source cargo by members. In this regard, the association has established branch offices in Massawa, Assab, Tesseney and Addis Ababa.

The trucking industry in Eritrea is faced, however, with several challenges. One of the major concerns is the unavailability of spare parts, tires, fuel, and back-up service dealers, mostly due to a lack of foreign exchange. In addition, these trucking organizations in the past have expressed their discomfort with the manner in which ERRA was allocating available relief trucking business, which tended to favor its own fleet, vis a vis those of other companies. In 1993, ERRA transported a total of 32,246 MT of cargo which involved a total of 1,509 trips giving an average of 21 MT per trip. This represented 84 percent of the total food aid made available by WFP during that year. In practice, ERRA achieves an average of 7 1/2 trips per month for its vehicles, giving an average of four to five days round trip from Massawa to many destinations in Eritrea, while others achieved less than four to five trips per month. As such, there appears to have been no equitable distribution of available business among all available truckers. This has been exacerbated by a general lack of backhaul cargo from many destinations. Accordingly, vehicle utilization has been low, particularly for private sector operators that, if considered against poor availability because of shortage of spare parts, has threatened the survival of the private sector. However, because of change in government policy under the ongoing liberalization and restructuring of the economy, ERRA does not control food aid distribution any more. The trucking industry has been opened up for competition among existing transport operators.

Road Freight Transport Industry in Djibouti

The long-haul road transport freight industry in Djibouti operates on a very limited scale and is primarily geared to serve the domestic market. It consists of about 50 to 70 units owned by three private companies. The small fleet size in Djibouti is attributed to the small market in the country.

Although the port of Djibouti is a principal gateway for Ethiopia, the trucking industry between the two countries has until recently been faced with various logistical and operational constraints when compared to the railway. Road transport along the Djibouti-Addis Ababa corridor

has been very bureaucratic and cumbersome to transporters due to administrative regulations imposed by both the governments of Djibouti and Ethiopia on vehicle movements, drivers, fees payable, and border crossings. As such, there had been virtually no commercial road transport between Djibouti and Addis Ababa, except for aid cargo, which in any case is mostly destined for Dire Dawa for the food deficit areas of Ogaden. However, a Joint High Ministerial Commission agreement was signed in September 1996 on the use of the port of Djibouti for handling Ethiopian cargo, which inter alia guarantees the safe passage of goods and requires that charges for handling cargo be competitive. Specifically, the agreement covers port operations charges, safety and free movement of trucks and cargo, and the responsibility required of the railways and its liability for the cargo it carries.

Road Freight Transport Industry in Southern Somalia

Road freight is the only existing inland transportation system in Somalia. Without a railway system and internal navigable rivers, freight movement along the major corridors to the exit/entry points is carried by road.

Prior to 1990, there existed Transporters Cooperative Associations in various major towns, but these are now defunct. The operation of inland transport is carried out mainly by local transport companies and individuals. The industry is largely private sector dominated with minimal public sector participation, reflecting the collapse of the civil administration in Somalia. During the UNOSOM period, the military provided limited additional support. Some NGOs also undertake road freight operations to support their operations. Private-sector companies involved in freight transportation in Somalia include *Safi*, *AT&T*, *Dembil*, and *Indian Ocean*, among others.

The trucking fleet in Somalia is inadequate, and the existing fleet composed of very old trucks. In this respect the individual NGOs working in Somalia who individually own trucks for their operations play a vital role in the trucking industry. ADRA, for example, has its own fleet of two

trucks of 8 to 10 MT capacity. When the capacity exceeds an individual NGO's operational needs, a memorandum of understanding between NGOs allows for renting from each other. Availability of local trucks is arranged through local contacts who act as brokers between owners and consignees. The biggest challenge facing the trucking industry in Somalia is insecurity, poor road conditions, old age and inadequacy of existing trucks.

Road Freight Transport Industry in Northern Somalia

The transport operations at the port of Berbera constitute a significant support activity. In light of insignificant port storage, availability of transport is a major determinant of cargo flow out of the port and ships' turnaround times. Virtually all the cargo is discharged from ships and loaded directly onto trucks.

As already noted, the trucking industry in northern Somalia is exclusively private-sector based. The industry has evolved out of small family enterprises, some of which have grown to become large operations. The industry comprises medium-sized trucks of 20 to 25 MT capacity, although a few large trucks or 25 to 30 MT capacity are available. A significant number of transporters are small enterprises with between 1 and 3 trucks. In practice it is the small enterprise-owned trucks that are readily available for freight transportation. Most of the large enterprise-owned trucks belong to leading import and export trade merchants, who at times exclusively engage their trucks in transporting their imported cargo inland and similarly export cargo to the port. However, there is adequate transport capacity to move cargo from the port.

However, since 1990, fleet replacement has been very low. The industry is therefore characterised by fairly old trucks, which account for more than 75 percent of the existing fleet. The average truck age is reported to be 20 years. Most trucks operate without trailers. Since 1995, new trucks are slowly being imported. Most of the new trucks are equipped with portable bridge overlay tracks for crossing the sandy river beds. In addition almost all trucks are either four- or six-wheel

drive. The predominant models include Nissan UD, Hino, and Mercedes. Some leading truckers include Dabsheel Importers and Indhodiro Importers. Maintenance facilities and spare parts are readily available for the trucks.

Road Freight Industry Serving Southern Sudan

Southern Sudan lacks local road freight capacity. This is a result of the war, which has disrupted economic activity in this part of the country, hence no commercial cargo. In practice, the capacity serving the region depends on noncommercial cargo (relief aid) from the neighboring countries. These include food, barter items, and medicines sourced from Kenya or Uganda. Some of the cargo is also imported from abroad by international NGOs and UN bodies working in southern Sudan. The transportation of the imports and cargo sourced from Kenya and Uganda are dependent on foreign truckers based in Kenya and Uganda. The Kenyan and Ugandan firms therefore are the lifeline of the trucking industry in southern Sudan. Some international NGOs, such as AAIN and CARE, also undertake trucking services inside Sudan, but this is limited to supporting their programs. It is understood that there is only one private freight transport firm — Terra Firma — which is based in southern Sudan. Other active firms that provide trucking capacity to southern Sudan include *Civicon*, *Assist UK*, *Truck Oil*, *Logiserv*, and *Watembezi Transporters*, all of which are based in Uganda. The Kenyan-based firms include *Intereact Ltd* and *Saki Holdings*.

The Kenyan- and Ugandan-based truckers serving southern Sudan are well-established firms with wide experience in the regional trucking operations, including Rwanda, Burundi, and Congo (formerly Zaire). Their services in this area therefore reflects the diversification of their routes. The road freight industry serving southern Sudan is characterized by a marked difference between the vehicles used from the cargo sources to the primary destinations (Lokichokio in Kenya and Koboko, Gulu, and Kitgum in Uganda) and from the primary destinations into Sudan. In practice, because of the good roads between the cargo

sources and the primary destinations, transporters can use modern vehicles with a capacity of up to 40 MT, including articulated trailer types. The vehicles serving the primary destinations and the stations inside southern Sudan seldom carry more than 10 MT of cargo, and the common types are M.A.N, ex-German army trucks whose capacity ranges between 8 and 10 MT. Others include Isuzu (mostly 7-MT capacity), AEC (12 MT), Bedford (10 to 15 MT), and 20-MT Fodon trucks. For example, Terra Firma subcontracts the transportation of cargo from its sources to primary destinations and then uses its own trucks, mainly 20-MT Fodons and Bedfords, to southern Sudan.

The road freight industry serving southern Sudan is also highly seasonal. In practice, transporters have to conform with what has been termed as the “Transport Window”. This refers to the dry period of 3 to 4 months between December and March when the roads are passable. The rest of the period between April and November is characterized by heavy rainfalls in the region. This, coupled with the prevalence of black cotton soils, poor drainage and low log bridges restricts trucking during the period.

In practice, the road freight industry serving southern Sudan faces various operational difficulties including security, poor road conditions and cumbersome and costly procedures, among others. In addition, rate cutting is prevalent among transporters as a feature of the industry, especially for cargo that involves competitive bidding. Another feature of the transport industry servicing southern Sudan is subcontracting of transportation, especially from the inland stations in Kenya and Uganda to the primary destinations. This is done mostly by Sudan-based firms (Terra Firma) that prefer to handle internal operations within Sudan. It has been indicated that, as a result of the ad hoc cumbersome and costly procedures that operators face along the route and a lack of clear-cut rates, some international NGOs and Ethiopian incorporated trucking firms have proposed the formation of a ‘transportation consortium’. This is supposed to regulate the operations of the industry, including standardization of procedures and associated costs and the establishment of guiding baseline rates.

ROLE OF TRADITIONAL TRANSPORT IN THE REGION

Like many other African regions characterized by poor and inadequate transport infrastructure, particularly motorable roads, several countries in the GHA region, including Eritrea, Ethiopia, Sudan, and Somalia, since time immemorial have relied on traditional modes of transport. These were largely draught animals, particularly camels, horses, mules, and asses, to serve local transport needs as well as to aid in cultivation. This intermediate means of transport serves as a bridge between rural fields and villages that are inaccessible by motor vehicles and nearby road networks or market towns.

Traditional transport plays a crucial and complementary role in the social and economic activities of regions with no or poorly developed transport infrastructure, especially rural access roads, with respect to the movement of cargo. Draught animals are often used to transport and distribute cargo/goods, including relief food, from warehouses situated in towns on major trunk roads to destinations in remote areas that lack adequate motorable access roads.

In Ethiopia, for example, it is indicated that draught animals played a crucial role in the distribution of relief food to famine-stricken areas during the severe droughts that struck the country in the mid 1980s and early 1990s. In practice, a combination of factors, including the difficult terrain (particularly in Ethiopia) and lack of access roads in virtually all the countries, renders motor vehicle transport practically impossible in certain regions. Accordingly, draught animals provide the important link as a complementary transport service, both locally and in cross-border trade. It is understood, for example, that there is a significant volume of cargo movement along the common borders of Ethiopia, Sudan, Eritrea and Somalia by informal traders, largely using draught animals. However, no statistical records of the traffic flow are available.

In practice animal transportation normally involves the use of pack animals with maximum load capacity of between 100 and 250 kg or where

terrain or route permits, use of more sophisticated animal-drawn carts, whose maximum load capacity ranges between 500 and 1,500 kgs, usually pulled by a number of animals. Thus, the significant complementary role played by traditional transport should be acknowledged as a vital component of the transport industry in the region.

REGIONAL AIR FREIGHT INDUSTRY

There are no scheduled cargo flights among the countries in the region. The regional cargo, like many other parts of the continent, is mainly destined to the Middle East and European markets, among others. However, frequent air connections exist between some of the principal cities in the region.

Air Transport Industry in the Northern Tier of the Greater Horn of Africa

The air transport industry in the region is governed by bilateral air service agreements, which provide for limitations on capacity, frequency and designation of aircraft. These agreements, in reality, are subject to the provision of commercial agreements negotiated by the individual government or airlines. The effectiveness of commercial agreements or resulting air service agreements are restricted, however, by the very little traffic within the region, with no better potential in the near future. For example, frequencies are restricted by the capacity of various aircrafts operated by different airlines. Efforts to liberalize the sky so far have failed, and the various governments continue to inhibit free movement of people and cargo. Recommendations to improve air transport have been put forward by regional organizations such as ECA, Organization of African Unity (OAU), and Common Market for Eastern and Southern Africa (COMESA), but implementation capacity is nonexistent.

Air Freight Industry in Northern Sudan

Sudan Airways, the national carrier, had by 1993 a fleet of five Boeing 707s, two 737-200, one Fokker F27-2s, two F27-6s, four Fokker F-50s, and two Airbuses. Available information indicates that Sudan Airways over the years has tended to concentrate on some prestigious international routes while neglecting domestic services. Two freight airlines, however, are reported to be competing with the national carrier on the London-Khartoum route. The Port Sudan-Khartoum link is the main domestic air corridor, usually used by those who have goods to clear through customs at the port.

In Sudan, air transport is not widely used for hauling cargo. Although, in the early 1990s, several transport companies had been established to take advantage of the then-newly launched UN airlifts of relief supplies to the south, the logistics of the operations, which included sourcing from outside Sudan, did not provide a basis for sustained operations, and many of these firms went out of business. Sudan Airways' domestic services to southern Sudan have been suspended because of the civil war. Sudan's strained relations with her neighboring countries also has significantly contributed to the declining air transport industry in the country. An important external link exists, however, with Saudi Arabia and the Gulf States and is mostly used by the large community of Sudanese expatriates in those regions.

Air Freight Industry in Eritrea

The Eritrean air transport industry is currently dominated by foreign carriers that fly to Asmara. Ethiopian Airlines holds a monopoly on daily flights between Asmara and Addis Ababa and provides many other connections to Europe, the Middle East, and the rest of Africa. In 1992, the then-Provisional Government of Eritrea (PGE) made a brief but ill-fated attempt to operate its own airline. Since then, the government has been content to let other carriers negotiate rights into Asmara, Eritrea's only international airport. Available statistics indicate that total cargo handled at Asmara Airport increased from a mere 1,091 MT in 1991, peaking to 3,474 MT in 1994 before declining to 2,624 MT in 1995, with exports representing some 80 percent.

Air Freight Industry in Ethiopia

Ethiopian Airlines is one of the country's success enterprises. It is Africa's largest cargo carrier and has several regular flights on a weekly basis to the major cities in the region. The rugged Ethiopian terrain and generally poor road system has placed a great value on air transport to carry people and goods. Ethiopian Airlines flies to some 30 domestic destinations, and the airline has at least four dedicated freighters including

- One Boeing 707 Freighter — 41-MT capacity,
- One Boeing 757 Freighter — 36-MT capacity,
- Two Lockheed L-100 Commercial Hercules — each with a capacity for 23 MT.

For many years, Ethiopian Airlines regarded its cargo operation as a public service commitment then as a secondary source of revenue. However, with the realization of the potential of this market, special attention is now being given to developing the service. Air cargoes awaiting transshipment can be stored in two spacious warehouses at the airport. The outgoing cargo carried by the airline includes sheep, fruits, semiprocessed leather, vegetables, flowers, carpets, and rugs. Incoming cargoes include chemicals, machine spares, garments, medical supplies, and tea.

Scheduled cargo services are provided to Asmara, Dubai, Bangkok, Jeddah, Frankfurt and Rome. In addition, the airline runs charter flights to carry cargo to destinations outside its normal route network. In addition, freight is also carried in the holds of passenger planes (Boeing 737, 757 and 767) on normal scheduled services. The Boeing 767 is particularly useful for this purpose, as it can carry 12 MT of cargo in its underfloor hold. The long-term plan is to make Bole International Airport in Addis Ababa into a cargo hub serving the region, just as it is for passenger operations.

Air Freight Industry in Djibouti

Like Eritrea, Djibouti's air transport industry is dominated by about 10 foreign national carriers, including Air France, Ethiopian Airlines and Yemen Airlines. The debt-ridden Djibouti Air was

wound up in 1991. In 1993, Djibouti international airport handled 327,000 passengers and 9,000 MT of freight.

Air Freight Industry in Somalia

The outbreak of civil strife in Somalia has adversely affected the air transport industry in the country. There's virtually no international or internal commercial air transport at present. All air support is provided by the military or chartered air services, mostly under the auspices of the UN bodies and international NGOs, supplying relief goods. The national carrier, Somali Airlines, which was reported to be profitable for the first time in 1983, suffered a 20 percent fall in passengers in 1989 but registered an increase of 74 percent in freight traffic in the same year. However, the national carrier has ceased to exist.

OIL PIPELINE/SUDAN

Until 1978, most petroleum products from the oil refinery at Port Sudan were carried by train to Khartoum. There now exists a 1 million-MT-per-year capacity, 800-km oil pipeline between the two cities.

THE ROLE OF SUBREGIONAL, REGIONAL, AND CONTINENTAL ORGANIZATIONS

The subregional, regional, and continental organizations that have influenced the current structure and functioning of the transport industry in the subregion through treaties and agreements include the Organization of African Unity, the Common Market for Eastern and Southern Africa, the Inter-Governmental Authority on Development, and the United Nations Economic Commission for Africa (UNECA). Other relevant agreements include the Lome Convention. All these countries are grouped together under the OAU Charter, and, therefore, resolutions passed at the subregional and regional levels on transport

issues are expected to be consistent with those passed by these organizations, but implementation has not been totally effective.

The OAU is committed to the creation of an African Economic Community, according to the Lagos Plan of Action drawn in 1980. This was originally scheduled to be in place by the year 2000, but the 27th summit of heads of state in Abuja (Nigeria) in June 1991 saw a postponement of this target to 2025. The AEC treaty, signed at this summit, outlined six stages, including the removal of tariff and nontariff barriers to trade and the establishment of a continent-wide customs union by 2004. Specifically, it recommends the simplification and harmonization of trade documents and procedures, coordination of the various modes of transport in order to increase efficiency and agree on harmonized policies at regional and community levels, with the aim of eliminating nonphysical barriers that hamper the free movement of goods, services, and persons. A commitment also was made to establish an African Common Market (ACM), with a central bank and single currency, by 2031.

The OAU remains a high-profile talking-shop, with limited real action resulting from its policy decisions, constrained as it is by limited funds and a variety of levels of commitment on the part of its members.

The **Preferential Trade Area (PTA)**, which was launched in 1981, aimed to liberalize trade, encourage cooperation in industry, agriculture, transport, and communications and thus lay the foundation for a regional common market by the year 2000. The common market is expected to bring about complete freedom of movement of goods, services, and capital and eventually a monetary union. The main obstacle to successful integration remains the unclear nature of the relationship with the Southern African Development Community (SADC), most of whose members also belong to COMESA. At their heads-of-state meeting in early September 1994, SADC members stated their preference that COMESA should be split into two regions, with the southern part incorporating the SADC states. As a consequence, Namibia reversed its decision to ratify the COMESA treaty. A joint summit has

been proposed to iron out the differences and minimize the overlap with COMESA.

Member states are urged to harmonize their laws concerning the equipment and vehicles used for interstate transport within the common market. It is required that the formalities and documentation for the vehicles used in interstate transport within the common market be simple. Member states are expected to adopt common procedures for the harmonization of all nonphysical barriers to interstate transport within the common market. Likewise, member states in whose territories railways are operated are supposed to adopt common policies for development of railways and railway transport system in the common market. These include tariffs, documentation procedures, packaging, marking and loading of goods on wagons for interstate railway transport. The corporations also should cooperate in allocating adequate space for the storage of goods from each member state within their goods sheds.

IGAD was set up in January 1986, with six East African members: Djibouti, Ethiopia, Kenya, Somalia, Sudan and Uganda. Its aim is to coordinate and channel funding into the key regional sectors of drought, desertification and agricultural development. A total of 217 development and environmental projects was presented to a donors' meeting in March 1987, and 63 of them received promises of funding totaling US\$70 million. However, when the second summit came around in March 1988, only one of the development projects had gotten off the ground. Progress has since been negligible.

The authority was given a new lease of life at the fourth summit of heads of state in Addis Ababa in September 1993. Eritrea became the seventh member of IGAD. Since early 1994, the authority has sponsored peace talks between the Sudanese government and the rebel Sudan People's Liberation Army. Little progress has been made in bringing an end to the Sudanese civil war because the Khartoum government does not accept IGAD's full mediating unit. Accordingly, the authority has been considering proposals for restructuring in a bid to make it more effective. Its reputation for conflict resolution also will be tested since both Eritrea and Uganda have broken off diplomatic ties

with Sudan on the grounds of alleged interference in their internal affairs.

In April 1996 the Council of Ministers redefined priority areas of cooperation to include *security and environment, infrastructure development and conflict prevention, management, and resolution*, and a revitalized IGAD was launched in November 1996. The council has expressed confidence that IGAD will be a viable and forward-looking organization that will have an immediate impact on the lives of the people in the subregion by identifying and implementing realistic programs and financing them. The initiatives adopted with respect to infrastructure have since included the compilation of priority projects in roads, road transport, railways, civil aviation, ports and inland ports among others, for a presentation to the international donor community for funding. However, most of these projects also are being considered for funding under various other fora, some at very advanced stages of negotiations. In the shorter term, IGAD will need to increase its competence in the transport infrastructure area to make a realistic impact.

The **UNECA** is currently implementing the Second United Nations Transport and Communications Decade in Africa (UNTACDA II) for the period 1991-2000, following the first decade (UNTACDA I), adopted by a resolution of the Conference on Ministers of the ECA in 1977 and implemented during the 1980s. The UNCTADA II is designed to facilitate the development of transport and communications in Africa, and has 10 objectives, addressing eight subsectors, with roads and road transport as the dominant sector. The initiative is taken against a background of poor and inadequate infrastructure and facilities and, where available, underutilized. However, UNECA faces the problem of dealing with global issues whose implementation is left to the various nations.

The strategies adopted in the implementation of UNTACDA II include

- Promotion of transport and communications infrastructure integration with a view to increasing intra-African trade;

- Ensuring coordination of the various transport systems in order to increase their efficiency;
- Harmonization of national regulations and reduction, to a minimum, of physical and nonphysical barriers, with the aim of facilitating the movement of persons and goods;
- Mobilization of technical and financial

resources during the decade, with a view to promoting development and modernization of transport and communication infrastructure in Africa.

Unfortunately, the initial years of the first decade (UNTACDA I) coincided with significant economic deterioration in Africa, aggravated by a series of unprecedented crises and sociopolitical upheavals that adversely affected the implementation of the program.

6. Procedures for Cargo Movement

INTRODUCTION

In this chapter we review and discuss the existing arrangements, procedures, and issues related to cargo movement, first through the ports and second along the various identified regional routes or corridors. Procedures, arrangements, and issues for cargo movement from the time it is landed at any of the ports until it reaches the consignee in any of the five countries in the subregion can be translated into costs and represent a significant proportion of the overall cost structure. As procedures become easy to understand and simple to use, related costs fall, and vice versa. Some of the procedures and arrangements translate into direct costs of cargo movement, while some of them are embedded in the quoted freight rates for transportation, particularly if cargo has to be moved by road. The major players are clearing and forwarding agents (CFAs), customs and port authorities, police authorities, and transporters.

INSTITUTIONAL FRAMEWORK

In the Northern Tier countries of the Horn of Africa, clearing and forwarding agents are the major players on behalf of cargo owners in the administration of procedures and arrangements for cargo movements. In this role CFAs work together with (and sometimes perform the function of):

- Shipping agents, who are the intermediaries between shipowners and cargo owners;
- Stevedoring companies, which are responsible for the movement of cargo from the ship's hold to the first resting point on the quay in the case of imports or from the hooking point on the quay to the allocated stow in the ship's hold in the case of exports;

- Customs authorities, which are the authorized agents for various governments in the subregion for the assessment and collection of various taxes, duties, and other fees payable in respect to imports and exports;
- Port authorities, which are responsible for levying and receiving all sums payable or chargeable for or in respect to any ship or any other service performed or facilities provided by the port, including that of receipt and delivery of cargo and general services; and
- Transport operators, which are responsible for moving the cargo from the port to various destinations in each country, and include road and railway transporters.

In **Sudan**, the CFA industry is served by both government agents and private companies. The government-owned agents include *The Red Sea Company*, *Sudan Shipping Line*, and *Gezira Trade and Services*. In addition, as of June 1996, there were more than 70 private clearing and forwarding agencies.

In **Eritrea**, the *Eritrean Shipping and Transit Agency (ERSTAS)*, a government-owned parastatal has the monopoly to provide ship's agents business in both the ports of Massawa and Assab. Cargo-handling services, which include stevedoring and shorehandling services, are provided, however, by the Port Authority itself. Meanwhile, the transit agency business (or clearing and forwarding) has been liberalized since Eritrea's independence in 1993, and some 28 agents (which include ERSTAS) are currently operating. There are plans to form a clearing and forwarding association for these agents.

The position of **Ethiopia** reflects its landlockedness. The *Ethiopian Maritime and Transit Services Enterprises (MTSE)*, which until

1994 was the *Maritime and Transit Corporation (MTSC)*, has an agreement with ERSTAS of Eritrea to be the sole representative in Ethiopia, thereby securing for it all shipping and transit agency business through the port of Massawa and Assab. However, MTSE, unlike the former MTSC, is operating in a liberalized clearing agency environment, which now has some 70 to 80 operators. According to the bilateral agreement between Ethiopia and Eritrea, the liberalized clearing business is limited to inland Ethiopia. Accordingly, there are no private CFAs in Assab, and clearing agents in Ethiopia have no direct access to ERSTAS and cannot therefore “forward” any goods in transit, which severely limits their scope of operations. It is estimated that currently MTSE controls some 80 percent of the clearing and forwarding business for Ethiopian goods, particularly the Assab-Addis Ababa Corridor.

In Djibouti, the shipping agency, cargo handling services agency (including stevedoring), and clearing and forwarding agency businesses for the most part are provided for by the private sector, although the Port of Djibouti Authority exclusively provides cargo handling services, including stevedoring, in respect to containerized cargo. Similarly, the Ethiopian MTSE provides shipping agency, stevedoring, and clearing and forwarding services, among others, in competition with the private sector. Currently, there are seven shipping agents, including MTSE, five clearing and forwarding agents, and four stevedoring companies. At least several private companies, including *Compaigne Maritime et de Manutention de Djibouti (COMAD)*, *COTAREE*, *SDTM*, and *MTSE*, provide all the services.

In Somalia, shipping agency, cargo clearance and stevedoring services are provided by the private sector. In Berbera, however, the Operations Department of the Port Authority is responsible for the supervision of stevedoring activities at the port, provided by labor gangs who belong to independent associations and are paid on the job-done basis. Cargo clearance is undertaken mainly by the consignees, though a few shipping agents do undertake the same.

NOTIFICATION OF ARRIVAL OF CARGO (IMPORTS)

In practice, once the cargo is loaded on board a ship in the country of origin, relevant documents are sent to the importer, his appointed clearing and forwarding agent, or to his bank. These documents comprise the bill of lading, a commercial invoice, and a packing list (see appendices IIIa, b, and c). It is understood that most vessels that ply the various ports in the Horn of Africa countries originate from Europe (for example Rotterdam) and the Far East (Singapore and others). It has been estimated that a typical vessel takes between 7 and 14 days to reach these ports from these principal origins; therefore, in many situations, these documents, forwarded by air, should reach the importer before the vessel in question arrives at any port. Ideally, all documents received by the importer should immediately be given to the importers’ appointed clearing and forwarding agents.

RELEASING OF CARGO

Each vessel arriving at any port has a *shipping agent* and a *stevedoring agent*, although these two roles may be provided by the same agent, such as in Djibouti. The appointed *clearing and forwarding agent* presents the documents received from the importer to the *shipping agent* so that the cargo can be released, actioned through the issuance of a delivery note simply indicating that all sea freight and incidental charges have been paid. Most sea freight is prepaid at the port of origin; however, there are always instances when additional charges are raised. Stevedoring charges, although payable by the importer, most often are included in the sea freight charges. Cargo received at the respective ports traditionally falls into three distinct categories:

- General cargo, which is described in *kilo tons* in Eritrea and *freight tons* in Djibouti. While a kilo ton does not have a volume equivalent, a freight ton is equivalent to one MT in weight or one cubic meter in volume, whichever is

higher;

- Containers, which are described in *TEUs* (20-foot equivalent units). Containers are either 20-ft long or 40-ft long. A 20-ft container or less is equivalent to one TEU, while any container above 20-ft is considered to be a 40-ft container and is equivalent to 2 TEUs; and
- Oil products, often designated POL, which are measured in *metric tons*. In most situations, oil products do not actually pass the respective ports, as the offloading tankers utilize the available jetty facilities and in practice pump the products straight into the facilities provided by oil companies, often in the vicinity of the port.

THE PORTS OF MASSAWA AND ASSAB

At both the ports of Massawa and Assab, it is common for the *shipping agent*, ERSTAS, to directly notify the consignee of the arrival of cargo, achieved through the issuance and forwarding of a *notification form* (Appendix IIIId). The note includes a clearing and forwarding instruction sheet that, if completed and returned, appoints ERSTAS in this capacity. The consignee is kindly requested to surrender all relevant shipping documents for clearance purposes to ERSTAS. However, as we discussed above, the consignee in Eritrea or Ethiopia may choose from the many clearing agents currently operating in these countries. Therefore, the steps for processing documents depends on whether the consignment is domestic (in which case ERSTAS or an Eritrean private clearing agent can accomplish the job) or Ethiopian (transit) cargo, in which case ERSTAS or an Ethiopian-based clearing agent may be appointed.

Domestic Cargo

For domestic cargo, the clearance process can start in Asmara or at the ports of Massawa and Assab.

With ERSTAS, appointed a clearing agency, the customer submits a *bill of lading*, *commercial invoice* and *packing list* to the ERSTAS Shipping Division, for a *delivery note* to be issued. The delivery note, together with the submitted documents, are then forwarded to the ERSTAS Import Division, where a *customs import declaration form* is completed and customs excise duty and other charges payable to customs and port authorities are assessed. In practice, ERSTAS will require the customer to make a 100 percent deposit of these estimated charges. ERSTAS then will process the documents through customs and the port authority to receive the actual assessment of import tax, port dues, and other charges, which ERSTAS pays on behalf of the customer before securing the release of cargo.

The process is virtually the same even if a private CFA, other than ERSTAS, is appointed the clearing agent. The appointed CFA will go to the ERSTAS Shipping Division in Asmara (or Massawa/Assab) to obtain a delivery note issued on the presentation of a notification note from ERSTAS and confirmation that all sea freight has been paid. With the delivery note, the CFA may now make a customs entry, appending the documents received from the importer. The customs entry is eventually assessed by the inspector of customs for import tax. Finally, the clearing agent pays the import tax, a storage penalty, if any, and other port dues.

ERSTAS or another appointed clearing agent receives the cargo by signing the goods issuance permit and loads it on the truck in the presence of a store clerk, customs police and driver, all of whom sign the goods issuance permit. Cargo can be loaded onto trucks either on a direct delivery basis from the ship or from the warehouse in the port, depending on the choice of the customer and the nature of goods.

Ethiopian Cargo

The clearance procedures for cargo destined to Ethiopia starts at the Customs Department in Addis Ababa, where an importer submits an *inland transit application* (No. 11) duly completed,

together with certain other documentation, depending on the customs entry regime. The Ethiopian customs authority currently maintains eight entry regimes according to the type of imports, which includes *dutiable, diplomatic, investment duty free, government duty free, nongovernmental organization duty free, temporary duty free, students, government officers and Ethiopians abroad, and duty free returnees*. For commercial dutiable cargo, the inland transit application is submitted together with a *bill of lading, invoice, certificate of origin, packing list and insurance certificate*. For the purposes of verification, cargo had until very recently been categorized either as “bank permitted imports,” for which letters of credit (LCs) have previously been issued, and “Franco Valuta,” which refers to cargo for which no LCs have been previously approved and have been purchased by the importers’ own foreign exchange proceeds. However, it should be noted that Ethiopia has now banned Franco Valuta imports, and all importers are now required to open LCs with banks for any imports into the country. Prior to the ban, Franco Valuta imports constituted some 20 percent of all imports to Ethiopia. If everything is in order, the application is stamped “Accepted Declaration” on the third copy, which is given to the importer.

Accepted declarations are assessed for duty paying value (DPV), and the relevant duties and taxes to be paid are determined. The importer for each declaration that is dutiable and taxable must provide a security bond in the form of a bank or insurance letter of guarantee or a cash deposit equivalent to 125 percent of the assessed duties and taxes. It is understood that the Chamber of Commerce in Ethiopia has requested the Ministry of Finance to review these requirements, which are considered excessive.

Cargo Routed through the Port of Assab

The coordination of the processing of the required documents, deposit of securing bonds, etc., in Addis Ababa can be achieved by both the MTSE or any private-sector clearing agent, as appointed by the importer. However, it is the practice of many

clients to pay the deposit securing bond directly into a bank on account of the customs department, for which a receipt is issued. Documents for which payment has been received are retained by customs authorities and passed on to the respective clearing agent or MTSE. The customs office also sends a copy of the declaration or permission to the Ethiopian customs office in Assab via Ethiopian Airlines three times a week. In practice, as the clearing agents in Addis Ababa, except MTSE, cannot operate in Assab, all documents end up with MTSE, which is the principal representative of ERSTAS in Ethiopia.

All documents received by MTSE in Addis Ababa are assessed for port charges payable to the Eritrean Port Authority at Assab and for commission payable to both MTSE and ERSTAS, all of which must be paid in advance to MTSE by the importer or clearing agent. Transit documents for which all the dues have been collected are assigned an MTSE operational number and dispatched to the MTSE coordination office in Assab via Ethiopian Airlines three times a week: Tuesdays, Thursdays, and Saturdays. At the coordination office in Assab, the documents (including payment details) are received, registered, and passed on to ERSTAS. Almost in a parallel manner, MTSE in Addis Ababa banks all money received on account of ERSTAS by operational number, which is transmitted electronically by the receiving bank (National Bank of Ethiopia) to ERSTAS in Assab. It is the responsibility of the coordination office to check the arrival of both documents and money.

The role of ERSTAS is to represent the MTSE on behalf of the importer. ERSTAS has the responsibility to deal with ERA, pay port charges and process the clearance of the cargo through the port of Assab or Massawa. ERSTAS also has the responsibility, after inspection of the cargo by Ethiopian Customs at Assab or Massawa, to load it on nominated transport to Ethiopia.

It is understood that the initial procedures at Addis Ababa, which include the making of a cash deposit with customs authority, paying all port charges to ERSTAS’ sole agent in Ethiopia, MTSE, and obtaining an operational number, would take as long as five days. Similarly, the

period between the time the documents are dispatched to Assab, handed over to ERSTAS, processed through the Port Authority and Ethiopian Customs, and the cargo is loaded onto a truck takes between five and seven days. It is generally acknowledged that the total time can be reduced; however, the major bottleneck appears to be the monopoly status exercised by ERSTAS in the processing of documents in Assab. Ethiopia already has privatized the clearing sector, and some 70 to 80 agencies are already in operation. However, Eritrea maintains the ERSTAS monopoly and has proposed to license only Eritrean institutions and individuals if the sector were to be privatized, which has not been received well by Ethiopian Authorities.

Road Transportation from Assab

The governments of Ethiopia and Eritrea have agreed that visas no longer will be required for the citizens of the two countries, which has greatly simplified the free movement of people, particularly between Assab and Addis Ababa. It also has been agreed that Eritrea and Ethiopia will allow vehicles registered in the two countries to use each other's road network without extra charge, provided that transit vehicles do not provide local services. However, operators must have the Ethiopian customs authority permit to move goods from Assab to Addis Ababa.

In practice, the consignee sends a fax to ERSTAS through MTSE authorizing any transport agent to move the cargo from Assab to the designated final destination. Although parking for vehicles is near the port's entrance, trucks are usually lined up to 10 km outside Assab's city limits. After cargo is confirmed to be ready for loading by the Assab Port Authority, the appointed transport agent is allowed to dispatch the required number of trucks to the port to load the cargo. Trucks must leave the port limits immediately after loading to avoid congestion. It takes about six or seven days for a round trip between Assab and Addis Ababa, mostly due to poor road conditions. All traffic except relief and investment/capital cargo must pass through the Lagar Customs Depot in Addis Ababa. In practice, customs officials

investigate reasons for any lateness if a vehicle takes more than the expected transit time.

The principal document for the transportation of cargo between Assab and Ethiopia is the transit declaration (Appendix IIIe), which has officially replaced in all respects Model 58. There is also the transit goods movement control sheet. Between Assab and Addis Ababa, there are six designated checkpoints at which these two documents must be submitted and signed. The transporter is obligated to submit these documents to the Addis Ababa customs authority, without which the clearance of cargo cannot be facilitated.

PORT OF DJIBOUTI

Domestic Cargo

At the port of Djibouti, *container traffic* is offloaded at the container terminal within the port. Discharged containers may be claimed by consignees or their appointed CFAs on presentation of the original bill of lading to the shipping agent, who collects landing charges and issues a delivery order. The shipping agent retains the original bill of lading. Using the delivery order, the consignee or his appointed CFA may now make customs entry, process the clearance of the consignment through customs authorities and pay the relevant port dues. After customs clearance and payment of port dues, the consignee or appointed CFA may now proceed to the container terminal to take delivery of cargo.

General cargo consignments, however, can be discharged directly to the stevedoring companies into their warehouses, assuming responsibility until it is delivered to the consignee. Thus, it is the stevedoring company that collects landing charges and issues a delivery order to enable the consignee to process the cargo through customs and pay port dues to enable discharge. In practice, it takes two to three days to process both container and general cargo shipments through the port.

Ethiopian Cargo

The initial procedures for Ethiopian cargo routed via Djibouti are fairly similar to that of cargo routed via Assab. MTSE, however, plays a much-reduced role, as the sector has been privatized in both Ethiopia and Djibouti. Therefore, after the importer or a clearing agent (including MTSE) has paid the customs cash deposit or provided the required bank or insurance security bond, the customs authority endorses the application form with the authority to move the transit goods from the port of Djibouti. The documents are then dispatched to Djibouti, normally to a clearing and forwarding agent of the importers choice.

BEL (Registration) Office at the Port of Djibouti

At the BEL office, cargo must be declared by submitting a customs entry together with a delivery note. All the information in the declaration is checked against the ship manifest before it is registered. This process ensures that cargo is delivered only to the right owner. Based on the information on the customs declaration, calculations for port dues are accomplished and payment made. Port dues enter into calculations for customs excise and duty payable. It is understood that the process at BEL office takes only about 15 minutes, and the documents can now be forwarded to the Djibouti Customs office (domestic cargo) or the Ethiopian Customs office at the port (for transit cargo). The BEL office handles some 120 declarations over a six-hour day.

Ethiopian Customs Office at the Port of Djibouti

At the Ethiopian Customs Office at the Port of Djibouti, the importer/appointed CFA completes another transit declaration (No. 9), which is similar to the inland transit application, and submits this together with the delivery order, suppliers invoice, and receipt for port dues. It is at this point that physical verification of the cargo is provided for and done and the exact nature of cargo verified and entered in the transit declaration. Any differences as to quality, type, etc., of the cargo verified and

declared in the transit application in Addis Ababa is noted in the new declaration, and the goods can now be loaded on to available transport.

Preshipment Inspection

All domestic cargo through the port of Djibouti with a value exceeding US\$1,000 is now subject to preshipment inspection (PSI), issued by Cotechna effective 3 June 1996. The introduction of PSI requirements, which are understood to be cumbersome, has increased the overall clearing process at the port to five to six days.

Relief Supplies

The movement of all relief supplies through the Port of Djibouti is coordinated by WFP in Rome and is restricted to supplies to the eastern parts of Ethiopia. In practice, the WFP seeks tenders from stevedoring companies in Djibouti to cover handling and onward transportation either by road or rail. While stevedoring companies can prepare quotations for clearing, handling, bagging, and stacking, quotations for onward transportation are normally solicited from road transporters and CDE. Tenders are normally finalized and a stevedoring agent appointed before a ship's arrival. It is normal for the WFP themselves to provide a split for cargo to be transported by road and rail, this latter of which may be assigned up to 50 percent of the cargo depending on applicable logistics. Relief supplies will normally arrive in bulk and have to be bagged at the port. The process of clearing relief supplies is the same as for general cargo.

TRANSPORTATION BETWEEN DJIBOUTI AND ETHIOPIA

Railway

The traditional means of transporting Ethiopian cargo to and from the port of Djibouti is the CDE Railway, which has a special arrangement with customs authorities, making the procedures for

movement of cargo fairly simple. Cargo is loaded onto wagons, and the Ethiopian Customs Transit Office is notified. Customs officials then will check and seal each wagon and give the documents to the locomotive driver. There are no additional procedures until the cargo reaches its destination, except that checks are made for broken seals, etc. However, the deterioration of services provided by the railway is now a bottleneck to the efficient movement of cargo. The CDE's capacity to move cargo has decreased over the years, there are frequent stops on transit and a lack of commitment on timetables, and it takes about three to four days for cargo to reach Addis Ababa from Djibouti. In addition, it is noted that CDE does not accept responsibility and liability for the cargo it carries. This is considered to be a significant disincentive to potential clients, who fear losing their goods in case of any eventuality.

Road

Although Djibouti is a traditional principal port for Ethiopia, until recently (September 1996), the trucking industry had been characterized by various logistical and operation constraints imposed by both the governments of Ethiopia and Djibouti. These elaborate restrictions, regulations, and controls had over the years rendered the road transport between the two countries very bureaucratic and cumbersome to transport operators, who therefore preferred deploying their vehicles on the Assab-Addis Ababa Corridor, which until then had relatively simplified transit procedures and requirements for Ethiopian cargo and trucks, fast turnarounds and availability of back-haul cargo, unlike the Djibouti-Addis Ababa Corridor.

It is understood that a Joint High Ministerial Commission representing the governments of Djibouti and Ethiopia has signed a Transport and Economic Agreement that effectively lifted the numerous transit and operational constraints that had earlier characterized road transport between the two countries. Among other things, Article 3 of the Agreement on the Road Transport Services between the Government of the Federal

Democratic Republic of Ethiopia and the Government of the Republic of Djibouti states the mutual agreement of the two governments of the following:

- Djibouti Port Authority is to take all appropriate action to enhance the overall safety and security of cargo in the port.
- Both sides agree to guarantee the safe and free movement of trucks within their territories. However, such vehicles are required to hold permits (valid for one year), issued by the appropriate authority of both countries, and no indication of specific consignments for obtaining the permit is required.
- Both sides agree to lift the requirements of escort and escorting fees for customs.
- Check-points are limited to the border only.
- Border checks remain operational on a 24-hour basis.
- Both sides to use COMESA documents for cross-border formalities for truck movements.
- Both sides also agree to lift the requirement for visas for both the drivers and their assistants to enter each others' territory. It was also agreed that the only requirement as such is for the driver to possess a valid driving license and a special identification card issued by the competent authority of each country. Djibouti also has agreed to establish facilities required to provide low-cost canteen services and showers for drivers and their assistants.

The lifting of the restrictions that had hitherto limited the capacity of road transport services along the corridor is therefore expected to attract more transport operators, who prior to the agreement preferred to use the Port of Assab-Addis Ababa route. Consequently, this will foster competition and thus lead to the cutting of transport rates. This clearly places Ethiopian shippers at a big advantage, as it will eliminate the

“hidden” costs that included the need to tranship cargo to and from the port of Assab through the port of Djibouti and thereby drastically cut down on the overall transport costs for Ethiopian cargo.

TRANSHIPMENT TRAFFIC

The poor performance of the CDE railway and the cumbersomeness of the procedures for road transport between Djibouti and Ethiopia resulted in a lack of significant amounts of commercial cargo between these two countries. As already indicated, many Ethiopian shippers therefore had a natural preference for the port of Assab, despite the fact that Djibouti was Ethiopia’s main port up to the mid-1970s. A large proportion of Ethiopian imports arriving at the port of Djibouti have had to be transhipped to Assab, while exports shipped via the port of Assab have had to be similarly rerouted to Djibouti, both on coastal feeders. In practice, the port of Djibouti has been serving Ethiopia both as a transshipment and a transit port, although the current effort of the Port of Djibouti Authority is to further its role as a transit port for Ethiopia. Available statistics indicate that the port of Djibouti handled some 10,000 MT a month or 120,000 MT a year of Ethiopia’s imports and exports as transshipment traffic. This was about as much as the volume of transit traffic, some 131,000 MT in 1995. More specifically, for the first four months of 1996, some 20,000 MT of Ethiopia’s export coffee was transhipped through Djibouti from Assab. The overall implication is added costs of transportation for Ethiopian shippers, reflected in the costs of feeders between Assab and Djibouti, and the relatively longer transit periods. The added costs of feeder services was estimated at about US\$1,000 per TEU, while rerouting import cargo via Assab from Djibouti may result in an additional two weeks, compared to only the two to three days as transit cargo at the port of Djibouti. It is understood that few Ethiopian shippers knew of or understood these logistics and their impact on overall transportation costs. However, as already discussed above, the trend is expected to drastically change with the

implementation of the agreements signed between the two countries in September 1996, which will effectively lower the overall transport costs for Ethiopian cargo. In fact, with the restrictions lifted, it is expected that transshipment traffic will decline steadily and eventually fade out.

CUSTOMS OFFICE, ADDIS ABABA

All goods arriving by road from Assab and by road and railway from Djibouti must be received through the customs office Lagar Depot in Addis Ababa. Here, cargo can be offloaded pending the finalization of customs procedures. At this stage, the clearing agent can assign *authorized transistors* to accomplish the customs requirements, as only these personnel may be allowed to enter the customs depot and are required to be present when cargo is being verified. Sometimes the final verification results in a change of DPV and the associated duties and taxes. If the cash deposit was understated, the client is required to make the additional payment before cargo is released; if overstated, there is a refund mechanism effected immediately.

ETHIOPIAN CARGO VIA MOYALE, KENYA

At the Moyale border post, Kenyan customs procedures are straightforward for bonded and relief cargo. However, goods that have not been bonded have to be paid for, albeit unofficially, at between Kshs.3,000 and 5,000 before clearance can be given to a transporter to proceed with the journey.

The goods passing through Moyale are understood to have been largely those categorized as Franco Valuta. This implies that since no LC had been opened in advance, customs clearance could not be initiated until the goods reach the border for the process to be initiated. The resulting verification and awaiting of clearance at the border thus meant considerable costs both in terms of money and time. This should, however, no longer

be the case, as all imports must have LC in advance.

In practice, transporters from Kenya seldom reach Addis Ababa. Moyale normally acts as their primary destination, from which locally based transporters deliver the cargo to destinations across the border in Ethiopia, using trucks of between 15 and 30 MT.

Verification

Prior to the ban on franco valuta imports, verification was to be accomplished “until satisfaction” of the customs officials, but in most cases this was achieved on a sampling basis. However, for bank-permitted imports, there are no escorts unless the cargo is “suspected” or if the importer has been mentioned in intelligence reports. In practice, bank-permitted imports are simply checked for broken seals and that the documents are in order.

PORT OF BERBERA

The procedures at the port of Berbera are conducted under the concept of a self-contained shop system. All documentation is handled within the port and in offices close to the quay side. Upon arrival of a vessel with import cargo, a team of port officials, called *Free Pratique*, go on board to collect the cargo manifest (see Appendix IIIf). In practice, the discharging of cargo is subject to availability of transport. The port does not allow stacking of cargo on the wharf without confirmed transport, as port warehousing storage is limited.

Copies of the cargo manifest are distributed to the customs, traffic and claims, police, operations, and accounting departments. The importer must produce an *import permit* from the Ministry of Commerce signed by the Minister. He also must obtain a delivery order from the ships agent after surrendering the bill of lading.

Customs

In the case of import cargo, the delivery order from the consignee or the ship agent is submitted to the

customs officer and verified against the cargo manifest. In case of a discrepancy on the delivery order and the manifest, the customs office prepares a *local customs manifest* for the undeclared cargo and reconciles with the ship’s manifest. The customs office then determines the tax due on the cargo, which information is used to complete an entry for goods liable for import duty, form C1 (see Appendix IIIg) in four copies:

- Original copy is kept at customs manifest office,
- One copy to consignee,
- One copy to customs cashier, and
- One copy to customs statistics office.

The consignee then takes his form C1 to customs police and financial guards, who proceed to examine the cargo and sign the back that the cargo conforms with the declaration made. The consignee then takes the signed C1 form to the customs officer inside the port, who fixes a final seal before payment is effected. Payment is then made at the accounts office. The consignee then takes the form C1 with the seal to the traffic and claims office for the assessment of the port charges due and obtains a gate pass.

For export cargo, first there is the certification of cargo quantity by both customs, manifest office, police, and traffic and claims. The customs department then prepares a customs export entry form (see Appendix IIIh), giving volume of cargo, its value, and the liable duties. All customs duties are payable in Somaliland shillings. The customs authorities charge US\$200 as a manifest fee, which is paid by the shipping agent for conventional ships, while Dhows pay US\$40.

Traffic and Claims Department

The traffic and claims department assesses the amount of port charges to be paid by port users. In the case of imports, the consignee submits a delivery order, Form C1, and the customs payment receipt and completes a cargo declaration form, which forms the basis for assessment of port charges. Payment is made and cargo is registered

to enable the consignee to obtain a gate pass.

The trucks then proceed to the gate control, where police and customs examine all the documents and cargo in the truck. If everything is in order, the cargo is free to leave the port. However, if the gate control section identifies any anomalies in the cargo (e.g., excess cargo), then the truck is refused exit and the whole process repeated again. Virtually all customers clear their cargo themselves.

Export Procedures

Principal exports from the port mainly comprise livestock, namely, camels, cattle, sheep, and goats. The livestock is delivered from the hinterland, which includes southern Somalia, southern Ethiopia and northeastern Kenya, directly to the quarantine yard. At the yard, the livestock department undertakes a blood test and issues a medical certificate for each head. The shipper then pays all dues for the certificated animals, including a municipality fee, a livestock department fee, and port handling charges.

The shipper then informs the shipping agent, who prepares a *booking list* and pays ship port charges. The ship is then brought to launch and livestock driven to the port. In the late evening loading starts and livestock are again inspected and counted by customs, police, port authority, livestock department, and municipality. The export cargo (outward) manifest is then prepared (Appendix IIIi).

ROAD TRANSPORT PROCEDURES

The transportation of cargo from the port constitutes a vital component of the port operations, as already indicated. In practice, consignees arrange for transport simultaneously while clearing cargo. The discharging of cargo only takes place upon availability of transport. There are no weighbridges, and loading capacity is dictated by the condition of the roads to specific destinations. The trucking procedures differ for local imports and transit cargo.

Local Cargo

For local imports, cargo is inspected by the port finance police at the gate to ensure that cargo tallies with the clearance documents from the ports, customs, traffic and claims, and finance. Vehicles then can leave the port directly to either Burao, Hargeisa or local warehouses. The trucks to Burao undergo another combined police, municipality, and customs check at Sheikh, 70 km from Berbera, which is the border town between Berbera and Togdheer districts. Cargo clearance documents from the port are inspected, and trucks then pay a municipality tax of 100 Somaliland Shillings per Kintal (100 kg) before proceeding to Burao.

Similarly, for cargo to Hargeisa, vehicles check into a combined police, customs, and municipality control station just before entry into Hargeisa. The documents from the port are inspected, and, once everything is certified as in order, transporters pay a municipality tax of 100 Somaliland Shillings per Kintal and then proceed into Hargeisa.

Transit Cargo

As already indicated, the port of Berbera realizes a significant throughput of transit cargo, particularly to Ethiopia. The consignee before commencing the clearance must produce an import permit from the government of Ethiopia. The permit is then submitted to the Minister of Commerce in Hargeisa, who endorses and prepares an acceptance letter to allow the consignee to clear the cargo out of the port through the normal procedures. The letter is copied to customs, port traffic and claims, finance office, municipality, regional governor, and police commander.

Transit vehicles to Ethiopia are issued an additional Ethiopian transit number plate upon obtaining the permit, on top of the local Somaliland number plate. The trucks use both plates during the entire journey within Somaliland to Ethiopia. In practice, at the gate pass section, the consignee is issued a gate pass written at the top "Transit Cargo". At the gate control, port police then arrange for a police escort for the cargo up to

Hargeisa. After normal checkpoint controls, similar to those for local cargo, the transit vehicles proceed to the regional police commanders office at Hargeisa. The police endorse that the cargo is as per the port documents, including the original copy of the import permit from the Ethiopian government. The police escort from Berbera is then changed, and a new team is assigned to the trucks from Hargeisa to the Ethiopian border. At the border, the documents are handed over to Ethiopian police or military. The trucks may travel in convoy or alone, depending on the cargo volume.

SOUTHERN SUDAN

Cargo being transported into southern Sudan originates from Kenya, (Mombasa or Nairobi) or Kampala in Uganda. From these origins, the cargo is transported by road to what are called “primary destinations,” which are Lokichokio and Koboko in Kenya and Uganda, respectively, due to the logistical problems of direct transit into southern Sudan. Other primary destinations are Gulu and Kitgum.

At the primary destinations, the NGOs, UN bodies, and transporters have provided storage facilities. The storage facilities serve two main purposes: the breaking of bulk by transporters to enable the transshipment of easier small consignments into more hardy 4 x 4 vehicles suited for southern Sudan and the metering of relief cargo flow and distribution inside Sudan. The vehicles serving the primary destinations and the stations inside southern Sudan seldom carry more than 10 MT of cargo, and the common type is M.A.N, an ex-German army truck whose capacity ranges between 8 and 10 MT. Others include Isuzu (mostly 7-MT capacity); Bedford (10 to 15 MT); and Fodon (20 MT).

The major destinations in southern Sudan are Juba and Tambura, from which many in-country routes radiate. However, during our study, Juba was in the hands of GoS military, and it was not possible to reach it. The road routes from Koboko to Juba or Lokichokio to Juba therefore were

closed, leaving Tambura as the only direct destination into southern Sudan. In practice, however, there is no overland transport connection in southern Sudan to the north of Tambura. This means that any further connections have to be undertaken through airlifts into the Lake and Bahr-El-Ghazal regions. Similarly, cargo from Lokichokio in Kenya to Tambura have to be airlifted because of the insecurity in areas through which the overland roads pass.

From Lokichokio, the current procedure (such as adopted by CARE) is to airlift relief cargo to Tambura by use of passenger aircraft caravans or cargo planes which include a Cessna (with carrying capacity of 1 MT), a Buffalo (whose carrying capacity is 7 MT), and a Hercules (C-130) transport plane, whose capacity is about 12 to 16.2 MT.

Passage Through Congo

Similarly, much of the transport from Koboko currently goes via Congo (formerly Zaire). However, passage through Congo is quite problematic and costly. Vehicles entering Congo at Vurra are required to report to the police before proceeding to Aru, where there is a customs office. Here, transporters are required to purchase an entry card, pay a transit fee and a nonrefundable bond. Vehicles are to be cleared at the district commissioner’s office, when a zonal fee has been paid. Other procedures include passing through immigration, transport and communications office, and OZAC, the local cargo-inspection authority. Clearance also must be sought from SONAC, the insurance authority, and a medical certificate obtained. The final requirement at Aru is to get army and police clearance.

After a truck and its crew have successfully completed the above formalities, they are then allowed to continue with the journey from Aru to Aba near the Congo/Sudan border. At Aba, every truck contributes 20 litres of diesel, after which they are allowed to proceed to the border crossing. At the border crossing, each truck has to contribute another 20 litres of diesel before finally being released to enter Sudan.

Entry into Southern Sudan

On entering southern Sudan, the vehicles proceed to Lasu, where there is a customs office. At Lasu, the vehicles have to obtain SPLA/SRRA travel

passes. The crew also must obtain an entry permit, which is renewable after three months. However, there are no charges on cargo entering southern Sudan.

7. Costs of Cargo Movement

INTRODUCTION

In this chapter we discuss the direct freight costs of cargo movement to/from each of the ports, focusing on all the existing routes to each country. Similarly, where potential alternative routes exist, we present the estimated costs for the route. The analysis covers port charges, railway tariffs, road freight rates, clearing and forwarding costs, and any other official and unofficial road transit charges as may be applicable.

PORT CHARGES

The port charges considered in this report are those related to cargo handling services, from the time it is moved from the ship's hold to the time it is discharged from the port, and include any storage penalty charges that may accrue before cargo is collected by the consignee or loaded onto road or rail transportation for further destinations and which are payable by the shipper. These charges inevitably include *stevedoring expenses*, which are those charges related to the movement of cargo from ship's hold to the first resting point of the quay in the case of imports or from the hooking point on quay to the allocation stow in the ship's hold in the case of exports. However, while stevedoring charges are in the account of the shipper, they are normally included with the sea freight charges, which in this study are only considered for the two competing ports of Assab and Djibouti, as discussed in Chapter 8. Therefore, the port charges considered in this chapter include only the following:

- Shorehandling: Shorehandling charges are levied for receiving import goods, quay handling, and movement to a point of rest in

the transit storage area. In the case of exports, it applies to quay handling and presentation alongside vessel;

- Port dues on goods: Port dues on goods are levied on all cargo passing over the quay, jetties and other terminals within the port limits; and
- Storage charges as may be applicable from one port to another.

Assab and Massawa

The current tariff for the port of Assab and Massawa was applicable effective 1 October 1995 and is divided into four sections, including section II cargo handling charges and fees. It is the policy of the Eritrean Ports Authority to assess charges according to the nature of cargo and packaging for both import and export cargo. Although the tariff is denominated in United States dollars, payment is accepted in Ethiopian Birr, which makes these ports more convenient for both Eritreans and Ethiopians.

Shorehandling

For purposes of assessment, shorehandling charges are applicable in eight different commodity categories, which include *bagged cargo, break bulk cargo, iron and steel, vehicles driven off, vehicles conventional, containers, food and meat, and unprocessed fish from fishing vessel*. The ninth category relates to exclusive charges, which include sorting, waiting time, weighbridge charges, condemnation and disposal, and heavy lift charges. Within the nine shorehandling tariff categories, there are 34 individual rate classes that may reflect time-consuming and cumbersome transactions. Vehicles, for example, are classified into six different rate classes, while bagged and break bulk cargo is classified into a further six and

seven rate classes, respectively.

Shorehandling expenses are levied per metric ton for most categories of commodities, except for vehicles and containers, which are levied per piece and weight and per box, loaded or empty, respectively. The lowest rates are applicable to iron and steel cargo, at US\$6.85/MT, while the highest are applicable to hides and skins, and chemicals and hazardous cargo, at US\$12.45/MT. Other indicative charges are as follows:

<i>Commodity</i>	<i>Charges (US\$/MT)</i>
Bagged Cargo	
— Grains, Pulses, Coffee, Oilseeds	7.35
— Salt	8.40
— Fertilizers & Chemicals	9.95
— Cement	8.80
Break Bulk Cargo	
— Nonhazardous General Cargo	9.95
— Cotton Lint & Jute	11.45
Vehicles	
— Less than 5 MT (driven off)	15.05
— More than 10 MT (conventional)	103.50
Containers	
— 20-ft Loaded	100.00
— 40-ft Loaded	200.00
Exclusive Charges	
— Heavy lift charges	
o 10 to 20 MT	1.00
o over 20 MT	3.25

Port Dues on Goods

Charges are assessed per kilo ton or part thereof in US\$as follows:

	<i>Imports</i>	<i>Exports</i>
Domestic	1.00	free
Transit	1.00	free
Transshipment	0.50	0.50
Crude Oil	0.17	—
Refined Oil	0.20	—

Storage Penalty Charges

After goods are discharged, the following grace periods (days) are allowed before storage penalty charges accrue:

	<i>Imports</i>	<i>Exports</i>
Domestic	15	20
Transit	30	35
Transshipment/Overland	10	10

Thereafter, storage penalty charges accrue in six different categories of storage facilities available: *warehouses, lockers, open shed, open area, container area, and cold storage*. In general, rates for each storage area are classified into *general cargo* and *dangerous and dirty cargo*. There is no grace period for using cold storage facilities.

For each classification, the storage penalty is specified for three different periods: *up to 30 days, 31–60 days, and over 60 days*. In total, there are some 45 storage classifications for which penalties are levied. Charges range from as low as US\$0.15/MT per day for general cargo at the open area for up to 30 days to US\$0.35/MT per day for lockers. Charges for vehicles in the open area storage range from US\$1.15 for a small vehicle per day for up to 30 days to US\$12.15 for a big vehicle. Similarly, a 20-ft loaded container attracts penalties of US\$3.00 per day for the first 30 days, increasing to US\$8.00 per day for the period after 60 days. Empty containers are charged at half this rate, while 40-ft containers are charged double the rate.

Djibouti

The current tariff at the port of Djibouti, which was effective 1 February 1996, has been considered much simpler than the previous one that reflected too much nomenclature and was presented in several categories. The tariff gives port dues for *petroleum products and other bulk oils, basic commodities* (whether loose or containerized), *other general cargo*

Table 7.1. Tariffs of Djibouti Port Authority
Port dues on Merchandise (FDJ)

Particulars	Unit	Imports	Exports	Transit		Transshipment
				Imports	Exports	
Petroleum products	per MT					
— Black products		178	178	178	178	356
— White products		560	178	178	178	356
—Black/White						
—Conditioned		801	178	178	178	356
Others in bulk	per MT	356	356	178	178	178
Base products	per MT					
— Containerizer pallet	volume					
— Rice entire/broken		712	1,246	178	178	534
— Wheat flour		445	1,246	178	178	534
— Cereals		356	1,246	178	178	534
— Cements, lime, plaster		190	1,246	178	178	534
Others						
— Varied merchandise	per MT	1,780	1,246	178	178	534
Container (full container load)	TEU	44,250	10,680	5,340	3,560	890
Live animals	per head					
— Camels + cows		712	534	712	534	534
— Goats + sheep		178	178	178	178	178
Vehicles	per MT	1,780	1,246	178	178	534

1. Minimum billing is 1 MT.
2. 1x20' container is equivalent to 1 TEU.
3. 1x40' container is equivalent to 2 TEU.

(merchandise), *containers, live animals and vehicles*, and is presented for *domestic, transit and transshipment cargo* (Table 7.1). The key feature of the tariff is its "double vision" orientation, whereby on the one hand it seeks to further the role of the port of Djibouti as a gateway for Ethiopia (port dues for transit traffic has been reduced by 50 percent), while on the other it provides a basis for the port of Djibouti to exploit its increasing proven transshipment capabilities as a relay point for containers to and from Saudi Arabia. Specifically, it has the

following details, namely:

- Port dues in respect to transit traffic are the *same* for imports and exports for all categories of cargo except *containers, camels, and cows*; and are *lower* for all categories of cargo other than *equivalent domestic and transshipment traffic*. This major feature of the new tariff is intended to attract cargo from and to Djibouti's major transit neighbor, Ethiopia. The Djibouti Port Authority is specifically aware that, while

Table 7.2. Berber Port Charges: Selected Items

Item	Category	Rate (US\$)
Heavy Trucks	Piece	16.15
Empty Jerricans	Piece	0.016
Cigarettes	Carton	1.38
Pasta	Carton	0.041
Cement	Bag	0.097
Tea Leaves	Bag	0.25
Cooking Oil	Drum	0.97
Fuels	Drum	1.13
General Cargo	Bag	0.075

Ethiopian transit traffic via the port only accounted for 14 percent of dry cargo traffic, a significant amount of it is passing the port as transshipment traffic, which it needs to tap; and

- Similarly, the relatively higher port dues for transshipment cargo appear to be intended on the one hand to discourage what would be purely transit cargo (to Ethiopia) from being transhipped via Assab and on other hand to raise the bulk of its income. Transshipment cargo amounted to 55 percent of its total dry cargo throughput in 1995, a large proportion of which originated or was destined to Saudi Arabia.

Notwithstanding the above, the tariff is denominated and payable in Djibouti francs, which represents much inconvenience for Ethiopian port users who must therefore source foreign exchange for such payments.

Somalia

Berbera

The current tariff at the port of Berbera was effected on 18 August 1996. The new tariff reflects the recent devaluation in 'Somaliland,' from Somaliland Shilling (SLSH) 650 to 1500 to

US\$. The tariff includes 53 items classified into eight categories according to packaging, namely *bag, carton, bundle, piece, roll, drum, set, and head* (for livestock), which reflects a complete deviation from practices at other ports where tariffs are based on weight, volume, or value. The tariff is exclusively for general cargo and is uniform for both domestic and transit cargo. According to the tariff, general cargo comprises only cereals and sugar. However, in the absence of containerized traffic through the port, all the traffic is of general cargo character.

The highest rate according to the tariff is applicable for heavy truck vehicles at US\$16.15 per piece. The lowest rate is applicable for empty jerricans at US\$0.016 per piece. Different rates are applicable for goods within each packaging category, for instance in the cartons category, cigarettes are charged at US\$1.38 per carton, while pasta and matches are charged US\$0.041 and US\$0.242, respectively. Similarly, in the bags category, cement is charged US\$0.097 each while tea leaves are charged US\$0.25 per bag (Table 7.2).

Storage Charges

The port of Berbera introduced storage charges effective from April 13 1996. This was prompted by the increasing cases of consignees stacking their cargo at the wharf, which caused difficulties in both cargo loading and discharging operations.

The current storage charges are divided into two categories, namely; *storage fees for transit yard* (open space) and *storage fees for transit shed* (closed warehouses), as follows:

- Transit Yard: Free storage for the first seven days; after seven days: 300 SLS (US\$0.2)/MT/day
- Transit Shed: Free storage for the first seven days; after seven days: 500 SLS (US\$0.33)/MT/day

RAILWAY TARIFFS

Sudan Railways Corporation (SRC)

SRC tariffs are based on the full cost recovery and the commercial operations policy of the corporation. The rates are quoted per metric ton and payable in Sudanese dinars. The rates are uniform, at US\$0.011/MT/km, for all the route segments. For instance

- The rate from Khartoum to Nyala (2,096 km) is SD 3,300/MT (US\$22.68/MT or US\$0.011 MT/km).
- The rate from Port Sudan to Khartoum (787 km) is SD 1,190/MT, which is equivalent to US\$8.18/MT (US\$0.011 MT/km).
- The rate from Port Sudan to Babanusa (1,761 km) is SD 2,780 (US\$19.11)/MT, which translates to US\$0.011 MT/km.

Owing to the high rate of inflation in Sudan and the need for the SRC to operate on a commercial basis, freight charges are subject to change every three months.

Chemin De Fer Djibouti-Ethiopen

The current CDE tariff was last reviewed in 1981, but there were changes in 1990 reflecting the devaluation of the Ethiopian Birr, which, however, did not reflect any real increases. There were also minor adjustments in 1994, mainly for passenger fares, which increased by some 50

percent. In practice, freight tariffs are less than the average costs of moving freight. SICO, a costing package used mainly by the French Railways, is available for use but not installed.

Imports

The current import tariff is specified in Djibouti francs (FDJ) for distance and tonnage. Rates are specified per metric ton of cargo for 10-, 15-, and 20-MT consignments by commodity and destination. The tariff reflects 15 different commodity scales and provides specific rates between Djibouti and the inland destinations of Dire Dawa (309 km), Nazret (678 km), and Addis Ababa (781 km). The tariff also reflects economies of scale for higher tonnage consignments, such that the rate for a 20-MT consignment per metric ton ranges between 4.6 and 25 percent cheaper than the equivalent rate for a 10-MT consignment, depending on commodity. In our analysis, we present the rates for a 15-MT consignment, which is roughly equivalent to the weight of one loaded 20-ft container (TEU).

Iron rails (Ferraille) attract the lowest rates, US\$0.038/MT/km for both Djibouti-Addis Ababa and Djibouti-Nazret. However, the similar rate to Dire Dawa is US\$0.039 MT/km. Cooking oils, cement, soap, and glass attract a rate of US\$0.049, 0.0496, and 0.051/MT/km for Addis Ababa, Nazret, and Dire Dawa, respectively. Containers attract the highest rates, with a 15-MT consignment attracting a rate of US\$0.123/MT/km between Djibouti and Addis Ababa and Nazret, compared to US\$0.167 between Djibouti and Dire Dawa.

Exports

The current CDE export tariff is specified in Ethiopian Birr per metric ton for different commodities between Addis Ababa, Nazret, Metehora, Dire Dawa, and Djibouti. Typical rates are Birr 130.95/MT (US\$0.0266 MT/km) for coffee from Addis Ababa and Nazret to Djibouti and US\$0.0365 MT/km for Dire Dawa-Djibouti, which indicates economies of scale for

Table 7.3. A Comparative Analysis of Rail Freight Rates between the Countries in the Northern Tier of GHA Subregion and East Africa

Country-Route	Distance (km)	Rates (US\$)	
		Per MT	Per MT/km
Sudan ¹			
— Port Sudan-Khartoum	787	8.18	0.0104
— Port Sudan-Nyala	2,096	22.68	0.0108
— Port Sudan-Babanusa	1,761	19.11	0.0108
Djibouti-Ethiopia-CDE ²			
— Djibouti-Addis Ababa	781	96.32	0.123
— Djibouti-Dire Dawa	309	51.75	0.167
— Djibouti-Nazret	678	83.62	0.123
Kenya ³			
— Mombasa-Nairobi	530	34.98	0.066
— Mombasa-Kisumu	929	65.03	0.07
— Mombasa-Eldoret	997	63.81	0.064
— Nairobi-Eldoret	467	27.1	0.058
Uganda ⁴			
— Malaba-Kampala	251	20.58	0.082
— Kampala-Gulu	608	40.74	0.067
— Kampala-Kasese	333	24.98	0.075
Tanzania ⁵			
— Dar es Salaam-Kigoma	1,252	55.1	0.044
— Dar es Salaam-Isaka	982	47.0	0.048
— Dar es Salaam-Mwanza	1,229	54.1	0.044

1. Rates for general cargo.
2. Rates for 20-ft. containers (15 MT).
3. Rates for up-traffic containers.
4. Rates for 20-ft. containers (15 MT).
5. Rates for general cargo.

longer hauls. Cereals attract higher rates of US\$0.046 MT/km between Nazret and Djibouti, while empty containers and marble products are charged at the rate of US\$0.0325 MT/km and US\$0.0335 MT/km between Addis Ababa and Djibouti.

In Table 7.3, we provide a comparative analysis for rail transport freight rates between the countries in the region, and those in East Africa for selected routes. Principally, the analysis indicate the following:

- SRC's rates, at an average of US\$0.011/MT/km, are significantly the lowest in comparative terms: They contrast sharply with the CDE rates, which are on average US\$0.12/MT/km, which is about twice as much for KRC, about 1 1/2 times as much for URC, and about three times as much for TRC.
- In virtually all countries except the Sudan,

rail tariffs indicate economies of scale for long hauls as opposed to short hauls. In Sudan, rail tariffs are fixed at a flat rate, irrespective of distance.

- Railway tariff application in the Sudan and Tanzania are similar in the sense that they don't give consideration to whether cargo is containerized or general cargo but consider tonnage.

ROAD FREIGHT RATES

The transit and in-country road freight rates in the region are not regulated. However, the clearing and forwarding agents and truckers' associations have established guiding rates, but these are not mandatory. In practice, therefore, rates are determined by market forces, especially the level of competition. Negotiating rates, especially with regard to large consignments, is a common practice. Other factors that determine road freight rates include the availability of return loads, the need for specialized vehicles, the level of procedures en route and the associated costs, the prevailing security situation, and the condition of roads.

Northern Sudan

In practice, there are no fixed rates for road transport in northern Sudan. All transporters operate on a contract basis and negotiate rates with the importers on an individual basis. Bulk cargo transporters, especially international NGOs and UN bodies, maintain some base rates for transportation, despite the bidding and negotiations with transporters. The road freight rates in northern Sudan to a large extent reflect the security situation. In this regard, rates to destinations around Khartoum and to the north of the capital city are lower compared to those for destinations further south. For instance, it costs US\$0.054/MT/km from Port Sudan for many destinations in north Darfur (some 2,000 km), while for the 1,771-km journey from Kosti to Wau in the Bahr el Ghazal area in the south it

costs US\$0.154/MT/km, which reflects the insecurity around this area.

The rates are also dependent on condition of the roads. The rates for good road sections range between US\$0.028 and US\$0.037/MT/km; for example, it costs US\$0.030/MT/km for a 1,191-km journey from Port Sudan to Khartoum and US\$0.033/MT/km for a 315-km journey between Kosti and El Obeid, both roads of which are in good condition. However, for poor road sections, the rates are as high as US\$0.073/MT/km; for instance, the 505-km section between Kosti and En Nahud.

Road freight rates in northern Sudan also reflect the inflation level, such that operational costs are ever-increasing. This means that truck operators cannot effectively make long-term business plans and risk incurring losses, especially where contractual arrangements pegged on the local currency is involved. Similarly, the dependence of the road transport industry on imported inputs for operation (including spareparts, tires, and fuel) has led to difficulties in securing such accessories due to the scarcity of foreign exchange. Indeed, transporters clearly acknowledge that if it were not for the payment they receive in hard currency, especially from international NGOs and UN bodies largely for the transportation of relief cargo, many would be out of business.

Eritrea

As already indicated, road transport accounts for about 98 percent of all freight movement in Eritrea. In practice, transport freight rates, particularly for dry cargo, are driven by market forces but are closely influenced by several factors, including road conditions, availability of cargo (particularly back-haul goods), and the transport demand. However, there are some standard applicable rates that form the basis for negotiations. Currently, road transport charges in the country are classified into three main categories that reflect the three broad road quality groupings, namely, first-quality, second-quality, and third-quality roads. Transport rates in Eritrea

also are subject to 35 percent additional costs in respect to empty returns. Similarly, transport rates escalate as demand for vehicles increases, usually manifested through requirements for direct ship-to-truck loading at the ports, which characterizes food aid imports.

First-Quality Roads

Along the first-quality roads that also are termed as smooth roads (or asphalted roads), the rates applied range from Birr 0.3/MT/km (US\$0.042) to Birr 0.4822 (US\$0.066)/MT/km, for one way, plus 35 percent where back haul cargo is not available. These roads are accessible to trucks of 20-MT and 10-MT with trailers, with an average speed of 30 km/hour. The roads classified as first-quality include: Massawa-Asmara (115 km), Asmara-Keren (91 km), Asmara-Senafe (140 km), and Asmara-Endagiorgis (107 km). It should be noted, however, that these rates are applied selectively based on negotiations.

Second-Quality Roads (Secondary Roads)

For the purpose of transportation rates, the following road sections are classified as second-quality (nonasphalted) or rough roads: the Agordet-Tessenei (185 km), Mendefera-Areza (40 km), and the Keren-Afabet (65 km) sections. The transport rates along these roads range between Birr 0.5304 (US\$0.074) to Birr 0.8 (\$0.11)/MT/km, for a one way journey, plus a 35 percent charge if no back-haul cargo exists. Out of these secondary roads, the Agordet-Tessenei section can be accessible by 10- to 35-MT trucks with and without trailers. However, the remaining sections are accessible only by trucks without trailers. However, as already indicated, where the possibility of getting back-haul cargo is imminent, some discount on the full rate is usually made, subject to negotiations. Thus, it is indicated that, for the road route between Massawa and Tessenei (482 km) via Asmara and Keren, the transport rates average around Birr 240 (US\$33)/MT or Birr 0.3402 (US\$0.0473)/MT/km. The rates are also applied selectively based on negotiations depending on the type of goods and clients.

Third-Quality Roads (Tertiary Roads)

These comprise feeder and rural roads, whose passage is very difficult and normally limited to the dry seasons. These roads to the remote regions traverse over very difficult terrain. There are no commercial trucks plying these routes, as they are inaccessible to ordinary trucks. These road routes thus are not classified under the conventional road classification system in the country (they pass over river beds, sandy plains, and stony and hilly sections), and ordinary trucks require the support of heavy-duty trucks to tow them out of the sand or to cross river beds. These routes are mostly used by ERRA trucks for relief operations, and, in their present condition, it has been difficult to establish any standard tariff on MT/km basis or even compare tariffs with those serving the primary or secondary roads, as there is no commercial rate that can serve the routes. These routes are particularly reflected in the case of the entire Dankalia, Eastern Akele-Guzai, greater parts of Barka, and Sahel provinces, which not only are some of the furthest places in the country but have virtually no infrastructure to support relief operations. Mobility in this category of roads is very limited, and a truck barely makes on an average 10 to 15 km/hour. In addition, accessibility to some of these routes is limited to 10-MT trucks, others to 20-MT trucks, but both with the support of towing trucks.

In light of the aforementioned circumstances, WFP has negotiated with ERRA a special uniform rate of US\$80 per MT for the distribution of relief supplies to some 112 destinations, mostly covered by third-quality roads, which as already indicated require specialized vehicles. There is no back-haul cargo from these destinations.

It also is understood that transport rates for fluid cargo normally is fixed but is influenced by the type of truck and road conditions. For example, the rates for a light truck with trailer on asphalted roads is US\$0.0496 per litre/km and US\$0.0546 per litre/km on nonasphalted roads, but, without trailer, the applicable rates are US\$0.0835 per litre/km and US\$0.0918 per litre/km for primary and secondary roads, respectively. With respect to a heavy truck with trailer, the rates on primary roads are

US\$0.062 per litre/km and US\$0.7 per litre/km on secondary (rough) roads. For a heavy truck without a trailer, the transport charges are US\$0.104 per litre/km on asphalted (primary) roads and US\$0.114 per litre/km on rough (secondary) roads. In practice, fluid cargo is not insured, which places truck operators at a great risk in case of misfortune.

Ethiopia

The emerging private trucking industry in Ethiopia has increasingly become more commercially oriented and is "forced," mainly through lease purchase agreements with donors and other private sector institutions, to apply normal business economics to their operations in order to safeguard the optimal life of the vehicles. A general rule for most truckers' associations or companies that have received loans to buy new vehicles since 1991 is a five-year depreciation period, which is equivalent to the period of the lease-hire agreement. This has required the establishment of mechanisms for pricing not only to be competitive but also to ensure that revenues cover costs. In their operations, therefore, a cross-section of private truckers in Ethiopia establishes their rates based on costing models.

According to one truckers' association, the main variable in the costing model (see Appendix IV) is to arrive at a required average rate and includes:

- standing costs: ownership, depreciation, and operational costs;
- consumable, repairs, and maintenance: fuel, lubrication, tires, spare parts;
- additional considerations: cost increases, reserve, and commissions, etc.

Rates established in this manner in October 1995 averaged between Birr 0.2046 (US\$0.0325) MT/km for an assumed 80 percent load factor and Birr 0.3273 (US\$0.0579) MT/km for a reduced load factor of 50 percent, assuming a load capacity of 38.9 MT for truck and trailer and three trips a month between Assab and Addis Ababa. Another transporter's costing model, which assumes a seven-year depreciation period

and load factor of 50 percent on the same route, translates into break-even rates of Birr 0.426 (US\$0.068) MT/km (30 MT), Birr 0.466 (US\$0.74) MT/km (25 MT), and Birr 0.53 (US\$0.084) MT/km (22 MT).

It is understood that private truckers who have acquired old vehicles, through privatization and leasing of operational vehicles hitherto operated by RRC and other NGOs (which includes the former WTOE fleet), have little regard for replacement and seldom include the depreciation element or load factor or utilization in the setting of their tariffs. These operators have vehicles sometimes as old as 15 years and often have little basis, other than direct costs, to formulate or to rationally negotiate tariffs. Therefore, cost consciousness is low, and little regard for replacement is imminent. Thus, in a market where clients are sensitive to tariffs, rate fluctuations are common. It is generally believed that the operators with older vehicles have an upper hand in securing cargo compared to their counterparts with newer vehicles, particularly on routes other than the main Addis Ababa-Assab corridor. This implies that rate negotiation, mainly through the tender system, is an important aspect of the Ethiopian road transport industry. In this way the tariffs are applied flexibly despite the costing considerations, such that the rates reflect both the market conditions and elements of the cost structure. Thus, in some situations, quoted rates may equal direct variable costs only.

Notwithstanding the above, road tariffs in Ethiopia are conditional on the routes or areas of vehicle operations, road conditions, availability of cargo, transit times, congestion at offloading points, and whether the cargo in question is to be delivered directly from ships onto vehicles at the Port of Assab, which creates peak demand.

In practice, the quoted rates between Assab and Addis Ababa will range between Birr 0.28 MT/km and Birr 0.45 MT/km (US\$0.04 and 0.07 MT/km) but can go as high as Birr 0.55 MT/km (US\$0.087 MT/km) for bad roads; for example to Tigray, northern parts of Gonder, etc. Rates for trucks only (without trailer) on all-weather bad roads can go even higher. As a case in point, a fertilizer consignment that was being moved from the Port of Assab in July 1996 attracted

rates of Birr 0.34 MT/km (US\$0.054) for destination to Nazret (good road) but was a significantly higher Birr 0.5 (US\$0.079)/MT/km for the relatively inferior roads to Tigray province. Arising out of the simplification of transit procedures along the Djibouti-Addis Ababa corridor is the fact that the transport rates now compare favorably with the Assab-Addis Ababa corridor.

Somalia

Road transportation rates in Somalia are not fixed, and transporters negotiate with their customers. The main factors that determine transport rates include the price of fuel, which fluctuates frequently due to inflation levels, road conditions, and availability of return loads. Uniform rates for all types of cargo are quoted per metric ton. Transport rates quoted for the 147-km journey from the Port of Berbera to Hargeisa range between US\$30 and US\$40/MT. This translates to between US\$0.2 and US\$0.27 per/km. The rates from Port Berbera to Wajale, 230 km at the Somalia/Ethiopia border, are on average US\$40/MT (US\$0.18/MT/km).

The rates quoted for the 126-km journey to Burao are on average 2,500 Somaliland Shillings per "Kintal" (100 kgs), equivalent to US\$17/MT (US\$0.13/MT/km). The rate to Les Anod (386 km) is on average 5,000 Somaliland shillings per Kintal (US\$ 33/MT or 0.086/MT/km). Cattle are charged at 5,000 Somaliland shillings per head (US\$3.33).

Southern Sudan

Road tariff rates to southern Sudan vary considerably, depending on the routes taken. In practice, quoted rates vary for different road sections along each route. While the rates are predominantly related to the condition of the transit roads, other factors include the extent of competition, the security situation along each route, and the transit procedures.

The in-country road rates for sections within Kenya and Uganda to the primary destinations are the lowest in relative terms and are uniform within

each country. Specifically, the tariffs for road sections within Kenya to Malaba border and Lokichokio transshipment points range between US\$0.08 and US\$0.091/MT/km. Similarly, road tariffs for sections within Uganda range between US\$0.12 and US\$0.2/MT/km to the primary destinations. These rates reflect two main factors, namely the competitive nature of the road-transit industry within the two countries, which is characterized by numerous firms, both private and public, which results in stiff competition. The rates also reflect the fairly good condition of road sections to the primary destinations within Kenya and Uganda, which are tarmacked.

The road tariff rates from the primary destinations to the Sudan border are significantly higher, ranging between US\$0.4 and US\$0.55/MT/km for road sections within Kenya and Uganda. These rates include an element of handling and storage at the transshipment points. It also is clear that these rates also reflect the security situation prevailing beyond the primary destinations, which portrays the rebel insurgency in northern Uganda and southern Sudan. In addition, the rates from the primary destinations reflect the poor condition of roads compared to the sections before and up to the primary destinations. In practice, transporters take advantage of the good condition of roads to the primary destinations to carry bulk volumes of cargo (30 MT). However, from the primary destinations, cargo volumes are restricted to small and easy-to-handle consignments of only 10 MT per truck. The rates thus reflect the modal change from the 30-MT heavy goods vehicles (HGVs) to the 10-MT trucks serving southern Sudan, which are specialized and hardy predominantly ex-army vehicles.

The transit rates (for some road sections) within southern Sudan are extremely high depending on the condition of the roads. These transport rates vary depending on whether the roads are maintained. Thus, for the maintained road sections, such as Lasu-Maridi, Nzara-Mundri, Maridi-Mvolo, and Maridi-Madebe, the rates range between US\$0.45 and US\$0.6/MT/km. However, for the sections that are not maintained, the rates range between US\$0.65 and US\$0.75/MT/km.

Comparatively, transport rates within Sudan are still high even along the improved roads in main

Table 7.4. A Comparative Analysis of In-Country Road Freight Rates between the Countries in the Northern Tier of GHA Subregion

Country-Route	Distance (km)	Rates (US\$)	
		Per MT	Per MT/km
Sudan			
— Port Sudan-Khartoum	1,191	35.7	0.029
— Port Sudan-Wau	2,292	352.97	0.154
— Port Sudan-Ed Dien	2,002	108.0	0.054
Southern Sudan			
— Lasu-Maridi	231	104.0	0.45
— Tambura-Yambio	188	133.0	0.75
— Tambura-Thiet	880	528.0	0.60
— Tambura-Akot	680	408.0	0.60
Eritrea			
— Massawa-Keren	206	11.12	0.054
— Massawa-Senafe	255	18.62	0.073
Ethiopia			
— Assab-Addis Ababa	882	44.9	0.051
— Djibouti-Addis Ababa via Galafi	910	45.5	0.05
— Djibouti-Addis Ababa via Dewenle	840	58.0	0.069
— Addis Ababa-Mekele	727	58.2	0.08
Somalia			
— Berbera-Hargeisa	147	35.0	0.238
— Berbera-Wajale	230	40.0	0.174
— Berbera-Burau	126	17.0	0.135
— Berbera-Les Anod	386	33.0	0.085
Kenya			
— Mombasa-Kisumu	834	78.0	0.093
— Mombasa-Nairobi	484	46.0	0.095
— Nairobi-Eldoret	312	29.0	0.093
Uganda			
— Malaba-Kampala	222	36.0	0.162
— Kampala-Gulu	304	41.3	0.136
— Kampala-Arua	516	46.32	0.089
Tanzania			
— Dar-Dodoma	479	91.66	0.191
— Dar-Arusha	647	83.33	0.128
— Dar-Isaka	900	166.66]	0.185
— Dar-Mwanza	1,178	166.66	0.141

tained conditions. The reasons attributed to this include the high operational costs of six- and eight-wheel vehicles, the need to position trucks in areas where daily transport opportunities are not readily available, and lack of back-haul cargo to primary destinations. Other factors include the need to bring in maintenance equipment, spare parts and fuel through Congo (formerly Zaire) or by air from Lokichokio. In addition, the road rates within Sudan reflect the lack of competition.

As already indicated, the passage inside Congo is a major feature of cargo trucking into southern Sudan as a result of the military insurgency around Kaya and Yei, which has cut off direct links from Uganda. For the road sections within Congo, the accompanying road transit procedures and associated costs and the condition of the roads are the main factors determining the rates. Unlike Kenya and Uganda, Congo has in place numerous transit charges that cost up to US\$750 per truck depending on the number of road blocks/ checkpoints. The rates for the road routes passing through Congo range between US\$0.65 and US\$0.72/MT/km.

An examination of the rates further indicates that the quoted rates by transporters will vary depending on whether the firm is using its own transport or subcontracting. For example, firms that subcontract the transportation of cargo between Mombasa and primary destinations have the highest rates to the above destinations, being US\$0.091/MT/km for the sections within Kenya and US\$0.2 for the sections within Uganda. However, those that use their own transport have lower rates, being US\$0.08/MT/km within Kenya and between US\$0.12 and US\$0.15/MT/km within Uganda.

In Table 7.4, we present a comparative analysis of in-country road freight rates on selected routes for the countries in the Northern Tier of the Greater Horn of Africa subregion and those in East Africa. The principal features of this comparison are as follows:

- The figures indicate that, in general terms, road transport freight rates in Ethiopia are the lowest across both regions under consideration, at an average of US\$0.05/MT/km. This may be attributed to the competitive nature

of the trucking industry as well as the fact that the government subsidises fuel prices;

- Road transport freight rates in southern Sudan clearly emerge as the most expensive, ranging between US\$0.45 and US\$0.75/MT/km. This reflects the general insecurity in the region, coupled with the poorly developed transport infrastructure and lack of competition; and
- Somalia and Sudan and, to a lesser extent, Uganda, have fairly equivalent road transport freight rates, averaging between US\$0.085 and US\$0.238/MT/km. These reflect to a large extent the poor condition of the roads in general, a poorly developed trucking industry characterized by limited competition, and the implications of insecurity.

Summary of Freight Rates

Northern Sudan Routes

As we have already discussed in the previous sections, there are two existing routes and one alternative/potential route to northern Sudan:

- the all-rail route from Port Sudan via Atbara to Khartoum, Nyala, and Wau.
- the all-road route from Port Sudan to Khartoum via Wad Medani to Khartoum, Kosti, and Wau.

All-Rail Route via Atbara to Khartoum, Nyala, and Wau

This route accounted for 959,200 MT of imports and 220,000 MT of exports out of a total of 1.76 million MT moved by the SRC in 1994/95. Most of the import cargo was either to Khartoum and the central states, which also originated the bulk of the exports. The SRC operates block trains along the route. The applicable freight rates along this route are uniform for both exports and imports and are quoted in Sudanese dinars. The actual direct freight costs are as follows:

Section	Distance (km)	Rate (US\$)	
		Per MT	Per MT/km
Port Sudan-Khartoum	787	8.65	0.011
Port Sudan-Nyala	2,105	22.68	0.011
Port Sudan-Wau	2,216	24.4	0.011

All-Road Route via Wad Medani to Khartoum, Kosti, and Wau

This is by far the most important road in the country, linking port Sudan to Khartoum, and traffic levels are very heavy. Despite the existence of a parallel railway line and an import oil pipeline between Port Sudan and Khartoum, the road still carries 40 percent of the country's petroleum products from the refinery at Port Sudan city. A significant component of cargo delivered by the road is food imports — wheat and wheat flour and other agricultural products. Road charges along the route are currently quoted at US\$ 0.030/MT/km. Rates for other sections are as follows:

Section	Distance (km)	Rate (US\$)	
		Per MT	Per MT/km
Port Sudan-Khartoum	1,191	35.7	0.030
Port Sudan-Nyala	1,221	34.2	0.028
Port Sudan-Wau	2,292	352.97	0.154
Average for entire route	4,704	422.87	0.089

Routes through Eritrea

The major route serving Eritrea is the road between Massawa and Asmara, which extends to both Ethiopia and Sudan.

All-Road Route from Massawa to Addis Ababa via Asmara

This road route principally serves the northern Ethiopian province of Tigray and is seldom used

for the direct delivery of goods to and from Addis Ababa. The major type of import cargo transported along the route includes food aid, construction materials, oil products, and manufactured goods. Exports include salt, textiles, hides, and skins. Transport charges along the route vary, mostly in accordance with the condition of the roads and availability of back-haul cargo. The direct transport charges for the various sections along the route, which average US\$0.062/MT/km or US\$70.99/MT plus a 35 percent surcharge where back-haul does not exist, are as follows:

Section	Distance (km)	Rate (US\$)*	
		Per MT	Per MT/km
Massawa-Senafe-Mekele	410	25.42 (34.31)	0.062 (0.084)
Mekele-Weldiya	243	19.44 (26.24)	0.080 (0.107)
Weldiya-Dessie	108	5.83 (7.87)	0.054 (0.073)
Dessie-Addis Ababa	376	20.30 (27.45)	0.054 (0.073)
Average for entire route	1,137	70.99 (95.87)	0.062 (0.084)

Massawa-Asmara-Gonder

This road route basically serves the northern Ethiopia province of Gonder. It is used for transporting cargo similar to that described on the Massawa-Addis Ababa road route, above. Transport charges along the road route vary depending on road conditions and cargo availability (back-haul). The rates for the various road section are as follows:

* Figures in parentheses represent the total costs inclusive of the 35 percent additional charges required if there is no backhaul cargo.

Section	Distance (km)	Rate (US\$)*	
		Per MT	Per MT/km
Massaw-Asmara	115	6.21 (8.38)	0.054 (0.073)
Asmara-Mendefera	55	2.97 (4.01)	0.054 (0.073)
Mendefera-Gonder	476	33.32 (44.98)	0.07 (0.094)
Average for entire route	646	42.5 (57.38)	0.066 (0.088)

Ethiopian Routes

Ethiopian transport corridor as already indicated is served by one all rail route and three all road routes from Djibouti and Port Assab. These are:

- the all-road route from Assab via Mille (882 km)
- the all-road route from Djibouti via Galafi and Dobi (910 km)
- the all-road route from Djibouti via Dewenle (840 km)
- the all-rail route from Port Djibouti via Dire Dawa (781 km)

All-Road Route via Mille to Addis Ababa (882 km)

This is the principal road route serving the Ethiopian corridor. Due to the provisions of independence agreement between Eritrea and Ethiopia, which granted the latter open access to the port of Assab, the bulk of Ethiopian import and export cargo transitw along this route. The large number of vehicles plying this route has implications on quoted freight rates. Other factors include the volume of cargo and the clients. The average quoted rate along this route is US\$ 44.9/MT or US\$0.051/MT/km.

All-Road Routes from Djibouti via Galafi to Addis Ababa (910 km) and Djibouti via Dewenle to Addis Ababa,(840 km)

As already indicated, these routes have in the past

accounted for very limited cargo to Ethiopia other than government (mostly fertilizer) and aid cargo. The latter is mainly destined to eastern parts of Ethiopia. Until recently, the Djibouti-Addis Ababa corridor was characterized by numerous logistical and administrative restrictions, which affected transport costs. This was further exacerbated by the general lack of back-haul cargo, thus making the routes one way only. Prior to the signing of agreements in September 1996 simplifying transit procedures along these routes, the rate along the route via Galafi was US\$117/MT (US\$0.12/MT/km), while the rate for the route via Dewenle averaged US\$102/MT (US\$0.12/MT/km). Currently, the transport rates along the route via Galafi is, on average, equivalent to US\$0.05/MT/km (or US\$45.5/MT), while the transport rate for the route via Dewenle is US\$58/MT, (equivalent to US\$0.07/MT/km).

All-Rail Route via Dire Dawa

The cost of moving import general cargo (cement) in US\$/MT along this route to Addis Ababa is as follows:

	<i>Imports</i>	<i>Exports</i>
Addis Ababa-Djibouti	38.27	20.77
Nazaret-Djibouti	33.63	18.03
Dire Dawa-Djibouti	15.76	11.28

All-Road Route Berbera-Wajale-Addis Ababa

This road route serves northeastern Ethiopia, mainly the Harerge province with little connection to Addis Ababa. In practice, therefore, import cargo into Ethiopia through this route is largely to Harer and Dire Dawa. Main categories of cargo include food products, particularly sugar, wheat, and wheat flour. Cargo rates are largely determined by the road condition along the corridor and availability of back-haul cargo. The current rates along the route are as follows:

Section	Distance (km)	Rate (US\$)	
		Per MT	Per MT/km
Berbera-Wajale	230	40	0.18
Wajale-Jijiga	154	18.5	0.12
Jijiga-Harer	102	12.24	0.12
Average for entire route	486	70.74	0.15

All-Road Route from Mombasa to Addis Ababa via Moyale

This road which measures 1,992 km, originates at the port of Mombasa and is all paved, except the section between Isiolo and Moyale (510 km) in Kenya, which is graveled. A typical consignment of imports destined to Ethiopia includes relief supplies, cement, tea, soap, salt, household wares, plastic materials, and building materials, among others. Similarly, Ethiopia exports include hide and skins, Gum Arabic, some minerals, and coffee. Available information indicates that transporters along the corridor charge an average of US\$250/ MT between Addis Ababa and Mombasa via Nairobi and Moyale.

Southern Sudan Routes

The principal routes currently being used to southern Sudan are

- the road/air combination from Mombasa via Lokichokio to Thiet and Tambura and
- the all-road route from Mombasa via Malaba and Koboko to Thiet and Tambura

Road/Air Route via Lokichokio to Thiet

This route provides road and air modal combination to southern Sudan. Cargo, mainly relief food, medicine, and other humanitarian aid, is delivered by road from Mombasa to Lokichokio in northern Kenya. From Lokichokio, cargo is largely airlifted into southern Sudan. The cargo rates along the route are as follows:

Section	Distance (km)	Rate (US\$)	
		Per MT	Per MT/km
Mombasa-Lokichokio (road)	1,515	121.2	0.08
Lokichokio-Thiet (air)	720	874 (1,209)*	1.21 (1.68)
Total	2,235	422.87	0.455 (0.595)

Road/Air Route via Lokichokio to Tambura

This route provides the road/air combination to western Equatoria. Cargo types are similar to other destinations inside southern Sudan. The direct freight costs are as follows:

Section	Distance (km)	Rate (US\$)	
		Per MT	Per MT/km
Mombasa-Lokichokio (road)	1,515	121.2	0.08
Lokichokio-Tambura (air)	780	680 (1,382)	0.87 (1.77)
Total	2,295	801.2 (1,503.2)	0.349 (0.655)

Mombasa-Koboko-Vurra-Thiet

This all-road route from Mombasa port via Koboko transshipment point in northern Uganda has been a major corridor to southern Sudan. The route passes via eastern Congo (formerly Zaire) and is mainly used for relief supplies. The rates vary by sections as follows. Effective October 1996, the road has been closed.

* Air rates are for a large Hercules aircraft. Rates in parentheses are applicable if the small 7-MT payload Buffalo is used.

Section	Distance (km)	Rate (US\$)	
		Per MT	Per MT/km
Mombasa- Malaba	953	76.2	0.08
Malaba- Koboko	821	164.2	0.2
Koboko- Lasu (through E. Congo)	300	216	0.72
Lasu-Mvolo	450	202.5	0.45
Mvolo-Thiet	233	167.8	0.72
Total	2,757	826.7	0.299

All Road Mombasa-Koboko-Vurra-Tambura

This route is the current link to western Equatoria from Mombasa port and Uganda. Cargo types are similar to those along the other routes to southern Sudan, as already indicated. In addition to linking the regions to the port of Mombasa and Nairobi for imported supplies and those locally sourced in Kenya, it provides a link through Kampala and hence is a major route for locally sourced supplies from Uganda. Therefore, apart from relief food aid transportation, which is common for all routes for southern Sudan, this route also is important for transportation of manufactured goods, especially those for barter trade destined to the Lake region. The rates are quoted according to different route sections as follows:

Section	Distance (km)	Rate (US\$)	
		Per MT	Per MT/km
Mombasa- Malaba	953	76.2	0.08
Malaba- Koboko	821	164.2	0.2
Koboko- Lasu	300	216	0.72
Lasu-Maridi	231	103.95	0.45
Maridi- Tambura	379	272.88	0.72
Total	2,684	833.23	0.310

Table 7.5 gives a summary of the quoted or calculated direct freight costs for the different routes as discussed above.

CLEARING AND FORWARDING COSTS

The foregoing discussions have put into perspective the varying roles of clearing and forwarding agents as commercial representatives of importers or exporters. In practice, the charges levied by CFAs are not standard and vary in magnitude from one CFA to another. Most of the charges are quoted on the basis of CIF value of consignment, but some are levied on the basis of weight and/or volume.

Eritrea

In Eritrea, clearing and forwarding agents charge Birr 130.00 per bill of lading as documentation fees. In addition, a service charge of US\$35 is levied on consignments of up to 20 MT, or per container, and US\$25 per vehicle. Consignments of more than 20 MT attract additional charges of US\$175/MT. ERSTAS, the parastatal transit agent, further charges a commission of EBirr 10.96/MT, wholly in its account for domestic cargo. However, for transit cargo, ERSTAS collects US\$2.99, but this is split on a ratio of 65 percent and 35 percent for ERSTAS and the Ethiopian MTSE. It is understood that both ERSTAS and MTSE have proposed a tariff that will take into account the costs of providing the various service and the competition.

Ethiopia

In Ethiopia, although there are private clearing agents contracted by consignees, in practice, their operation is largely limited to the expedition of documents processing through the customs authorities. This is due to the fact that, once the documents have been cleared by the customs authorities, these private clearing agents are obligated to present the same to MTSE for processing. As such, private CFAs in Ethiopia levy a service charge to shippers for merely expediting the processing of documents through the customs, as the clearing of transit cargo is the sole responsibility of MTSE. Currently, it is

Table 7.5. Direct Freight Rates

Route	Distance (km)	Rate/MT (US\$)	Rate/MT/km
		Imports	(US\$)
<i>Routes in Northern Sudan</i>			
Rail Routes			
— Port Sudan-Khartoum	787	8.65	0.011
— Port Sudan-Wau ¹	2,216	24.40	0.011
Road Routes			
— Port Sudan-Khartoum	1,191	35.70	0.029
— Port Sudan-Wau	2,292	352.97	0.154
<i>Routes through Eritrea</i>			
— Massawa-Addis Ababa	1,137	70.99	0.0624
— Massawa-Gonder	646	42.50	0.066
<i>Routes to Addis Ababa</i>			
— Assab-Addis Ababa	882	44.9	0.051
— Djibouti-Addis Ababa (Galafi)	910	45.5	0.050
— Djibouti-Addis Ababa (Dewenle)	840	58.0	0.069
— Djibouti-Addis Ababa (rail)	781	38.27	0.049
— Berbera-Addis Ababa	1,001	132.54	0.132
— Mombasa-Addis Ababa (Moyale)	1,992	210.0 ²	0.105
<i>Routes to Southern Sudan</i>			
— Mombasa-Lokochokio-Thiet (Wau) (road/air)	2,235	995.0 (1,330)	0.445
— Mombasa-Lokochokio-Tambura (road/air)	2,295	801.0 (1,503)	0.349
— Mombasa-Kiboko-Thiet (road)	2,757	826.7	0.360
— Mombasa-Koboko-Tambura (road)	2,684	833.0	0.310

1. Route currently inoperational.
2. Rate for Nairobi-Addis Ababa.

understood that MTSE charges a flat rate of EBirr 7.92 (US\$1.24) per MT, notwithstanding ERSTAS commission of US\$1.75/MT.

Djibouti

In Djibouti, CFAs charge some FDJ5,000 as documentation/agency fee per bill of lading. There is, however, no standard tariff, and costs

depend for the most part on the type of cargo and whether it is urgent or not. Urgent cargo attracts higher agency fees. In Djibouti, CFAs levy additional charges for transporting containers (not general cargo) to warehouses and loading.

OFFICIAL AND UNOFFICIAL ROAD TRANSIT CHARGES

The use of road routes in the different countries in the region is characterized by direct and indirect transit charges, which are more prevalent in landlocked Ethiopia and southern Sudan, compared to other countries in the region. These costs basically comprise two categories: costs paid by the transporter to facilitate transit, which the transporter normally includes as part of the direct freight charges, and indirect costs of cargo clearance such as those embedded in the administration of procedures for cargo movement and clearance, which a shipper can avoid if the procedures were to be simplified (i.e., they are avoidable, transshipment, for example). The levels of transit charges in the region are generally lower and fewer in most corridors, as compared to those prevalent in the East Africa region, particularly the Northern Corridor. These charges are considered to have a significant impact on direct transport costs, such that even partial elimination would greatly influence the current transport rates. In the following paragraphs we discuss these transit charges in each of the countries in the region, where applicable.

As already indicated, the bulk of transit goods passing through Eritrea is destined for Ethiopia. Both countries have signed bilateral agreements covering trade and transport that have simplified transport linkages by allowing vehicles registered in one country to use the road network in the other country without extra charges, and this has enhanced trade between the two countries. It is noted, however, that transporters from one country are not allowed to operate inland transport in the other country. Nevertheless, in contrast to the situation in East Africa, there are no established border charges between Eritrea and Ethiopia, although the Ethiopian RTA collects "little" amounts for transit traffic at the border to Assab. Apart from the normal costs involved in the clearance of cargo and for direct transport payable by the

shipper, the RTA issues permit licenses for commercial vehicles valid for six months at a cost of Birr 10 (US\$1.56). Transporters also are required to pay RTA Birr 25 (US\$3.47) for each interstate trip. In addition, there is a customs overtime charge a transporter has to pay if crossing the border later than official working hours.

Indirectly, a shipper also incurs some other costs, particularly those related to the various services that ERSTAS undertakes, as well as the customs bonds or cash deposits that have to be paid in advance. Thus, considering that clearing goods could take an average of one and a half months, this implies that the shipper will forgo the earning potential of the money held and/or incur interest charges on a bank overdraft obtained.

The previously existing bureaucratic procedures and requirements that limited the transport capacity along the Djibouti-Addis Ababa corridor resulted in the need to tranship large volumes of Ethiopian cargo at the port of Djibouti to and from the port of Assab. This service, provided mostly by coasters, could cost up to US\$1,500/TEU as extra freight charges included in the sea freight. Many consignees do not have the knowledge of these logistics, specifically that cargo received in Assab was first landed in Djibouti. At Djibouti, stevedoring charges for transhipped cargo are US\$197 per TEU and US\$253 for 2 TEU, in addition to port dues amounting to US\$5.00 per TEU. Transshipment thus constitutes a major cost component for Ethiopian cargo using Djibouti. It is considered that overall transport costs would be lower if cargo is handled directly from one port (Djibouti or Assab) to the intended destination to avoid the extra costs involved in transshipment.

The Mombasa corridor is the principal sea route for southern Sudan via Uganda and, to some extent, the southern provinces of Ethiopia via Moyale. Unlike the other corridors to the countries of the Northern Tier GHA subregion, this corridor, which comprises the Northern

Corridor Transit Agreement (NCTA), is characterized by numerous transit charges, both official and unofficial, having different validity periods depending on whether the truck is locally registered or foreign-owned. These transit charges include a transit goods license, transit charges, an entry permit, a transit bond, border fees, a temporary road license, and a foreign vehicle permit. This has a significant impact on the overall transport cost.

For a Kenyan-registered truck, the operator pays additional charges related to a transit bond for movement within Kenya. For passage through Uganda, a transit goods license, valid for 12 months at US\$18, transit charges at US\$27 per 100 km, a transit bond of US\$400, and border fees at US\$200 per trip are payable. In addition, a temporary road license (US\$100 per trip) and toll charges amounting to US\$0.34 per station are also in place.

As already indicated, the civil war situation in southern Sudan has cut off direct road linkages

with Uganda. Consequently, transporters currently pass through eastern Congo, where transit charges (both official and unofficial) average around US\$750 per truck (Table 7.7).

On entering southern Sudan, transporters are required to obtain an SPLA/SRRA travel pass at an equivalent of Kshs.1200 (US\$21). The crew also must obtain an entry permit, renewable after three months and equivalent to US\$8.90.

In regard to the Mombasa-Moyale-Addis Ababa corridor the only transit requirement at the Moyale border post is a customs bond. Transporters of unbonded goods, however, are understood to be required to pay (unofficial charges) Kshs.3,000 to 5,000 (US\$53.6 to US\$89.3) before being cleared to proceed to Ethiopia. In line with the PTA/COMESA regulations, vehicles with less than three axles entering Ethiopia via Moyale are required to pay US\$3 per 100 km; those exceeding 3 axles are required to pay US\$8 per 100 km.

Table 7.6. Transit Charges per Truck through Congo (formerly Zaire)

	US\$
Entry in Vurra 20 liters of diesel	20
Entry card	20
Transit fee	8
No refundable bond	100
Zonal fee	50
Immigration fees US\$25 (per person, assume 2 persons)	50
Transport and Communications Office	
Clearance: Trucks exceeding 7 MT	120
OZAC — cargo inspection fees	35
SONAC — insurance fees: Trucks	120
Medical certificate fees (UgSh.5000) per person — 2 persons	10
Stamp fees (UgSh.2000) per person — 2 persons	4
Army clearance (UgSh.100,000)	100
Police clearance (Ug.Sh.100,000)	100
Exit at Aba 40 liters of diesel	40
	777

8. Comparative Transportation Costs Analysis

INTRODUCTION

In this chapter we provide an analysis of the costs of transportation of various types of cargo to various destinations using different routes and modes. The comparative analysis assumes the transportation of imports and enables the comparison of the cost effectiveness of each route and mode. The analysis does not consider the cost associated with exports for two reasons: on the one hand is the insignificant level of exports in virtually all countries in the region compared to imports. On the other hand is the limited intraregional trade, whereby nearly all the regional export flows are to external markets, largely in America and Europe, with the only exception being between Eritrea and Ethiopia. This analysis similarly does not consider the charges associated with movement of POLS in the region. This is because of the difference of the nature of POLS imported to the region which are either black (crude) or white (refined). The charges, therefore, are different, which does not provide for a comparative analysis.

In the previous chapter, we identified four distinct cost categories related to transportation within the Greater Horn of Africa region; these are:

- port charges discussed together with port transit times,
- clearing and forwarding charges, and
- freight charges, which include transit charges payable by transport operators, officially and unofficially, on transit.

We also present in this chapter a valuation of the transit time taken between the ship's arrival at the port and the time cargo is received at its destination in order to establish the cost of the capital funds locked up in transit. Even though nobody pays such charges when funds are not

borrowed, they nevertheless constitute a cost to the shipper. The valued cost is aggregated with the three principal cost items above as a basis for establishing the total costs to the shipper. For the competing ports of Assab and Djibouti, the analysis further considers the sea freight from various origins to these ports.

PORT CHARGES

This study has identified seven ports serving the countries in the Northern Tier of the Greater Horn of Africa: *Port Sudan, Massawa, Assab, Djibouti, Berbera, Mogadishu, and Mombasa*. Unfortunately, the port of Mogadishu is currently inoperational in commercial terms, and we have therefore restricted our analysis to only six ports. Most of the ports in the region handle cargo that has no common destinations, except Assab and Djibouti, which compete for Ethiopian cargo. Indeed, it can be said that only Ethiopian cargo offers the common potential for all the ports in the region.

All the ports in the region publish tariffs, which are reviewed from time to time and are mostly denominated on weight, except for Port Sudan, where charges are related to value, and Berbera, where charges are related to the type of packaging. In addition, Djibouti and Mombasa charges are expressed in freight and harbor tons, respectively, which include weight and volume, whichever is the higher, while in Assab and Massawa, the charges are on weight basis (kilo tons) exclusively. There also are charges for containers expressed in TEUs at all the ports except Berbera where there is currently no containerized traffic. The current port charges at Massawa and Assab were effective from November 1995, at Djibouti February 1996, at Mombasa 1 January 1995 (although there have been several revisions) and at Berbera, 18 August 1996.

Table 8.1. Indicative Storage Charges

	Assab and Massawa		Djibouti		Mombasa		Berbera	
	Domestic	Transit	Domestic	Transit	Domestic	Transit	Domestic	Transit
No. of days	10	—	—	—	8	6	17	17
General Cargo (US\$/MT)								
— Rate	0.15-0.35	—	—	—	1	0.50	0.2-0.33	0.2-0.33
— Charge	(1.5-3.5)	—	—	—	8	3	3.4-5.6	3.4-5.6
Containers (US\$/MT)								
— Rate	3.0	—	—	—	12.50	10.00	n/a	n/a
— Charge	3.0	—	—	—	100	60		

Table 8.2. Port Charges

A. Domestic Traffic

	Assab and Massawa	Djibouti	Mombasa	Berbera
General Cargo (US\$/MT)				
— Shorehandling	6.85 - 12.45	6.60	12.0	—
— Port Dues	1.00	10.00	2.0 ¹	0.016-16.1
— Storage	1.5 - 3.5	—	8.0	3.4 -5.6
Per MT	9.35 - 16.95	16.60	22.0	3.42 - 21.7
Containers (US\$/TEU)				
— Shorehandling	100.0	270.0	150.0	—
— Port Dues	15.0	250.0	25.0	—
— Storage	30.0	—	200.0	—
Per TEU	145.0	520.0	375.0	—
Per MT	9.66	34.66	25.0	—

B. Transit Traffic (US\$)

	Assab and Massawa	Djibouti	Mombasa	Berbera
General Cargo (US\$/MT)				
— Shorehandling	6.85 - 12.45	6.60	8.0	—
— Port Dues	1.00	1.00	—	0.016-16.1
— Storage	—	—	3.0	3.4 -5.6
Total	7.85 - 13.45	7.60	11.0	3.42 - 21.7
Containers (US\$/TEU)				
— Shorehandling	100.0	180.0	120.0	—
— Port Dues	15.0	30.0	—	—
— Storage	—	—	75.0	—
Total per TEU	115.0	210.0	195.0	—
Total per MT	7.6	14.0	13.0	—

1. Represents late documentation charges.

Shorehandling

Shorehandling expenses for general cargo at *Assab* and *Massawa* range between US\$6.85 per MT (for iron and steel cargo) and US\$12.80 for hides and skins, chemicals, and hazardous cargo. These charges are the same for both domestic and transit cargo (see paragraph 7.04–7.05). In

Djibouti, there are no designated shorehandling expenses, but the equivalent, termed landing charges, are currently set at US\$6.60/freight ton for all general cargo traffic, domestic and transit. At the port of *Mombasa*, shorehandling charges for general cargo traffic is US\$12/MT for domestic cargo, however, transit cargo is charged at only US\$8/MT, reflecting concessions to attract this latter traffic. In *Berbera*, there are no

shorehandling charges, as port operations exclude shorehandling services.

Similarly, shorehandling expenses in respect to containerized cargo at *Assab* and *Massawa* are currently set at US\$100 per TEU, being the same for domestic and transit container traffic, compared to landing charges of US\$270 per TEU for domestic container traffic and US\$180 per TEU for transit containers at *Djibouti*; while at *Mombasa*, these charges are US\$180 and US\$150 for domestic and transit containers, respectively.

Port Dues

At both the ports of *Assab* and *Massawa*, port dues for import general cargo are US\$1/MT, which is the same for transit cargo. At *Djibouti*, port dues on import general cargo are US\$10/freight ton for domestic cargo, which is clearly more excessive than the equivalent US\$1/freight ton for transit cargo. There are no equivalent charges at *Mombasa*. Similarly, port dues in respect to containers are US\$15 per TEU at *Assab* and *Massawa* for both domestic and transit cargo. At the port of *Djibouti*, port dues for import containers are a significant US\$250 per TEU, which again is clearly more expensive than similar charges for import transit containers, which is only US\$30 per TEU. Port dues for petroleum products at these three ports are US\$0.17 and US\$0.20 for refined and crude products, respectively, at both *Assab* and *Massawa*, compared to US\$1.00 for both products at *Djibouti*. Again, *Djibouti* expenses appear to be more expensive.

Storage Charges

Port storage charges for the six ports under analysis cannot be directly compared because of the difference in the methods by which these charges accrue. First, all the ports offer different grace periods before cargo is liable, and these may be different for domestic and transit cargo. Second the rates for general cargo or containers may not be the same. In practice, in *Assab* and *Massawa*, the rates for general cargo are broken

down by commodity, while at some ports, such as *Djibouti* and *Mombasa*, general cargo is taken to be any consignment other than that which is containerized. Third, certain ports such as *Assab* and *Massawa* apply storage charges according to the storage facilities in question.

If, for comparison purposes, we assume a hypothetical scenario in which general cargo and a container consignment arrive at each port on the first of the month are ready for delivery on the 15th of the month, with documents presented on the sixth of the month and cargo actually collected on the 25th of the month, storage charges will accrue as indicated in Table 8.1.

According to this table, storage charges would accrue for 10 days for domestic cargo at *Assab* and *Massawa*, with transit traffic falling within the grace period. There would be no charges for domestic and transit cargo at *Djibouti*, while at *Mombasa* domestic and transit cargo would be chargeable for eight and six days, respectively. Finally, at *Berbera*, these charges would accrue for 17 days for both domestic and transit cargo, ranging from US\$3.40 to US\$5.60. Therefore, the port charges payable for this hypothetical scenario would range between US\$1.50 to US\$3.50 for domestic general cargo at *Assab* and *Massawa*, compared to US\$8 and US\$3 for domestic and transit general cargo at *Mombasa*. Charges for the port of *Berbera* would range from US\$3.4 to US\$5.60/MT for both domestic and transit cargo. Similarly, storage charges for domestic containers would be US\$30 per TEU at *Assab* and *Massawa*, while transit containers would have been cleared within the allowed grace period. Equivalent charges would be US\$100 and US\$60 per TEU for domestic and transit containers at *Mombasa*. There would be no equivalent charges at *Djibouti* or *Berbera* for both domestic and transit containers.

Summation of Port Charges

On the basis of the various cost components discussed above, the total port charges payable per MT of domestic general cargo for this hypothetical scenario would range between US\$9.35 and US\$16.95 at *Assab* and *Massawa*, US\$16.60 at *Djibouti*, be-

tween US\$3.42 and US\$21.70 at Berbera, and US\$22 at Mombasa. Equivalent charges for domestic container cargo would be US\$13.33, US\$34.66, and US\$25 per MT at the three ports, respectively (Table 8.2-A).

Similarly, the charges for transit general cargo would range between US\$7.85 to 13.80/MT for Assab and Massawa, US\$7.60 for Djibouti, and US\$11 for Mombasa. Equivalent charges for transit containers at Assab and Massawa would be US\$11.33/MT and US\$14 at Djibouti; while at Berbera, the charges would be the same with domestic cargo (US\$3.42–21.70) and US\$13/MT for Mombasa (Table 8.2-B).

From the comparative analysis of port charges made in Table 8.2, the following aspects emerge:

For Domestic Traffic

- The estimated port charges at Mombasa and Berbera are the most expensive for domestic general cargo, at about US\$22 per MT; similar charges at Djibouti are US\$17 per MT, compared to Assab and Massawa, where the charges range between US\$9 and US\$17 per MT. The port of Berbera has the lowest charges at US\$3.42 per MT.
- The estimated domestic port charges for containerized cargo at Djibouti are the highest in the region at US\$35 per MT compared to US\$25 per MT at Mombasa and US\$13 per MT at Assab and Massawa. The high containerized cargo charges at Djibouti reflect the captive nature of the cargo to the port, which has better facilities compared to other ports.
- In all the ports, containerized domestic cargo attracts higher minimum charges compared to general domestic cargo.

For Transit Traffic

- The port of Berbera has both the lowest and highest charges for general cargo, ranging between US\$3.42 and US\$22 per MT; equivalent charges at Assab and Massawa range between US\$8 and US\$14 per MT. Similar charges at

Djibouti are US\$8 per MT, compared to US\$11 per MT at Mombasa.

- The port of Djibouti would be considered the most expensive with respect to transit containerized traffic, with charges being US\$14 per MT, compared to US\$13 per MT at Mombasa and US\$11 at Assab and Massawa.
- In virtually all the ports except Berbera, transit general cargo attracts lower rates compared to transit containerized cargo.

Other Charges (Domestic Traffic)

In addition to the port charges discussed above, passage of cargo (both general and container) through the port of Massawa attracts other charges for domestic cargo as follows:

- A rehabilitation fee at Birr 11.5 per MT (US\$1.6 per MT) and
- City administration charges, which are assessed at 1 percent of the CIF value of consignment: For a 15-MT cargo valued at US\$5,000, these charges would equate to an additional US\$3.33/MT. Similarly at both the ports of Assab and Massawa, preliminary survey fees are charged at EBirr.150 per bill of lading, which translates to some US\$1.60/MT.

PORT TRANSIT TIMES

In the example presented above, we have assumed that cargo arriving at each of the ports has a port transit time of some 25 days. In practice, however, the actual time taken varies from port to port and for the different types of cargo. In Massawa, the processing of relevant documents and passage of cargo through the port takes about one to two days; however, availability of inland transport may take some time, such that cargo may not leave the port for two to three weeks, particularly during discharge of food aid cargo. This is, however, seasonal. Notwithstanding, the port of Massawa is characterized by transit times of about 10 to 14 days

for most of its cargo.

In Assab, the monopolistic relationship between ERSTAS and MTSE with respect to transit traffic to Ethiopia has been cited as a major source of port congestion, which is associated with relatively high transit times. It is understood that customs clearance, beginning with the initial procedures at Addis Ababa, and the actual clearance in Assab could take as much as 25 working days, or four weeks. This is exacerbated by the poor communications between Assab and Addis Ababa, such that importers take an average of one month to submit relevant documents to MTSE or other clearing agents. The plan to construct a container terminal at the Port of Assab in the mid-1980s was discontinued; as such the handling of the increasing volume of containers has been a thorny issue in port transit time. A 1987 World Bank study indicated that, altogether, cargo spent an average of 55 days in the port before moving inland. The study suggested that port productivity improvements, achieved by strengthening management, completely liberalizing the CFA sector, thereby reducing unnecessary paperwork would be an inexpensive means of reducing the cost of imports and the price of exports. The study acknowledged, however, that while it was difficult to quantify, it was estimated that some 30 to 40 million Ethiopian Birr in financing charges could have been saved in 1984/85 if the total number of days imports rest at the port could be reduced to, say, 15 days.

Similarly in Djibouti, the clearance of cargo through the port does not represent a major item in port transit time; however, the availability of inland transport is a considerable constraint. Currently, Djibouti is responsible for only about 10 percent of Ethiopian imports and exports. Djibouti has, however, been unable to handle more traffic, mainly because of the deteriorated state of the CDE, the jointly owned Ethiopia-Djibouti railway, and the bureaucratic road transport operational procedure, between the two countries. These weaknesses have been responsible for substantial transshipment of Ethiopian cargo, some 10,000 MT a month, through the port of Assab. They are also responsible for a large backlog of Ethiopian traffic at the port of Djibouti, estimated at some 20,000 MT as of June 1996, which represents some 80 full train loads to

Addis Ababa, at an average haul of 250 MT per trip. The September 1996 road transport protocol signed between Ethiopia and Djibouti will certainly divert cargo from railway to road and will improve the efficiency of the Djibouti-Addis Ababa corridor, thereby offering stiff competition to the Assab-Addis Ababa corridor.

CLEARING AND FORWARDING COSTS

Clearing and forwarding agents have the role of ensuring speedy and safe delivery of goods, in the process providing close control by recording and monitoring cargo movement from point of dispatch to point of destination, with eventual delivery to the consignee. While this statement may be seen as an oversimplification of the concept of clearing and forwarding, it nevertheless sheds light that in as much as market conditions prevail, the clearing and forwarding business charges are dependent not only on the number of transactions a CFA undertakes on behalf of the consignee but also on the level of effort or detail required for each transaction.

In *Eritrea* and *Ethiopia*, there is an emerging clearing and forwarding private sector after many years of monopoly control by the MTSE, and, although an atmosphere for fair competition exists, pronounced by, for example, a clear government policy in Ethiopia, this has not been fully achieved. In practice, MTSE still commands a large proportion of the Ethiopian traffic, 100 percent via Massawa and 80 percent via Assab, while ERSTAS dominates all transit cargo at Assab and Massawa. In these ways, charges reflect this monopoly situation, although it is understood that commissions are flexible to market demand, which is principally oriented to cost rather than efficiency, and the use of private sector clearing agents simply contributes to additional costs over and above commissions charged by MTSE and ERSTAS. This is because in many situations the clearance of Ethiopian cargo may be initiated by a private-sector clearing agent, but the final forwarders are ERSTAS and MTSE. The monopoly situation also encourages skills and professionalism to be concentrated in MTSE and ERSTAS, such that the

emerging private sector is not considered sufficient to provide a basis for a better quality of services.

The private-sector orientation of the clearing and forwarding services in Djibouti has, however, provided a basis for some limited competition and efficiency. Many of the private-sector clearing and forwarding agents, or transistors, command a high proportion of the cargo through prior agreements and arrangements. Interested applicant transistors are expected to invest in a certain level of equipment before being allowed to operate. Currently, there are only five licensed transistors responsible for some 1 to 2 million MT of cargo annually. This can be compared to 400 and 540 agents responsible for annual throughput of some 7 and 5 million MT in Mombasa and Dar-es-Salaam, respectively. The efforts of the current Djibouti-based transistors to attract more Ethiopian cargo from Assab to Djibouti must, however, be interpreted as promoting the efficiency of the port of Djibouti rather than that of the corridor as a whole.

Despite the fact that some cargo destined to the countries of the Northern Tier of the Horn of Africa is currently imported through the port of Mombasa as transit traffic, this port is not yet geared to serving these countries in this way, and clearing and forwarding charges reflect more the demands of the transit traffic to Uganda, Rwanda, Burundi, and Eastern Congo (formerly Zaire). In practice, transit cargo through Kenya to the Northern Tier countries of the Horn of Africa has been limited. It also is understood that transshipment cargo via the Port of Mombasa (mostly humanitarian and food aid cargo to Somalia) has been handled by clearing and forwarding agents on an ad hoc basis on prior arrangement with donors. Specifically, arrangements for the movement of most of the cargo in transit through Kenya or transhipped via Mombasa to the countries of Somalia and southern Sudan have been accomplished through the appointed agents of the donors or by the donors themselves. Field officers and other liaison staff have therefore taken the role of clearing and forwarding agents, while transporters also have performed this function, particularly for consignments to southern Sudan, facilitating the movement of cargo in transit and across borders. In such situations, clearing and forwarding costs are clearly included in the

transporters charges.

Summation of Clearing and Forwarding Costs

On the basis of the above, we estimate that overall clearing and forwarding costs at Djibouti and Mombasa are comparable, both at just over US\$17 per freight ton — about twice as much as equivalent charges at Assab and Massawa, as indicated below:

(all figures are US\$)	Assab and Massawa	Djibouti	Mombasa
Commission s/Agents Fees	44.85 ^c	—	—
— ERSTAS/MTSE	—	28.00 ^d	100.00 ^f
— Private sector ^a	—	—	62.50 ^g
— Bond fees	50.00	21.0 ^e	80.00
— Local delivery/loading ^b	20.00	20.00	20.00
— Misc.	114.85	25.00	262.50
Total Per MT	7.66	17.2	17.50

DIRECT FREIGHT RATES

The direct freight rates are the actual charges

-
- a Private sector plays an insignificant role with respect to transit traffic due to the dominance of ERSTAS and MTSE at Assab and Massawa. A quotation for private sector services was given as Ebirr 1,500 per bill of lading, but this may not be representative.
- b At the Port of Djibouti, charges for local delivery /loading are included in the shorehandline charges.
- c Represents a combined flat rate of US\$2.99/MT for a 15-MT cargo, shared between ERSTAS and MTSE at US\$1.75/MT and \$1.24/MT, respectively.
- d Documentation charges equivalent to DFJ 15,000 in Djibouti (quotaton by COMAD).
- e Represents charges applicable to transport containers to warehouse (DF 10,000-13,000) and loading on truck (DF 20,000-25,000). Charges for loading general cargo onto truck also range between DF 800 and 1,000 per freight ton.
- f 2% of CIV value of US\$5,000.
- g Equivalent to 1.25% of CIF value of US\$5,000.

quoted by the transport firms for moving cargo from the ports to various destinations. For purposes of assessing the existing direct freight rates from the various ports in the region, we have selected some 13 different routes that are currently in use, although in varying intensities. These include three routes from Port Sudan, three routes from Massawa, two routes from Assab, three routes from Djibouti, one route from Berbera, and two routes from Mombasa (which, however, splits into four at the primary destinations en route to southern Sudan). In this way we have been able to compare two routes to Khartoum, three routes to Wau (and Thiet in southern Sudan), six routes to Addis Ababa, two routes to Gonder in northern Ethiopia, and two routes to Tambura in southern Sudan. We also have provided equivalent information for two potential routes, one from Massawa to Khartoum and the other from Mombasa to Addis Ababa. In Table 7.5, we presented the direct freight costs for the various routes that have been selected for this comparative analysis. For ease of reference, this table is reproduced in this chapter as Table 8.3.

Routes to Khartoum

There currently are two routes to Khartoum, both from Port Sudan: the 787-km rail route and the 1,191-km road route via Kassala. *Currently it costs US\$8.66/MT to move cargo on the rail route, compared to US\$35.7/MT on the road route, which is more than four times as much.* General wagon turnaround on the main railway route between Port Sudan and Khartoum improved from 31 days in 1994 to 23.7 days in 1995. The relatively higher charges for road transport reflects the impact of high inflation on input, such as spare parts, tires, and fuel, but also on the fact that transit time on this route can be as much as five days.

A third route to Khartoum, from Massawa via Asmara, Keren, Tessenei, and Kassala, is almost the same distance (1,161 km) as the Port Sudan-Khartoum (1,191 km). As is clear, this route transits through Eritrea. *The overall cost of using this road*

to Khartoum is estimated at US\$95.8/MT, almost three times as costly as the direct route from Port Sudan. Nonetheless, this route is not used much currently, at least the section between Tessenei and Kassala, except for passenger transport. Transit time to Khartoum may be as high as 10 days. However, this is the only route that might offer transit security to northern Sudan. The relatively higher cost of using this route reflects the poor condition of the road section beyond Keren in Eritrea, through the border at Tessenei, up to Kassala, some 327 km. It also reflects the current lack of potential back-haul cargo.

Routes to Gonder (Northern Ethiopia)

The study has identified two routes to Gonder, the 646-km road route from Massawa via Asmara, and the 1,521-km road route from Assab via Addis Ababa. *The cost of using the former route is estimated at US\$42.50 per MT*, which reflects the poor road conditions from the border with Eritrea (Merab River), throughout this northwestern province of Ethiopia. The Ethiopian government has proposed, however, to improve the condition of this road within Ethiopia, which is 424 km, from gravel to asphalt at a cost of EBirr 608 million. There are currently two other variations of this route, via Keren, Barentu, Tessenei, Om Hajer, Humera, to Gonder (824 km) and via Mendefera, and Barentu to Om Hajer and Humera (836 km). Both these alternatives, however, suffer from a poor road network within Eritrea and Ethiopia and are therefore less cost effective than the main route via Adi Quala, which is tarmacked throughout Eritrea. The Gonder-Humera road, some 250 km, is still for all intents and purposes just a track but has been proposed to be improved to gravel standards at a cost of some EBirr 188 million. It is estimated that it takes about two to three days to reach Gonder from Massawa. This route has been used principally for relief aid operations but is generally characterized by a lack of back-haul cargo. Similarly, *the total cost of reaching Gonder via Addis Ababa is US\$84.2/MT*, more than twice as much as using the northern route, which reflects the greater distance and the poor condition of the Addis

Ababa-Gonder section of the route except for the 299-km Addis Ababa-Debre Markos section, which is asphalt and is proposed for further improvement. The section from Debre Markos to Gonder (439 km) is also proposed to be improved from gravel to asphalt under Phase I of the Ethiopian Road Sector Development Program. The estimated transit time on this route is some seven to eight days, making it inferior to the northern route. Thus, there exists great potential for Gonder to be served through Eritrea.

Routes to Addis Ababa

There are six routes to Addis Ababa that start from four ports from the region: one from Massawa, one from Assab, three from Djibouti, and one from Berbera. However, only two ports, Djibouti and Assab, are effectively in competition, which is manifested not only on the inland transport rates along the corridors serving the ports but also on the seafreight charges for incoming and outgoing cargo. *The cheapest route in terms of direct costs is the 781-km Chemin De Fer Djibouti-Ethiopian railway, at only US\$38.5/MT*. However, despite the CDE's cost effectiveness, it is currently unable to move traffic expeditiously due to constraints such as infrastructure condition and poor institutional framework. There are always large quantities of backlog cargo awaiting transportation to Addis Ababa, sometimes of up to two months. So, although the actual train transit time may be only three to four days, the overall transit time may be excessive. Therefore, the road route between Assab and Addis Ababa, at an estimated cost of US\$44.9/MT, can be considered the most cost-effective and efficient route, despite its own problems such as port congestion at Assab, which has provided a basis for delays of up to 25 days on the average at the port. However, the transit time to Addis Ababa, once the cargo is loaded, is often only three to four days.

In terms of direct cost, the third cheapest route to Addis Ababa is the *Massawa-Asmara-Mekele route which has an estimated cost of US\$71/MT*. However, this route is little used in

Table 8.3. Direct Freight Rates — Imports

Route	Distance (km)	Rate/MT (US\$)	Rate/MT/km
		Imports	(US\$)
<i>Routes in Northern Sudan</i>			
Rail Routes			
— Port Sudan-Khartoum	787	8.65	0.011
— Port Sudan-Wau ¹	2,216	24.40	0.011
Road Routes			
— Port Sudan-Khartoum	1,191	35.70	0.029
— Port Sudan-Wau	2,292	352.97	0.154
<i>Routes through Eritrea</i>			
— Massawa-Addis Ababa	1,137	70.99	0.0624
— Massawa-Gonder	646	42.50	0.066
<i>Routes to Addis Ababa</i>			
— Assab-Addis Ababa	882	44.9	0.051
— Djibouti-Addis Ababa (Galafi)	910	45.5	0.050
— Djibouti-Addis Ababa (Dewenle)	840	58.0	0.069
— Djibouti-Addis Ababa (rail)	781	38.27	0.049
— Berbera-Addis Ababa	1,001	132.54	0.132
— Mombasa-Addis Ababa (Moyale)	1,992	210.0 ²	0.105
<i>Routes to Southern Sudan</i>			
— Mombasa-Lokochokio-Thiet (Wau) (road/air)	2,235	995.0 (1,330)	0.445
— Mombasa-Lokochokio-Tambura (road/air)	2,295	801.0 (1,503)	0.349
— Mombasa-Kiboko-Thiet (road)	2,757	826.7	0.360
— Mombasa-Koboko-Tambura (road)	2,684	833.0	0.310

1. Route currently inoperational.
2. Rate for Nairobi-Addis Ababa.

its entirely; rather much cargo is normally destined to the Northern provinces of Ethiopia. The section Asmara-Addis Ababa is used more often, particularly from the Addis Ababa side, with “teff” as the major cargo. Transit time between Massawa and Addis Ababa would be in the order of five to six days. There are two other road routes from Djibouti, both of which now have costs comparable to the road route from

Assab, *US\$58/MT for the shorter route via Dewenle and US\$45.5/MT for the longer route via Galafi and Dobi*. Both of these roads have been of little use for commercial cargo, due to various administrative and logistical restrictions that characterized the corridor until recently. The transit time to Addis Ababa would be in the order of three to four days for both roads. The September 1996 bilateral transport agreement

between the Djibouti and Ethiopia governments is expected to revive commercial transport along the corridors once implemented/enforced. The final and least cost-effective route to Addis Ababa is the Berbera-Hargeiza-Jijiga-Dire Dawa route, which is estimated to be 230 km within Somaliland and 771 km within Ethiopia. The route is used mostly by traders between Dire Dawa and Berbera. Prior to the lifting of the various bureaucratic constraints along the Djibouti-Addis Ababa corridor, this route was considered as a convenient alternative; *however, the cost is the highest from the Red Sea ports, at an estimated US\$132/MT*. The transit time on this route is estimated to be four to five days.

In addition to the six routes, there exists great potential for Ethiopian imports and exports to go through Mombasa via the road connection through Moyale in northern Kenya. *The cost of using this route is estimated at US\$210/MT between Nairobi and Addis Ababa but could be as much as US\$250 between Mombasa and Addis Ababa*. The route is little used because of its poor condition between Isiolo and Moyale. It also is characterized by rigid and cumbersome customs procedures at the Moyale border, which may include unloading a whole truck to facilitate customs verification of cargo. In addition to obtaining access to Mombasa, the opening up of the route will greatly facilitate improved trade and the transfer of technology between Kenya and Ethiopia. A fully and properly documented cargo consignment from Nairobi to Addis Ababa would currently take nine to 10 days by road, but this would be greatly reduced by improving the road.

Routes to Southern Sudan

Throughout this study it has been indicated that there are four main routes to southern Sudan, from Kenya and Uganda, i.e., via Lokichokio, Kitgum, Gulu, and Koboko. While this study was being conducted, the routes from Kitgum and Gulu were inoperational due to rebel insurgency in Uganda. Similarly, the direct routes from Lokichokio to Juba via Kapotea and Torit, from

Koboko via Kaya and Yei to Juba were not operational. Road access to southern Sudan was achieved through eastern Congo (formerly Zaire), via Aru to Lasu, or by air from Lokichokio to western Equatoria destinations such as Tambura, Maridi, Thiet, and Akot, among others. Locations in eastern Equatoria, such as Juba, Kaya, Yei, Bor, Yirol, Tonj, and Rumbek, were virtually under government of Sudan occupation. By November 1996, the link via Congo (formerly Zaire) also was cut off, so that access to southern Sudan remains only by air through Lokichokio.

However, for the purposes of comparison, we provide estimates for reaching two locations in southern Sudan, covering two routes, from Mombasa to Tambura and Thiet (near Wau) but from both Koboko and Lokichokio primary transshipment centres. Road transport rates are provided from Koboko, while air transport rates are provided from Lokichokio. We also provide a comparative analysis of the road route to Wau from Port Sudan via Kosti.

The road routes to Wau (or Thiet) and Tambura exhibit very high charges: *US\$995/MT via Lokichokio* (this reflecting airdrop by Hercules aircraft), *US\$826/MT via Koboko*, and *US\$307/MT via Khartoum*. The first two rates can be compared with the equivalent costs to Tambura, *US\$801/MT via Lokichokio* (airdrop by Hercules) and *US\$833/MT via Koboko*. The airdrop charges from Lokichokio would increase, however, if the smaller Buffalo aircraft were to be used, such that the costs to *Thiet would increase to US\$1330/MT and US\$1503/MT to Tambura*. It is interesting to note that there is no significant difference in cost between using the road from Koboko and airlifts from Lokichokio using the Hercules aircraft. Indeed, it has been indicated that as the distance from Uganda into southern Sudan increases, so do road transport costs increase to the point where airlifts are competitive with road transport.

Typical road convoy takes four days to get to Malaba border. Border formalities at Malaba and customs procedures at Nakawa take about three days. From Nakawa, trucks take between four days and one week to reach Koboko. The movement from Koboko into southern Sudan is

not in proportion with the distance and can range from a few days to three months.

Similarly, it takes about eight to 10 days to get to Lokichokio from Mombasa. From Lokichokio, entry into Sudan is not distance-related and may take one day to the nearest point, Narus, which is 45 km and back, and up to three months to locations within the eastern Equatoria region. The main determinant of transit times is security; however, it depends whether it is a rainy season. Bad roads become impassable and may lead to excessive delays in movement.

VALUATION OF TRANSIT TIMES

Transit time refers to the time between a ship's arrival and receipt of cargo by the importer (in the case of imports). A detailed analysis of the transit times through the ports under consideration has been presented in the preceding sections. The concern with transit time arises from overall costs of financing imports and the long lead times that is common in securing import licenses in the countries in the region. There is often the need to rush the movement of import cargo in order to provide continuity of operations in those sectors that require imported inputs. In the GHA region, the movement of food aid is often necessary to avert famine. The estimated comparative transit times for each route to the landlocked countries are presented in Table 8.4. If it is assumed that the normal budgeted transit time for an importer is 15 days, then the figures in Table 8.4 indicate that there are only four routes within the region by which this can be achieved. These are the Massawa-Gonder route, which is also the shortest distance; Djibouti-Addis Ababa via Galafi; Djibouti-Addis Ababa via Dwenle; and the Berbera-Addis Ababa route, which as we have indicated is little used but would benefit from the relatively shorter port transit times at Berbera. The main advantages of the Berbera port are the lack of congestion and the practice of discharging cargo directly onto waiting vehicles. As already indicated, the road routes via Djibouti to Addis Ababa also would benefit from the relatively shorter transit times at the port of Djibouti, with

overall transit times estimated at 11 days, which is indeed the least for the routes under consideration in the region. In this situation, the transit times for all the routes in the region result in excess funding costs (assumed overdraft required for imports and/or erosion of the value of local currency in times of inflation), such that the importer ends up paying more local currency funds than contracted with banks at the time of negotiating overdraft (in local currency but tied to the foreign currency rates). We assume an annual 20 percent interest rate for overdraft and an annual 20 percent inflation on the average for all the countries, for a total of 40 percent. The additional costs to the importer, borne out of longer-than-budgeted transit times, would be given as:

$$(TT - BT) \times 40 \text{ percent} / 365 \times (CIF + \text{Inland Freight} + \text{CFA Charges} + \text{Port Charges})$$

Where *TT* is actual transit time (days),

BT is budgeted transit time (days),

CIF is taken at US\$5,000.

Based on the above, the additional costs applicable for both general cargo and containerized traffic are fairly the same. This results from the fact that inland transportation is the dominant cost aspect and is chargeable on weight, even for containers. In Table 8.5, we present the additional costs in respect to containerized traffic. The table shows the additional transit time costs as highest for the road routes to southern Sudan via Koboko and eastern Congo (formerly Zaire) (more than US\$900 for a 15-MT consignment with a CIF value of US\$5,000) and lowest for the road routes via Djibouti to Addis Ababa (US\$7).

COMPARATIVE COSTS OF TRANSPORTATION

The total costs of transporting a 15-MT consignment (general cargo and containers), each with a CIF value of US\$5,000 on port landing, using various routes are as given in Table 8.6, overleaf. The figures given in this table are the sum of port charges (Table 8.2 and the box in "Summation of

Table 8.4. Transit Times by Route (Days)

Route	Port Transit	Journey Time	Transshipment/ Offloading	Total
<i>Routes in Northern Sudan</i>				
Rail Routes				
— Port Sudan-Khartoum	30	8	2	40
— Port Sudan-Wau	—	—	—	—
Road Routes				
— Port Sudan-Khartoum	30	5	2	37
— Port Sudan-Wau	30	10	4	44
— Massaw-Khartoum	10	10	2	22
<i>Routes through Eritrea</i>				
— Massawa-Addis Ababa	10	6	2	18
— Massawa-Gonder	10	3	2	15
— Assab-Gonder	25	8	2	35
<i>Routes to Addis Ababa</i>				
— Assab-Addis Ababa	14	4	2	20
— Djibouti-Addis Ababa (transshipment)	32 ¹	4	2	38
— Djibouti-Addis Ababa (Galafi)	5	4	2	11
— Djibouti-Addis Ababa (Dewenle)	5	4	2	11
— Djibouti-Addis Ababa (rail)	5	4	2	11
— Berbera-Addis Ababa	5	5	2	12
— Mombasa-Addis Ababa (Moyale)	15	12	2	29
<i>Routes to Southern Sudan</i>				
— Mombasa-Lokichokio- Thiet (Wau (road/air)	15	14	2	31
— Mombasa- Lokichockio-Tambura (road/air)	15	14	2	31
— Mombasa-Kiboko- Thiet (road)	15	45	2	62
— Mombasa-Koboko- Tambura (road)	15	45	2	62

1. Includes transit at both ports of Djibouti and Assab.

Clearing and Forwarding Costs”). It also includes the costs of inland transportation via different modes and routes as contained in Table 8.3. Finally, it comprises the cost related to transit

times in excess of the expected normal transit time as given in Table 8.5. Table 8.6 also gives an indication of the related unit costs.

The figures in Table 8.6 indicate that:

- The least expensive route to Khartoum is the rail route from Port Sudan, with overall costs amounting to only 9.5 percent of CIF value, compared to the Massawa Khartoum road potential route that would, if used in its current condition, represent a cost proportion of 37 percent of CIF.
- The least expensive route to Gonder is via Massawa and Asmara, with costs equivalent to 19.96 percent of CIF costs. The most expensive would be the route from Assab via Addis Ababa, with costs equivalent to 33.8 percent.
- The least expensive route to Addis Ababa is the Djibouti-Addis Ababa road route via Galafi, 18.96 percent of CIF, compared to the Djibouti rail route, 21.9 percent. Other routes to Addis Ababa are as follows:
 - Massawa-Addis Ababa 28.92 percent
 - Assab-Addis Ababa 21.54 percent
 - Assab-Addis Ababa (transshipment) 42 percent
 - Djibouti-Addis Ababa (via Dewenle) 22.7 percent
 - Mombasa-Addis Ababa (via Moyale) 87 percent
- The road routes to southern Sudan via Kenya and Uganda exhibit costs of about 276 percent of CIF value, compared to the road/air route combinations at 302 percent. However, the least expensive route to southern Sudan would be the port Sudan-Khartoum to Wau (or Thiet), which would be about 102 percent of CIF value, but this route is currently not operational.
- Although it is clear that Ethiopia would want access to the port of Mombasa, this route does not offer any comparative advantage to the current routes. Similarly, the road route from Berbera via Jijiga and Dire Dawa to Addis Ababa does not offer any comparative advantage to the current routes via Assab and Djibouti. The port of Berbera and the corridor would, however, offer potential as a security route for traffic to and from the Harerge province of Ethiopia.
- The current costs of transportation to southern Sudan, as exhibited by all routes, do not provide any basis for all manner of commercial transport, which presents the urgent need for a security solution to the present conflicts in the area.

Other observations are that:

- The two road routes from Djibouti to Addis Ababa both have great potential for Addis Ababa traffic in the short term if the recent transportation agreement reached between the two governments of Djibouti and Ethiopia in September 1996 are fully implemented.

Table 8.5. Valuation of Transit Times (US\$)

Route	TT-BT	CIF Value	Port Charges	CFA Charges	Freight	Others	Total Borrowing	Additional
<i>Routes in Northern Sudan</i>								
<i>Rail Routes</i>								
— Port Sudan-Khartoum	25	5,000	100	100	130	—	5,330	146
— Port Sudan-Wau	—	—	—	—	—	—	—	—
<i>Road Routes</i>								
— Port Sudan-Khartoum	22	5,000	100	100	535	—	5,735	138
— Port Sudan-Wau	29	5,000	100	100	4,605	—	9,805	312
— Massawa-Khartoum ¹	7	5,000	170	115	6,797 (7,300)	75	6,797 (7,300)	52 (56)
<i>Routes through Eritrea</i>								
— Massawa-Addis Ababa	3	5,000	170	115	1,065 (1,438)	75	6,425 (6,798)	21 (22)
— Massawa-Gonder	0	5,000	170	115	638 (861)	75	5,998 (6,221)	—
— Assab-Gonder	20	5,000	170	115	1,263	—	6,548	144
<i>Routes to Addis Ababa</i>								
— Assab-Addis Ababa	10	5,000	170	115	674	—	5,959	65
— Djibouti-Addis Ababa (transshipment)	18	5,000	175	115	1,674	—	6,964	137
— Djibouti-Addis Ababa (Galafi)	1	5,000	210	48	683	—	5,941	7
— Djibouti-Addis Ababa (Dewenle)	1	5,000	210	48	870	—	6,128	7
— Djibouti-Addis Ababa (rail)	41	5,000	210	49	575	—	5,833	262
— Berbera-Addis Ababa	2	5,000	29	N/A	1,988	—	7,017	15
— Mombasa-Addis Ababa (Moyale)	14	5,000	195	263	3,750	—	9,208	141
<i>Routes to Southern Sudan</i>								
— Mombasa-Lokichokio-Thiet (road/air)	16	5,000	195	263	14,925	—	20,383	357
— Mombasa-Lokichockio-Tambura (road/air)	16	5,000	195	263	12,018	—	17,476	306
— Mombasa-Koboko-Thiet (road)	47	5,000	195	263	12,400.5	—	17,859	920
— Mombasa-Koboko-Tambura (road)	47	5,000	195	263	12,498.5	—	17,957	925

1. The figures in parentheses on the routes from Massawa represent the total costs after an additional 35 percent surcharge applicable where backhaul cargo does not exist.

Table 8.6. Summation of Transportation Costs (US\$)

Route	Distance	Port Charges	CFA Charges	Inland Freight	Additional Costs	Total Costs	Cost/MT	Cost/MT/km	Total Transport Cost as % of CIF
<i>Routes in Northern Sudan</i>									
<i>Rail Routes</i>									
— Port Sudan-Khartoum	787	100	100	130	146	476	32	0.041	9.5%
— Port Sudan-Wau	2,216	—	—	—	—	—	—	—	—
<i>Road Routes</i>									
— Port Sudan-Khartoum	1,191	100	100	535	138	873	58	0.049	17.5%
— Port Sudan-Wau	2,992	100	100	4,605	312	5,117	341	0.114	102%
— Massawa-Khartoum ¹	1,161	170	115	1,437 (1,940)	127 (131)	1,849 (2,356)	123 (157)	0.106 (0.135)	37.0% (47.1)
<i>Routes through Eritrea</i>									
— Massawa-Addis Ababa	1,137	170	115	1,065 (1,438)	96 ² (97)	1,446 (1,820)	96 (121)	0.085 (0.106)	28.9% (36.4)
— Massawa-Gonder	646	170	115	638 (861)	75 ³ (75)	998 (1,221)	67 (81)	0.103 (0.126)	19.96% (24.4)
— Assab-Gonder	1,521	170	115	1,263	144	1,692	113	0.0742	33.8%
<i>Routes to Addis Ababa</i>									
— Assab-Addis Ababa	882	170	115	674	65	1,024	68	0.077	21.5%
— Djibouti-Addis Ababa (transshipment)	882	175	115	1,674	137	2,101	140	0.159	18.96%
— Djibouti-Addis Ababa (Galafi)	910	210	48	683	7	948	63	0.069	22.7%
— Djibouti-Addis Ababa (Dewenle)	840	210	48	870	7	1,135	76	0.090	21.9%
— Djibouti-Addis Ababa (rail)	781	210	48	575	262	1,095	73	0.093	40.6%
— Berbera-Addis Ababa	1,001	29	N/A	1,988	15	2,032	135	0.135	87.0%
— Mombasa-Addis Ababa (Moyale)	1,992	195	263	3,750	141	4,349	290	0.145	—
<i>Routes to Southern Sudan⁴</i>									
— Port Sudan - Wau	2,992	—	—	—	—	—	—	—	—
— Mombasa-Lokichokio-Thiet (road/air)	2,235	195	263	16,925	384	17,267	1,151	0.52	345%
— Mombasa-Lokichockio-Tambura (road/air)	2,295	195	263	13,515	333	14,306	954	0.42	286%
— Mombasa-Koboko-Thiet (road)	2,757	195	263	13,901	997	15,356	1,024	0.37	307%
— Mombasa-Koboko-Tambura (road)	2,684	195	263	13,995	1,002	15,455	1,030	0.38	309%

1. The figures in parentheses on the routes from Masawa represent the total costs after an additional 35 percent surcharge applicable where backhaul cargo does not exist.
2. Includes 75 for additional costs.
3. No additional costs — extra costs at the port of Massawa.
4. Inland freight costs to Sudan include US\$500 for official transit costs within Kenya for all routes through Kenya and additional US\$1,000 for routes via Koboko. Road/Air rates assume a C130 aircraft.

As already indicated in the preceding sections, only the two ports of Djibouti and Assab are in effective competition, particularly with respect to Ethiopian cargo. Therefore, a proper analysis of the attractiveness of the two corridors serving the two ports needs to include equivalent seafreight charges.

Specifically, while the analysis of direct overland transport costs already undertaken in the previous sections indicates fairly equivalent direct costs of transport from the two ports to Addis Ababa, in practice, the Assab-Addis Ababa corridor is associated with higher seafreight charges than the Djibouti-Addis Ababa corridor, which therefore makes the latter more attractive than Assab for a discerning shipper. It is indicated that the current seafreight charges to the two ports vary with destinations of origin, as shown below:

Seafreight Charges (US\$) for a 20-ft Container (Imports)

Origin	Destination	
	Assab	Djibouti
Far East	3,000	1,750
North Continent	3,000	2,300
USA	5,300	3,900

In Table 8.7, we present a comparative analysis of the impact of seafreight on the overall costs of using the two ports for importing a 20-ft container (assuming 15 MT) of cargo from similar destinations. In practice, while direct port charges for landed cargo at Djibouti is 24 percent higher than the equivalent costs at Assab, an analysis that includes seafreight charges to the two ports indicates that the port of Assab is relatively more expensive to use than the port of Djibouti as indicated below:

- 62 percent higher than Djibouti for cargo originating from the Far East;
- 26 percent higher than Djibouti for cargo

originating from Europe (north continent); and

- 33 percent higher than Djibouti for cargo originating from the United States.

CONCLUSIONS

The analysis of the transportation costs within the subregion clearly indicates that while the overall cost of transporting imports averages only about UA\$.04/MT/km for northern Sudan routes, and US\$.10-.12/MT/km for routes via northern Sudan to southern Sudan, the costs are a significant US\$.35/MT/km to routes to southern Sudan via Kenya and Uganda. Similarly, transport costs for import traffic along routes through Eritrea averages some US\$.10/MT/km for routes to Ethiopia via the ports of Assab and Djibouti. In terms of comparison, the transport cost for imports to Khartoum ranges between 10 to 37 percent of CIF value of consignment for rail and road modes, respectively, 22 to 29 percent for routes to Addis Ababa, and a significant 300 percent for routes to southern Sudan via Kenya and Uganda. The factors that contribute to the high transportation costs can be summarized as

- the low level of investments in transport infrastructure,
- the poor conditions of existing infrastructure,
- bureaucratic government policies,
- cumbersome operating procedures and regulations,
- insecurity, and
- dependency on aid.

The above factors are acknowledged to be responsible for the high transit times, lack of competition, and inefficiency in provision of services, lack of commercial cargo, and poor institutional arrangements. The overall implication of the above is the prevailing high transportation costs, which have adversely affected food security, trade, and investments in the region.

Table 8.7. A Comparative Analysis of the Impact of Sea Freight Charges on Total Transportation Costs between the Ports of Assab and Djibouti Corridors

Route	Overland Distance	Sea Freight Charges	Port Charges	CFA Charges	Inland Freight	Additional Costs	Total Costs	Cost/MT	Cost/MT/km
Assab-Addis ¹	882	3,000	170	115	674	118	4,077	272	0.308
Djibouti-Addis (Galafi)	910	1,750	210	48	683	7	2,698	180	0.197
Djibouti-Addis (Dewenle)	840	1,750	210	48	870	7	2,885	192	0.228
Djibouti-Addis (rail)	781	1,750	210	48	575	262	2,845	190	0.243
Assab-Addis ²	882	3,000	170	115	674	118	4,077	272	0.308
Djibouti-Addis (Galafi)	910	2,300	210	48	683	7	3,248	217	0.238
Djibouti-Addis (Dewenle)	840	2,300	210	48	870	7	3,435	229	0.273
Djibouti-Addis (rail)	781	2,300	210	48	575	262	3,395	226	0.289
Assab-Addis ³	882	5,300	170	115	674	118	6,377	425	0.482
Djibouti-Addis (Galafi)	910	3,900	210	48	683	7	4,848	323	0.355
Djibouti-Addis (Dewenle)	840	3,900	210	48	870	7	5,035	336	0.399
Djibouti-Addis (rail)	781	3,900	210	48	575	262	4,995	333	0.426

1. Ship originating from Far East.
2. Ship originating from Europe (North Continent).
3. Ship originating from the United States.

9. Subregional Transportation Constraints and the Impacts of Their Improvement on Agricultural Production, Trade, and Food Security

INTRODUCTION

In this chapter, we review the extent to which the poor transportation linkages, weaknesses and constraints in the transportation sector, and the associated high costs have affected agricultural production, food security, and trade in the region. These three areas of concern are indeed closely inter-related, as nearly all the countries in the Horn of Africa depend predominantly on agriculture as the mainstay of their economies, and as trade and investment in the subregion primarily focus on agricultural products. The chapter also presents the extent to which improvement of the transport linkages would affect the above considerations. The reader should bear in mind that the analysis given in this chapter focuses mainly on the financial aspects emanating from the current state of transport infrastructure, and the likely cost savings if the same were to be improved, and has not dealt with wider economic impacts associated with them, as these fall beyond the scope of the study.

The World Bank defines food security as the assurance of adequate availability of acceptable food stuffs at affordable prices to all people at all times. To a large extent, food security can be attained either through agricultural production or trade in food products. Transport linkages provide the means by which surpluses from agricultural production areas can be distributed to deficit regions through trade. However, over the last two decades, production has stagnated in absolute terms and also has fallen significantly in per capita terms, resulting in the subregion being a progressive cereal-deficit zone. In practice, drought, famine, poor government policies, and general insecurity have combined to make the region an overall food-deficit zone, synonymous with

hunger/famine/starvation. Ideally the decline in food production in the subregion means that trade, which should normally act as the avenue to stabilize food supplies, becomes virtually impossible, thus exposing the subregion to food aid as the major component of food security.

The situation is further aggravated by the fact that, arising from a common colonial heritage in most countries, virtually all existing transport infrastructure is clearly oriented toward trade with overseas countries, with little or no intraregional linkages, even within a given country. This makes it very difficult or actually impossible in certain circumstances to procure surplus food from the various pockets of surplus-producing areas. For example, in Ethiopia, the poor condition of and, in some situations, the outright lack of rural feeder roads within certain areas has in the past prevented/constrained delivery of surplus food from some areas to potential markets and the distribution of emergency relief supplies to potential beneficiaries, thus necessitating widespread use of pack animals. Similarly, while acknowledging the poor political relations between Sudan and both Eritrea and Ethiopia, a significant constraint to cereal trade, especially in surplus sorghum from Sudan, it is noted that this has been entrenched to some degree by the poor transport infrastructure between these countries. Other factors include civil wars, underdeveloped markets, poor purchasing power and poor communication infrastructures.

In practice, the orientation of the existing transport linkages to overseas markets, reinforced by the lack of adequate internal linkages have made it easier and cheaper in most cases to source food from outside the subregion. However because of the low budgetary capability of most of the countries in the subregion, most of the sourced food has come

in the form of food aid made available by United Nations organizations and international NGOs at subsidized prices or free outright. This has been fostered by the lack of effective demand to sustain commercial trade in grain imports, and, thus, imports of cereals from outside have increased rapidly. It is reported that the dependence on cheaper imported nontraditional food, particularly wheat, has increased at the expense of local agricultural products — for example, sorghum — in all countries in the subregion.

Therefore, the dominant impact of the alignment of the existing transport infrastructure toward external markets and the resultant high transportation costs is the phenomenon of near total dependency on food aid/imports in the region. The other impacts include:

- disincentives to agricultural production for those who receive aid for example in southern Sudan and Eritrea;
- the encouragement of local food self-sufficiency (subsistence production) in areas of high agricultural potential at the expense of surplus production for trade; and
- the diversion of resources to short-term emergency interventions, including port equipment, storage, and warehousing facilities, among others.

Against the above background, the achievement of food security in the region has remained elusive. Arising out of the existing poor transport linkages in the region is the fact that intraregional trade faces substantially higher unit transport and transaction costs. The existing transport infrastructure remains inadequate to allow countries in the region to fully exploit both their agricultural production and international trade potentialities. In the following sections we review the extent to which the poor transport linkages have affected agricultural production, trade, and food security.

AGRICULTURAL PRODUCTION AND TRADE

The ready availability of food aid over the past

decade, which currently dominates the international grain transactions in the subregion, is one of the most significant impediments to expanded agricultural production and food security. This is because food aid has the adverse tendency to paralyse local agricultural potential. There are no incentives to increase production of competing foods, since the flooding of markets often keeps local prices below costs of production. Lack of adequate transport infrastructure and linkages in the region and the associated high costs have, in addition, meant that agricultural production is literally limited to mere subsistence and self-sufficiency. This has created a situation where the potential to produce surpluses in high agricultural potential areas is lost as high transport costs render trade between the food surplus regions and the deficit zones difficult or uneconomical.

In **northern Sudan**, the government's long-term food policy objective is to ensure food self-sufficiency. It has therefore initiated a program of crop switching under which sorghum, wheat, and groundnuts are replacing cotton production in large parts of irrigated areas in a bid for food self-sufficiency. However, the attainment of this objective has, over the recent past, been hampered largely by a combination of several factors, including poor transport infrastructure, droughts and desertification, inconsistent government policies, and insecurity, among others.

Currently, production of cereals in northern Sudan is largely centred in the central and eastern states, which are the surplus areas. The main cereals grown are sorghum, millet and wheat. However, per capita and aggregate cereal production in the country has declined and remain significantly below average world levels and Sudanese requirements, largely due to droughts (Table 9.1). This has resulted in massive food imports dominated by wheat and wheat-flour over the last decade. The main food-deficit zones include the drier parts of Kordofan and Darfur regions. However, food from the surplus areas normally cannot be commercially distributed to the deficit regions of Darfur and Kordofan, as they are characterised by extremely poor transport infrastructure, especially roads. This implies that high transport costs, coupled with the

Table 9.1. Production of Selected Cereals Crops in Northern Sudan (Million MT)

Crop	1979–81	1991	1992	1993
Sorghum	2,273	3,540	4,042	2,386
Millet	436	308	449	221
Groundnuts	1	3	3	3
Sesame	224	117	125	120
Wheat	205	680	895	453

Source: The Economist, Intelligence Unit Ltd. 1995.

ease of availability of relief food, have adversely affected local agricultural production. Indeed, these two regions are so remote that most drivers, other than those from the region, are reported to be usually reluctant to transport relief food, despite the favorable WFP transport rates. Thus, despite the great potential for surpluses within the eastern and central states to supply the potential markets in Darfur and Kordofan areas, food supply to these deficit regions is achieved through WFP external procurement, mainly wheat (food aid) at the expense of local produce (sorghum), which cannot be cost-effectively marketed.

Similarly, infrastructure constraints have been blamed for the poor intrastate trade, as much of the existing transport infrastructure is oriented to extra-regional markets. Intrastate trade in cereal, for example, typically faces substantially higher unit transport and transaction costs than trade flows oriented externally. As such, delivery of surplus food from production areas on a commercial basis is totally uneconomical. For example, on average, it would cost US\$35.7/MT to transport relief food cargo from Port Sudan to Khartoum, a distance of 1,191 km by road. The transport rates contrast sharply with the US\$273/MT required to transport food consignments by road from Kosti in one of the food surplus central states to Wau in Bahr El

Ghazal, which is some 1,771 km. While the difference in the distance between the two routes is only 33.7 percent, the transport cost difference is 86.9 percent. Therefore, high transportation costs constrain the potential of the surplus food from reaching food-deficit regions on a commercial basis as the overall transport costs render it unaffordable to the recipients. In practice, therefore, the food surplus in the country is usually exported to other countries/regions. Among other factors, this may largely explain why Sudan has bilateral trade agreements with Egypt, Jordan, and Turkey that make provision for the export of sorghum surpluses to those destinations rather than trade with neighboring Ethiopia and Eritrea, for instance, given the poor road linkages between them although they represent a good potential market. It is acknowledged, however, that other noninfrastructure factors also have had significant effects on the trade relations between these neighboring states.

In **Eritrea**, the government, in acknowledgement of the country's precarious food situation, has formulated policies that in the short term encourage attainment of food security through imports, as distinct from food self-sufficiency. This is based on the ability to diversify and generate sufficient exports and foreign exchange earning capacity to ensure that sufficient food can be

Table 9.2. Eritrea's Food Aid Supplies

Year	Est. Domestic Production	Food Gap	Food Aid Received
1988	N/A	193,050	107,138
1989	N/A	188,700	87,280
1990	N/A	337,500	182,561
1991	N/A	436,000	300,000
1992	275,728	190,000	88,977
1993	90,000	360,000 (est.)	—

Source: World Bank, Country Economic Memorandum, 1994.

imported for Eritrea's needs. Thus, food self-sufficiency is not considered by the Government to be the most efficient way of bridging the food gap. It is noted, however, that a combination of several factors, including scarce arable land, falling world prices of agricultural produce, and recurrent droughts, have constrained Eritrea's capacity to generate sufficient foreign exchange earnings to meet the country's food import needs. As such, food aid plays a significant role in Eritrea's food security needs (Table 9.2). Nevertheless, while food aid has undoubtedly played an extremely crucial role in staving off the worst effects of drought and famine, there is increasing concern that the impact of food aid on crop production may be detrimental in some instances, by depressing local food prices. For example, although a fall in 1993 food prices in surplus producing areas (Barka and Gash Setit) was largely blamed on transportation difficulties in getting produce from the surplus areas to the deficit areas, it is acknowledged that food aid also may have had a significant effect, resulting in a glut on some local markets.

As already indicated, the long-term objective of the government of Eritrea on food security is to establish a "financial reserve" rather than an

"in-kind" reserve, thus enabling food to be purchased on the world market in the event of shortfalls and imported directly into the main markets without many of the physical problems and high costs of grain storage. Consequently, since 1995, the Government has strongly discouraged donations of food aid in kind, but, rather, it is urging donors to provide cash.

The level of subregional trade between Eritrea and other states is very low, with the exception of Ethiopia, which is her principal trading partner. Eritrea's trade potential with Sudan, particularly in cereals, is hampered largely by poor transport linkages and political differences among other factors. To a large extent, the poor infrastructural facilities, particularly roads to link northwestern parts of Ethiopia (Humera), southwestern parts of Eritrea (around Tessenei), and eastern parts of Sudan (around Gedaref), is a serious constraint to regional economic linkages, especially trade. These are areas of great agricultural and economic potential that cannot be exploited, hence food engendering insecurity. Similarly, the full exploitation of the fishing resources in the Red Sea, which could generate the much-needed foreign exchange to import other food

commodities, is understood to be partly constrained by a lack of a proper transport infrastructure along the Eritrean coastline.

In Djibouti, there are no significant natural or agricultural resources. Unlike other countries in the region, Djibouti does not produce cereals and depends entirely on imports, mostly from Sudan, Ethiopia, and Somalia. The government, therefore, is focused on the development and modernization of the existing transport infrastructure in a bid to cut down on distribution costs of the imported food stuffs and reduce the need for storage facilities.

Djibouti's official trade in cereals, particularly with the Sudan, is reported to have been constrained in the past by several factors, including high transport costs, uncertainty in Sudan's cereal export policies, restrictions, and unfavorable internal marketing policies and controls, among others, that impede the flow of cereals to Djibouti. In addition, the poor road connections between Djibouti and Somalia, coupled with insecurity, have adversely affected the volume of trade over the past several years, especially in cereal food reexports. For instance, it is reported that the civil war in Somalia has severely dislocated the economy, as Djibouti was a conduit for substantial trade with northern Somali towns and their hinterlands. Similarly, it is also understood that the problems of the railway since the Ogaden war in 1977/78 have adversely affected the economy of the newly independent state of Djibouti, a situation from which it has never recovered.

In **Ethiopia**, over the past two decades food security has been a major concern, both at the local and international levels. A combination of several factors, including droughts, civil strife, and poor government policies (centralized system of production and marketing of farm produce/controlled prices, regulated transport system, lack of sufficient manpower as people got dislocated by the war), has adversely affected food production in the country. As such, farmers had no incentive to produce anything beyond their subsistence requirements. Deficiencies in the country's transport infrastructure, particularly rural access roads, further compounded the

situation. As a result, food production per head fell steadily, resulting in massive shipments of emergency food aid, which exceeded 100,000 MT annually since 1980 and actually surpassed 1 million MT in 1988, 1992, and 1994. However, what is particularly striking in Ethiopia is the fact that, when the emergency years have passed, cereal food aid deliveries in the past do not appear to return to their pre-famine levels but rather tend to indicate upward trends. For example, it ranges in the post-famine years from 537,500 MT in 1989/90 to 893,900 MT in 1990/91 and surpassed 1 million MT in 1992 and 1994. This disturbing trend has been of much concern to both the present government of Ethiopia and donors.

The overall government policy on food security is self-sufficiency in staple food commodities, including sorghum, barley, maize, pulses, and the indigenous grain (teff), among others. Indeed, the government of Ethiopia is developing a new food security strategy aimed at ensuring sufficient local production of foodstuff. Since 1992/93, when a transitional policy paper was issued, the government has liberalized the production and marketing systems of agricultural produce by adopting market-driven policies, thus effectively removing price controls and restrictions on marketing and storage of food stuffs. It also has deregulated the transport system and provided subsidies for farm inputs, such as fertilizers and seeds. The government also has established a national emergency food reserve of between 75,000 and 300,000 MT, with warehouses at Mekele, Nazret, Kombolcha, Dire Dawa and numerous storage sites in the southwest and northeast of the country. Another 75,000 to 80,000 MT go directly to NGOs and the World Food Program for their regular programs.

Similarly, the donors also have initiated programs and projects to boost self-sufficiency in food production by, among other strategies, provision of fertilizers, development of rural access and trunk roads, as well as purchase of surplus foods. For example, the European Union has commissioned some studies that focus on the development and improvement of rural access

Table 9.3. Ethiopia Food Production and Food Aid ¹ (Thousand MT)

Year	1989	1990	1991	1992	1993	1994
Production	6,780	6,698	7,331	7,059	7,947	7,038
Aid Deliveries	418	647	927	1,176	519	1,278

1. Up to 1991, production figures include Eritrea.

Source: The Economist, Intelligence Unit Ltd., 1995/96.

roads, which are generally acknowledged to be a key component in production through the facilitation of procurement of farm inputs on the one hand and the marketing and distribution of surplus foods on the other. Ethiopia's road transport infrastructure is generally in poor condition and significantly contributes to the prevailing high cost of transportation. In some regions, the condition of the roads is such that the private sector operators are not willing to deploy their vehicles, effectively leaving out such regions to be served by both the government and donors. It is understood that food distribution in some sections requires break-bulking from long-haul trucks to medium-sized four-wheel drives, but occasionally, particularly during the wet seasons, total inaccessibility necessitates the use of pack animals, such as donkeys or camels. In recognition of transport difficulties and their impact on emergency food distribution, the EU has constructed warehouses in Kombolcha, Dire Dawa, Shashemene, and Mekele. Tenders normally are invited for the transportation of food, both imports and locally procured surpluses, to these warehouses, which are situated along major trunk roads. It is noted, however, that movement within a given region in certain areas poses the greatest obstacle due to a lack of access roads, a problem exacerbated by the difficult terrain in Ethiopia.

The concerted effort by both the government of Ethiopia and the donors to boost food self-sufficiency has started to register some positive effects. Reliance on emergency food aid is understood to have gone down dramatically. Specifically, in the 1995/96 season, the country had a bumper harvest, and no food aid imports have been made since November 1995. Indeed, all relief food supplies were set to be locally procured from the traditional food surplus producing regions including Gojam, Amhara, Arsi, Wellega, and Humera areas and the southwest lowlands. However, local purchases in some regions are significantly constrained due to inaccessibility and the resultant high transport costs. The prices offered depend on where the procurement takes place and the means of transport involved. Although it is generally acknowledged that locally procured food is relatively cheaper than imports, any savings so achieved is quickly eroded by the net high costs of transport. For example, during the season 1994/95, the EU purchased some 3,000 MT of maize in the southern regions at a cost of Birr 932.49/MT, plus an additional Birr 7.5/MT for its transport to the warehouses at Shashamene, thus resulting in an average cost of Birr 939.99/MT (US\$146.87). Similarly, a consignment of locally procured wheat from the southern regions around Shashamene was procured at Birr 1349.9/MT, transported to the warehouse at Kombolcha at a cost of Birr 150/MT, which brings the total cost to

Birr 1,529.9/MT. Another maize consignment from Gojjam was purchased at a cost of Birr 854.8/MT, plus Birr 310/MT for transport to the EU warehouse at Mekele, bringing the total cost to Birr 1164.8/MT. It should be noted that these charges merely represent movement along major trunk roads and that other arrangements have to be made to access the beneficiaries in remote rural areas. Normally, due to transport difficulties, nonmotorized transport means (pack animals) are usually deployed.

The main food deficit regions in the country include Tigray, Wollo, Shoa and the northeast regions. In practice, these regions are poorly linked to the surplus food-producing regions, resulting in extremely high transport costs, which raise the production and marketing costs and, consequently, the prices of local food. Thus, poor accessibility and underdeveloped marketing infrastructure constrain the marketing and distribution of food to potential consumers and ultimately constrain productivity, compelling farmers to focus much more on subsistence production for their own consumption. This implies that, although it might be relatively cheaper to procure relief food supplies locally, additional costs such as transportation (including break bulking, storage, handling, and bagging, etc.) significantly add to the overall produce prices, rendering it in most cases uncompetitive compared to imports. The inherent difficulties involved in attaining food self-sufficiency and moving surplus food to potential markets in deficit zones, due to poor transport infrastructure and underdeveloped markets, have over the past two decades created the need for Ethiopia to depend heavily on food aid (Table 9.3). However, the situation is expected to change once the new measures being pursued by the government in collaboration with donors are effectively implemented and existing constraints fully addressed.

As noted above, the prevailing high transport costs resulting from poor transport linkages are a major constraint not only to agricultural production but also to trade in food from surplus regions to deficit areas on a commercial basis. For example, it costs US\$ 44.9/MT to transport imported food cargo from Assab to Addis Ababa, a distance of 882 km, which contrasts sharply

with what it would cost to transport food from surplus areas, for example, Gonder to Addis Ababa at about US\$51.3/MT, a distance of 738 km. While the distance from Assab to Addis Ababa (882 km) is longer than the distance from Gonder to Addis Ababa by 144 km (equivalent to 14 percent), the transport rates for the latter (US\$ 51.3/MT) is higher than the equivalent rates for the Assab-Addis Ababa route by US\$ 6.4/MT (equivalent to 13 percent). Therefore, it is clear that such locally procured food cannot be competitively traded in Addis Ababa, compared to the imports via Assab, and the competitive edge continues to be eroded should there be a need for further transportation to deficit areas farther away. In addition, notwithstanding the poor political relations that have characterized Ethiopia and Sudan, poor road linkages between the surplus sorghum-producing regions in Sudan and the deficit areas of northern Ethiopia are a major constraint to cross-border trade. High transport costs therefore have increased the desirability of investing in storage facilities or establishing buffer stocks in Ethiopia in a bid to ensure food security.

In **southern Sudan**, the immense agricultural potential of some regions, such as western Equatoria, which is considered to have the potential to be the 'bread basket' not only of Sudan but also the entire continent, is constrained by general insecurity (war), which has resulted in large-scale displacement of people from their established farmsteads, which implies that, for more than a decade, agricultural production has been disrupted. However, NGOs have recently begun a program to rehabilitate agricultural productivity in some relatively peaceful regions through the provision of seeds, hand tools, and fishing nets, as well as barter shops to purchase surplus agricultural produce. This is understood to have immense potential for attaining the food security objectives for large areas of southern Sudan due to the overwhelming support it has received from the local farmers. The strong response to the barter shops demonstrates a need for much attention to be focused on some basic economic and marketing policies and institutions. However, it is acknowledged that peace and security are the

Table 9.4: Comparative Costs of Sourcing Cereals (US\$)

	WFP/Local Purchase (Kampala)	WFP/Imports	Western Equatoria
Procurement	140	120	125
Storage	—	—	30
Sea Freight	—	80	—
Overland Transport	40	190	367
Total Costs	180	390	522

Source: *OLS Draft Report on the Study of Transportation of Surplus Food from Western Equatoria*, September 1995, p. 16.

overriding factors in southern Sudan. The civil war has adversely affected transport infrastructure due to bombing, mining, and lack of maintenance. Thus, the current road rehabilitation program is providing a critical component for reestablishing the agricultural economy, and, hence, providing the means to reopen markets.

Similarly, the prevalent insecurity in southern Sudan has disrupted and effectively blocked all forms of commercial operations by fostering the prevailing high cost of transportation in the region. The difficulties faced by WFP Kampala presented in the following section serve to illustrate the impact of high transport costs on trade. In 1996, WFP Kampala is reported to have drawn plans to distribute 27,000 MT of cereals to Sudanese refugees in the Koboko region. However, if all the surpluses from western Equatoria are to be transported to Koboko via Congo (formerly Zaire), which was the only operational route to southern Sudan from Uganda, the average cost/MT was US\$522, out of which US\$367 were direct overland transport costs. In contrast, the current cost of local (Uganda) purchase, including storage, handling, and

transport to Koboko, were US\$180/MT. Therefore, the costs of procurement in western Equatoria exceed local purchase in Uganda by US\$342 per MT. These figures can be compared with the cost of importing cereals through Mombasa, which would have an equivalent cost of US\$390/MT, US\$132/MT cheaper than surplus cereal from southern Sudan (Table 9.4).

The above rates clearly indicate that trade in local produce is not commercially feasible. As already indicated, NGOs have initiated a barter program for the exchange of local food surpluses, with manufactured commodities as the only mechanism to jump-start the moribund economy of the region.

In **Somalia**, near self-sufficiency in locally produced cereals has been constrained by several factors, including civil war, the relatively easy access to food imports from outside markets, and the distance of most of its population from the significant agricultural regions. The main surplus-producing region lies between the Juba and Shabelle rivers, mainly around the Baidoa, Bardera, Gebiley, and Gedo regions. The principle crops are sorghum and maize, with

some rice, beans, and sesame. Average yields for rain-fed crops are estimated to be among the lowest in Africa, reflecting the poor soils and variability of rainfall. The output of cereals dropped by 20 percent between 1969 and 1980, forcing the government to step up grain imports, which increased by an average of 8.4 percent annually between 1975 and 1984. However, the removal of controls on domestic grain purchases in the early 1980s reversed the trend. Cereal production more than doubled between 1980 and 1988, but the civil war and partition of the country have severely disrupted the rural economy.

Similarly, the above issues have had adverse effects on the potential for cereals trade in Somalia. In addition, the existing scope for expanding trade links with eastern Ethiopia (which Somali ports have traditionally served as entry port), including cross border cereal flows (in both directions), is constrained by poor infrastructural conditions and linkages necessitating long hauls and, consequently, high transport costs. The situation has been worsened by the outbreak of civil war in 1991, which effectively led to the near collapse of Somalia's trade links with her neighbors.

IMPACTS OF IMPROVEMENT OF TRANSPORT LINKAGES ON AGRICULTURAL PRODUCTION AND TRADE

It is the consideration of this study that the major impact of improving the current poor transport linkages and addressing some of the current transit requirements emanating from the existing policies will be, first and foremost, significant reductions in the current transport costs. This will create opportunities for stimulating increased agricultural production and trade and, consequently, reducing or eliminating the current dependence on food aid. These are expected to be achieved as a result of a reduction in transport costs of both production inputs and agricultural

produce, making food affordable and easily available. It also will ensure that local produce effectively competes against food imports. Improving transport linkages also could reduce the need for establishing large buffer stocks and storage facilities and, hence, would free up resources and donor funds to concentrate on other national/regional concerns. It thus would allow each country or region to fully exploit the competitive advantage and, hence, would limit dependency on aid. In the following paragraphs, we review the broader impacts of transport linkage improvements on these issues.

In **southern Sudan**, for example, the impact of improving transport linkages is well-illustrated by the ongoing road rehabilitation program sponsored by USAID, among other donors, which has led to a drastic reduction in the internal haulage costs. For example, World Vision is understood to be moving, in the course of 1996, some 500 MT of locally grown grain from Nzara to Thiet, a distance of 695 km, out of which 280 km have been rehabilitated. At the 1995 transport rates of US\$0.65/MT/km for the unrehabilitated road sections and US\$0.45/MT/km for rehabilitated sections, the cost savings impact of the road improvement along the 280 km can be illustrated as follows:

- Prior to Rehabilitation: $280 \times \text{US\$}0.65 = \text{US\$}182/\text{MT}$
- After Rehabilitation: $280 \times \text{US\$}0.45 = \text{US\$}126/\text{MT}$.
- Saving US\$56/MT or a total savings of US\$28,000 for the transportation of the 500 MT over the rehabilitated 280km.

Similarly, according to a study carried out by USAID to evaluate U.S. humanitarian assistance for southern Sudan in March 1995, it is estimated that transport costs into Equatoria would drop from US\$500/MT by road and more than US\$800/MT by air to approximately US\$300/MT should the roads under rehabilitation be completed and remain secure. This would ensure a savings of between US\$2 million and US\$5 million for the delivery of each 10,000 MT of cargo over the rehabilitated roads.

In **Ethiopia**, for example, during the course of 1996, Tigray region's food aid requirement is estimated to be 101,000 MT. Assuming that the food is imported through the port of Massawa, the transportation costs to Mekele (410 km) would be as follows:

- Massawa-Zalambesa section (247 km):
 - 247 x US\$0.042/MT/km = US\$10.374/MT
 - US\$10.374 x 101,000 MT = US\$1,047,774
- Zalambesa-Mekele section (163 km)
 - 163 x US\$0.087/MT/km = US\$14.181/MT
 - US\$14.181 x 101,000 MT = US\$1,432,281
- Total transport costs = US\$2,480,055

However, if the Zalambesa-Mekele section were to be improved to the same standard as the Massawa-Zalambesa road, on which transport costs are US\$0.042/MT/km, the transport cost would decrease from US\$24.55/MT (US\$10.374 + US\$14.181) to US\$17.22/MT, giving a savings of US\$7.335/MT, or 30 percent. This would be equivalent to a cost savings of US\$740,835 for the whole consignment.

Improvement of transport linkages is also expected to enhance agricultural productivity in the region, particularly in high-potential areas. The potential to competitively market surpluses could provide farmers with the incentive to increase agricultural production. Availability of good transport linkages will reduce difficulties in accessing farm inputs, such as fertilizers and seeds, and, consequently, will give farmers an opportunity to sell their produce profitably. Improvement of existing transport linkages also will ensure that local agricultural produce can compete against food imports/aid.

If transport linkages were to be improved, it is very likely that donors such as WFP and FAO, who now find it easier and cheaper to source food aid from countries outside the region, may consider procuring the same from within. This is because reduced transport costs and easier accessibility will act as the incentive to allow

purchase of food surpluses in high-potential agricultural zones. This will help them cut down on their import bills, and the savings then can be used to further improve the transport infrastructure. For example, WFP Eritrea's 1994/95 budget was US\$32,711,363 for the distribution of 89,229 MT of food aid. Given that WFP pays US\$80/MT for food distribution, it implies that about 22 percent of the budget (US\$7.14 million) was spent on transport (overland only), excluding sea freight. In light of the fact that the current high transportation costs emanate largely from the poor transport infrastructure in the region, donors find themselves caught in a vicious cycle where they have to incur huge transport bills, much more money than would probably be used to rehabilitate roads and develop local agricultural production in the longer term if they were to give more attention to the improvement of the existing poor transport linkages. Consequently, the development of good transport linkages can go a long way in cutting down on food aid dependency by promoting local agricultural production and enhancing the competitiveness of local produce in regional/local markets.

As already noted, food security can be attained either by local agricultural production or through trading between surplus and deficit areas. It is clear that until now these two options have been severely curtailed by the existing poor transport linkages. Consequently, the improvement and development of cost-effective transport linkages can be expected to boost not only local agriculture productivity but also intraregional trade. The surplus-producing regions of eastern Sudan — around Gedaref, for example — can trade effectively with Eritrea if the road from Tessenei to Kassala were to be fully developed. Similarly, good transport connections between eastern Sudan and northern Ethiopia provinces, particularly Tigray, which is a food-deficit region, can promote cereal trade between these regions. This has the advantage of close proximity compared to imports from overseas. Thus, improving transport links can ensure sustainable food markets for Sudanese and Ethiopian farmers on the one hand and food

security to the receiving areas on the other hand, in effect promoting trade.

The improvement of regional transportation linkages also can be expected to reduce the need for utilizing enormous resources in setting up buffer stocks and storage facilities as emergency intervention measures to ensure food security. As a result, governments in the region can then be expected to formulate comprehensive long-term plans on food security, agriculture production and trade. It also will allow normal trade links to seal or fill up food gaps, as food deficit in one region/or country will constitute a market for surplus from another one. In this context, the surplus food in Sudan can find a market in northern Ethiopia and Eritrea, while the surpluses

in southern Sudan can find markets in both northern Uganda and Kenya, ensuring food security.

It is clear that the major impact of improving transport linkages would be a net reduction of the prevailing high transport costs. As a consequence, local agricultural production would be stimulated from a level bordering on mere subsistence to production of surpluses. This can be traded with food-deficit zones/countries. Reduced transport costs thus will promote intraregional trade ties and foster economic development. In effect, this will help ensure regional food security by eliminating food-aid dependency and ensuring that each country in the region exploits its comparative advantage.

10. Summary of Constraints and Weaknesses, and Recommendations

INTRODUCTION

In this section, we summarize the major findings of the study, including the existing constraints and weaknesses that contribute to high transport costs, and, on the basis of which, recommendations to minimize the costs of transportation are advanced.

The transport industry within the countries of the Northern Tier of the Greater Horn of Africa is currently focused largely on the six main regional seaports of Port Sudan, Massawa, Assab, Djibouti, Berbera, and Mombasa. The ports are significant transport infrastructure, as they constitute the main gateways for exports and imports to various countries in the region. In practice, however, the ports do not operate as competing infrastructures but, rather, serve distinct corridors to specific countries. Only the ports of Assab and Djibouti serve competing corridors to Addis Ababa.

The major finding of this study is that transportation costs in this subregion are high, estimated at between 9.5 and 37 percent of CIF value of consignment for routes to Khartoum, 20 to 34 percent for routes to Gonder, 21 to 28 percent for routes to Addis Ababa, and between 276 percent and 302 percent for routes to southern Sudan via the port of Mombasa. As indicated in Chapter 8, the factors that contribute to the high costs include inadequate investment in infrastructure, poor condition of existing infrastructure, bureaucratic governments' policies, cumbersome operating procedures and regulations, and insecurity, among others, being physical and nonphysical barriers. These weaknesses and constraints are summarized in this chapter, and, as part of the longer-term objective to minimize costs, appropriate recommendations are put forward.

THE MASSAWA-ASMARA CORRIDOR

Constraints and Weaknesses

The port of Massawa, like all other major transport infrastructure in Eritrea suffered greatly due to damages during the liberation war, which has been exacerbated by lack of both investments and maintenance during the period. The primary physical deficiencies of the port are manifested by the substantial damages to the berths used for containerized cargo. This has clear ramifications for the costs of transportation, and the problems at the port can be expected to become acute as containerization of international cargo traffic has become the main maritime trend. In addition, the port's operational berths are not able to handle larger ships, particularly container carriers.

The port's cargo-handling equipment is not only inadequate but also in poor condition, suffering from a lack of maintenance and exhibiting poor availability. Maintenance of port equipment and facilities is currently achieved wholly by the port authority itself, which is understood to suffer from a shortage of skilled manpower. In addition, the port has very limited storage facilities and port area for future expansion. The port tariff, characterized by numerous classifications of cargo, is cumbersome and does not provide a basis for maximization of port revenues, particularly as charges are based on kilo tons rather than freight or harbor tons.

In the *clearing and forwarding* area, despite the liberalization of transit agency business in 1993, the responsibility to provide ship's agent business is the monopoly of ERSTAS (a state-owned agency) at both the ports of Massawa and Assab. This particularly affects transit traffic, as a bilateral agreement between ERSTAS and MTSE of Ethiopia mandates each to act as the

agent of the other in their respective countries and effectively blocks out private-sector participation. The industry is characterized by lack of skilled manpower and inadequate training and exposure. The 28 or so agents who are currently licensed have expressed a strong desire to revitalize the industry and are planning to form an association to guide and promote professionalism.

The *railway system* in this corridor has been defunct since 1975, when tracks were uprooted and rolling stock destroyed during the war. Since 1994, the government of Eritrea commenced a reconstruction program using former employees and local resources. It is expected that a functioning railway system will be operational between Massawa and Mai Atal in the next two years.

The existing *road infrastructure* in Eritrea, which dates back to the 1930s during the Italian occupation, deteriorated extremely due to bombings, neglect, and lack of maintenance during the war. Most of the roads not only have a difficult gradient but also are fairly narrow to effectively accommodate modern heavy goods vehicles. The steep gradient along most of the roads limits the load-hauling capacity to an average of 20 MT and is understood to be a significant factor in increasing the maintenance costs of vehicles.

The government of Eritrea is involved, however, in the rehabilitation of roads, particularly trunk roads, and is spending some US\$40 million annually. A comprehensive plan for the road sector is however awaiting the outcome of an ongoing study that will prepare a forward plan for the roads sector in the country, including rehabilitation and new construction needs. However, the capacity of the private sector in Eritrea to construct and maintain roads is understood to be very limited, although joint ventures with foreign-established firms is being encouraged. However, Eritrea does not operate any mechanism for cost recovery in respect of road use, and the Ministry of construction meets all the maintenance and rehabilitation expenditures. Similarly, axle-load limits exist theoretically at 12 MT/axle, but this is not

enforced.

The prolonged war situation in Eritrea over the years had prevented private investments in the road transport freight industry. However, special concessions that allowed international NGOs to procure their own vehicles for relief food distribution and which were passed on to ERRRA have formed the backbone of the trucking industry. There is pressure, however, for ERRRA to privatize its fleet, although the monopoly it had over the distribution of food aid has been removed. It is noted that the bulk of the existing trucks are very old (average age is 15 to 20 years) and comprise various models and makes. However, the government of Eritrea has proposed to formulate technical specifications regarding types and makes suitable for the country. Currently, it is understood that the existing truck capacity in the country is underutilized. This is attributed not only to the poor trade between Eritrea and international partners but also to the limited commercial cargo within the country. Eritrea's imports are dominated by food aid (up to 30 percent), since 45 to 80 percent of the population is dependent on food aid at one point or another, even during good harvests. On the other hand, Eritrea has a very limited exports base, which is clearly disproportional to her imports. As a result, the trucking industry has relied heavily over the years on food-aid distribution as its mainstay, with a very limited regional market, mostly confined to northern Ethiopia's provinces of Tigray and Gonder.

It should be understood that constraints and weaknesses discussed above are by no means conclusive or exhaustive of the many factors attributable to the high costs of transportation along the transport route from the port of Massawa. Many of them, including possible recommendations are extensively discussed in the literature. However, the recommendations advanced in this study are based on the need to minimize the existing transport costs and offer diversified access to the sea. Similarly, they are meant to provide a basis for regional integration and cooperation in developing new and existing transport linkages.

Recommendations

The Port of Massawa

As already noted, the ongoing World Bank-sponsored Ports Development Project, once implemented, can be expected to go a long way in improving the port's operations and efficiency. The project, initiated by the government of Eritrea in conjunction with the World Bank is divided into three phases:

- Under Phase I, the project is expected to cover the physical rehabilitation of the port of Massawa, including reconstruction of the two container berths. It also will entail procurement of cargo handling equipment (for both Massawa and Assab), including forklifts, mobile cranes, ship handling crafts, tugboats, and container handling equipment. It is understood that the feasibility study for the Phase I project, completed in May 1996, was scheduled to be a basis of negotiation in June 1996 between the government of Eritrea and the World Bank for subsequent implementation of the project.
- In Phase II, the projects, will focus on the construction of additional berths at the port of Massawa, both multipurpose and container. Currently the low containerized traffic at Massawa is attributed to the trade imbalance between Eritrea and her overseas partners, however, to conform with the international practice, a container terminal will be built at Massawa. In Phase III, the focus will be on the construction of a new port at Massawa, complete with Export Processing Zones and Free Trade Zones.

However, when viewed against a background of lack of maintenance and poor availability of cargo handling equipment, it will be prudent for the port authorities to establish sound maintenance programs for equipment and infrastructure to ensure that the benefits of rehabilitation are not soon lost. A preventive

maintenance program is considered crucial and should be done on a contractual basis, with the private sector taking the lead as a cost-saving effort in terms of equipment replacement and attendant port delays.

In line with the already-proposed restructuring of the port, the government is considering the full commercialization of the operations and management of the port of Massawa. This should entail, among other things, the involvement of major stakeholders, such as business people, transporters, clearing and forwarding agents, among others, in the planning, management and operations of port activities. Consideration also should be given to the possibility of entering a performance contract between the port management and the government to ensure high operating standards are achieved and maintained. In addition, professional training of port personnel in all aspects of port operation and financial administration is considered an important aspect in enhancing port efficiency and productivity. Similarly, in order to improve coordination of port activities, we recommend that the port authority needs to interact more and to play a leading role with the different major players in the transportation chain, including the shipping agent, clearing and forwarding agents, transport operators, customs officials, and shippers. Unless this is done, the efforts of each player remain piecemeal, with the effect of an overall poor level of service for the port. This new orientation, coupled with improved operating procedures, training, and improved remuneration of labor, improvement in information flow and safety procedures, will go a long way in enhancing the overall performance of the port, even at the current levels of investment in infrastructure.

Shipping, Clearing, and Forwarding Issues

There is also a proposal to improve the efficiency of the port of Massawa through commercialization of ERSTAS and to involve other clearing agents in the forwarding of transit cargo. However, ERSTAS is currently the sole shipping agent represented at the port of Massawa and Assab. Given that the government has liberalized the market for clearing and forwarding services, it is recommended that

further bold steps should be taken to move beyond the intended commercialization of ERSTAS by allowing local, regional, and international shipping lines to have different agents at the port. This is considered an important step to enhance port efficiency through competition. The proposed formation of a clearing and forwarding association is also considered to be an important step in helping streamline the operations of CFAs at the port.

Finally, as a basis for strengthening the role of the port authority as coordinator of various actors in the transportation chain, there will be a need for a unified information systems within the port so that shipping and cargo information can be shared. In the longer term, this would involve computerizing the individual activities at the port and linking the information of the various actors.

The Railway System

Although the importance of the railway transportation services in Eritrea is not questionable, there have been controversial views on its rehabilitation vis a vis starting a new, modern railway system. Currently, the economics of railway transportation compare unfavorably with road, but it is the consideration of this study that the potential of the railway exists only insofar as it can get linked/ connected to the network of the Sudan (from Agordat-Tessenei-Khartoum or from Massawa-Karora-Sudan network). This would enhance the status of the port of Massawa as an alternative to Port Sudan for large regions in eastern Sudan. Consequently, the feasibility of a railway line connecting the port of Massawa to Kassala through Asmara, with potential extension to Gonder Province in northwest Ethiopia, should be investigated. The railway would complement the network of roads in opening the rich agricultural areas of Humera and Wolkait (Ethiopia), Barka (Eritrea), and Kassala province in Sudan, which are considered to be some of the potential breadbasket areas in the Greater Horn of Africa region in terms of agricultural productivity and food security.

Roads

As has already been indicated, road transport is currently the dominant mode of transport and will continue to be for the near future. The government of Eritrea acknowledges this fact and is currently engaged in the rehabilitation of major trunk roads. Given the fact that the existing trunk roads traverse very difficult topography characterized by extremely steep gradients, it is recommended that rehabilitation should focus on realigning and widening the roads in order to accommodate high load capacity trucks. In addition, it would be necessary to review regulations and policies governing cost recovery, axle loads, and vehicle types and makes to conform to the road standards and specifications in the country, to alleviate potential damages on the road infrastructure and to provide a basis for availability of funds for maintenance.

It is understood that concern has been raised from some quarters on whether the government's emergency rehabilitation of the existing roads should be the key issue, or whether the country should focus on long-term plans by rerouting some of the existing trunk roads to reorient them in such a manner that Massawa can effectively serve the northern parts of Ethiopia, southwest parts of Eritrea, and eastern parts of Sudan. This is a bid to capture a wider hinterland market and to increase vehicle efficiency and would involve improving the Mendefera to Barentu connection, passing through the southwestern lowlands. This proposed road would require, however, a higher degree of maintenance, especially compared to the current route via Asmara and Keren, given the type of soils in the lowlands. This study recommends the establishment of a planning framework and an economic and financial criteria upon which decisions will be based. This should be coupled with the formulation of an adequate roads maintenance program, without which the benefits of rehabilitation could be short-lived. As such, there is a need to raise sufficient revenue from road users via taxation — fuel, ownership, etc. — for this purpose.

In addition, the three neighboring countries — Eritrea, Sudan, and Ethiopia — should jointly evaluate the feasibility of creation of a network of transport links, which is considered to be

crucial in their respective efforts not only to cut costs but to enhance regional trade and food security. The improvement of regional road links between Massawa and both northern Ethiopia and eastern Sudan is considered to be the key to opening up the regional transport market for Eritrean trucks, which are currently underutilized as this will tremendously improve the availability of return cargo and, hence, help reduce transport costs. The regional road routes that are considered to have economic potential include the connection to Kassala in Sudan, and the Barentu-Om Hajar-Humera-Gonder in northern Ethiopia, and Massawa-Karora-Port Sudan road, which passes through an area rich in fishery resources. It is understood that the Eritrean and Ethiopian governments are currently discussing with the EU the attractiveness of the Barentu-Om-Hajar-Humera to Gonder route, with a possible proposal for funding a feasibility study.

Road Transport

As noted above, it is expected that the current initiatives being undertaken by the government in rehabilitating major trunk roads not only will reduce the current dependence of the trucking industry on relief cargo transportation but will reorient the fleet to serve regional markets. The exploitation of the regional market will serve as a great opportunity and potential for fostering the much-needed fleet replacement, for which donor assistance may be required. It is the consideration of this study that the government of Eritrea should facilitate the restructuring of ERRA into a relief transport coordinating body, which will on the one hand coordinate the distribution of relief cargo to beneficiaries and on the other hand safeguard the transport resources necessary to meet the continued future demand for relief transport. Thus, ERRA should cease to be operative as a transporter. In this context, ERRA will need to privatize its current fleet to individuals, institutions, or trucking associations. It is acknowledged that ERRA has a great potential to develop the private-sector domestic trucking industry in Eritrea, mainly by acting as a guarantor of lease-purchase agreements

between financiers or donors and transport operators.

ADDIS ABABA CORRIDOR

As already indicated, the Addis Ababa corridor is served by two competing ports: Assab and Djibouti. The port of Djibouti is much older and has been operational since 1917. The port has comparatively satisfactory facilities, including a modern container terminal, modern cargo handling equipment, and adequate supply of storage, including warehouses. It is reported that the port has invested a lot of money in the provision of modern facilities. However, the port still lacks mobile cranes, which implies that cargo operations are undertaken using ship derrick cranes for loading and discharging. At one point, Djibouti was Ethiopia's main gateway, but this has steadily declined since the construction of Assab and virtually come to an end during the Ogaden war. Since 1959, Ethiopia's policy was to reallocate transport requirements from Djibouti to Assab.

The port of Assab is relatively new, constructed in 1959 for strategic and economic reasons. Assab was built so that Ethiopia (which included Eritrea at the time) would no longer have to rely upon a neighboring country and foreign government as the country's primary gateway and provider of development needs. The facilities at Assab were improved by the military government in the mid-1970s. Notwithstanding, plans for the construction of a container terminal in the mid-1980s was discontinued.

At Assab, ships can berth only during daylight hours due to a lack of adequate navigational aids, which is a cause for considerable delay for incoming and outgoing vessels. However, the port operates around the clock. Indeed, the increase in cargo through Assab has overwhelmed the available facilities, and the port is currently operating at capacity. Therefore, during massive importation, mainly of food aid and government cargo (fertilizers), Assab has experienced congestion. In contrast,

the port of Djibouti is currently underutilized, mainly because as much as 80 to 85 percent of Ethiopian cargo now goes through the port of Assab. Until recently, this had been exacerbated by the poor transport arrangements between Djibouti and Ethiopia, both rail and road, which hindered the efficient flow of traffic. This greatly contributed to the dominance of the Assab-Addis Ababa corridor with regard to Ethiopian traffic, as it has always had relatively simpler transit arrangements. However, as already stated, the recent bilateral agreements between Djibouti and Ethiopia, if fully implemented, are expected to reverse the trend, as the two corridors will now be at par and fiercely competing for Ethiopian cargo. However, the poor condition and limited capacity of the CDE since the late 1970s has been the most significant drawback to the overall attractiveness of the corridor to Ethiopian traffic.

The independence of Eritrea in 1991 has, however, greatly changed the philosophy behind the continued Ethiopian preference for the Assab Corridor. As a *de jure* landlocked country, all Ethiopia's cargo now will pass through foreign countries. The considerations as to which ports Ethiopia should use thus cannot be based on economic and strategic reasons but rather on achieving route security and cost effectiveness.

Shipping, Clearing, and Forwarding Issues

As already indicated, despite the liberalization of clearing business in both Eritrea and Ethiopia, state enterprises continue to monopolize the transit-forwarding roles. They also monopolize the shipping agent roles at both Assab and Massawa. In Ethiopia, MTSE has the sole responsibility of clearing and forwarding cargo passing through the Eritrean ports, working in association with ERSTAS. Indeed, a bilateral agreement signed in 1991 between Ethiopia and Eritrea provides that clearing and forwarding services for Ethiopian cargo is to be handled solely by the two state enterprises. Although there are 70 to 80 private CFAs in Ethiopia, their role is limited to clearing but not forwarding. In contrast, at the port of Djibouti, clearing and

forwarding can be done by any CFA, both public and private. However, the role of the CFAs using the port of Djibouti with respect to Ethiopian cargo has until recently been limited by a lack of transport capacity to move goods along the Djibouti-Addis Ababa corridor, both road and railway, but this is expected to ease once the recent agreements between the two countries are fully implemented.

The monopoly exercised by both ERSTAS and MTSE is considered to be a major constraint as it fosters inefficiency thus exacerbating costs, in terms of money and time. The situation is made worse by the current practice of transshipping Ethiopian cargo through the port of Djibouti to and from Assab.

Customs Services

The customs procedures for cargo through the ports of Assab and Djibouti with respect to Ethiopian cargo are to a significant extent cumbersome and time consuming, leading to high transport costs. The requirement to deposit a custom bond or cash deposit with Ethiopian customs authorities (or through MTSE) has been criticized, and problems related to the organization of customs facilities and services at the two ports and along the two corridors have been cited as numerous. It is claimed that customs offices, particularly at the border points between Eritrea and Ethiopia and Djibouti and Ethiopia, do not have the appropriate infrastructure to serve the increasing volume of traffic and that customs personnel are inefficient due to a lack of adequate training and motivation. Similarly, the requirement for mandatory custom permission before goods can be transported from either Assab and Djibouti, thereby necessitating that clearance procedures must start in Ethiopia, is cumbersome and time consuming, leading to added transportation costs.

Finally, the physical verification which is undertaken by Ethiopian Customs at Djibouti and Assab before cargo can be transported to Ethiopia, is repetitive and time consuming as cargo is verified again before finalization of

customs procedures in Addis Ababa.

Road Transport

As already noted, there are two major road routes between Djibouti and Ethiopia, constituting the Djibouti-Addis Ababa corridor. These are (a) Djibouti-Galafi-Dobi-Mille-Awash-Addis Ababa (this road route links with the Assab-Addis Ababa road at Dobi) and (b) Djibouti-Dewenle-Dire Dawa, which links with the above road at Awash and continues to Addis Ababa. It is noted that much of the commercial goods (if any) use the road via Dobi to Addis Ababa, while the road via Dewenle is mostly used for the transportation of relief and government cargoes, largely destined for Dire Dawa region.

However, the main constraints facing road transport along the Djibouti-Addis Ababa corridor can be summarized as emanating from the poor state of infrastructure, particularly the road via Dewenle, and until recently the various logistical and operational restrictions and regulations for road transporters. The road sections between Dewenle-Dire Dawa (224 km) and Dire Dawa-Harer Junction (31 km) are in poor condition. Similarly, until September 1996, the pre-existing road transport procedures and requirements for transit traffic to and from Addis Ababa have been very bureaucratic and cumbersome and were a major disincentive to road transporters. These emanated from the numerous administrative and transit regulations imposed by the governments of Djibouti and Ethiopia and severely limited the transport capacity along the corridor. However, these problems along the corridor are expected to be eased once agreements reached recently between the two governments are implemented to make the corridor as competitive as the Assab-Addis Ababa corridor.

Railway Transport

The CDE railway traditionally has been the major means of transportation for Ethiopian cargo to and from the port of Djibouti. However,

its operations in the recent past has been characterized by serious problems emanating from policy differences between the two governments of Ethiopia and Djibouti, poor physical infrastructure, including tracks and bridges, among others. In addition, the railway's locomotive and rolling stock (wagons) are not only inadequate but fairly old and characterized by a lack of adequate maintenance, resulting in low availability and restricted capacity.

Policy differences until recently have delayed the disbursement of the French Franc 55 million aid package for CDE, made available as early as 1991, which was meant for the procurement of rehabilitated locomotives, among other equipment. It is understood that Ethiopia earlier insisted on procurement of new locomotives. As the implementation of this assistance gets further delayed, there is less and less justification for rehabilitated locomotives as lease or new locomotives occasioned by increasing requirement for new equipment. However, it is now understood that the two countries have agreed on the purchase of four second-hand locomotives, with a guarantee of 15 years from the suppliers, which are expected to be delivered soon. Meanwhile, the condition and capacity of the CDE to move cargo expeditiously between Djibouti and Ethiopia has continued to deteriorate. As of June 1996, the CDE backlog cargo to Ethiopia was estimated to be equivalent to about 80 train loads. CDE also is understood to be losing skilled and experienced workers, particularly those with technical backgrounds, without commensurate replacement. However, some major initiatives are being taken, with the support of donors, to address the constraints and weaknesses characterizing the CDE. It also is understood that the CDE does not accept commercial responsibility for the goods it transports, which implies that shippers risk losing their goods without compensation in case of misfortune.

Recommendations

Ports of Djibouti and Assab

Any recommendations to improve the efficiency of the two corridors serving Addis Ababa from the ports of Assab and Djibouti must be seen from the perspective that Ethiopia is the client for whom services are to be provided. These recommendations also assume that Ethiopia's shippers are willing to pay for goods and efficient services, which enables them to be competitive. In this way, Ethiopia has a significant role to play in influencing the efficiency at both ports and of the two corridors.

The main objective of the port of Djibouti Authority is to reattract as much as 80 percent of Ethiopia's cargo and to reestablish itself as the main gateway to Ethiopia. Ethiopia's cargo is fast growing as the economy becomes revitalized and may peak at some 4 million MT by the year 2002. Neither Djibouti nor Assab will be able to handle this traffic exclusively, and Djibouti, although currently underutilized, may not be able to handle as much as 80 percent of it with its present facilities. However, it is now understood that the port of Djibouti Authorities have invested in a lot of capital equipment and facilities to increase its capacity to between 6 to 8 million MT in anticipation of the changing economic situation in Ethiopia. In addition, it is clear that, between now and 2002, Ethiopia will rely less and less on the CDE to move cargo from Djibouti. Therefore, the option open to Djibouti in its attempt to reattract some Ethiopian cargo in the shorter term clearly lies in facilitating improved road transport arrangements between the port of Djibouti and Ethiopia.

For Assab, the major effort required to retain the increasing amount of Ethiopian cargo lies in increasing its capacity. In order to achieve this, major improvements have been planned under the Eritrean Ports Development Project, which also has been discussed elsewhere in respect to the port of Massawa. The project, which is planned in three phases, involves the procurement of cargo-handling equipment, specifically mobile container cranes for the port of Assab, in the first phase. In the second phase, the project will help expand the container terminal capacity to between 80,000 to 100,000 TEUs annually. It is noted that Eritrea has placed

high priority on integration with Ethiopia, especially in regard to trade and transport. A Joint High Ministerial Commission between the two countries is concerned particularly with the use of the port of Assab and oil refinery. In addition, a protocol Agreement on Harmonization of Economic Policies among the two parties is in effect. This covers fiscal, monetary, trade, and investment. Other areas of cooperation include industry, transport, and communications, among others. This, it is acknowledged, has enhanced Ethiopians' preference for the Assab port. Some of these initiatives have, however, been blamed for fostering the continued ERSTAS monopoly at the port of Assab, which will need to be addressed if the port of Assab is to compete with the port of Djibouti, where a liberalized clearing and forwarding environment is in place, which is one of its strongest competitive edges.

The Port of Djibouti Authority has taken initiatives not only to improve the current transportation arrangements but to improve its administrative efficiency. In order to achieve the former, a joint committee has been established at government levels, and efforts are under way to enter into an agreement with Ethiopian government to divert up to 80 percent of Ethiopian export cargo, particularly coffee, cereals, and oil products (imports) to the Port of Djibouti. The port also has reduced port dues for Ethiopian cargo by 50 percent. In addition, the port has appointed a liaison officer in Addis Ababa to follow up the initiatives. A similar joint committee already exists at the level of the chambers of commerce, with initiatives to promote the port and the corridor. It is understood that Ethiopians have received these representations well but have been slow to implement the agreements, mainly because commercial orientation, although increasing, is yet to be fully appreciated.

The port also has proposed a new relationship with the government to give it a proper mandate, including the need to have its chairman democratically elected instead of being appointed by the government. This is aimed at granting the port a semiautonomous status. The authority also

has indicated a willingness to provide additional facilities as needed, for example, the number of mobile shore cranes, which Ethiopia has indicated needs to be increased to four.

Against the above background, we recommend that:

- Port management initiate a preventive maintenance program for the infrastructure and equipment, to conserve and sustain the benefits of the massive capital investments. This can be contracted out to the private sector.
- To promote the effective use of the Djibouti-Addis Ababa corridor, the two governments ensure full support and implementation of the recently signed bilateral agreements aimed at simplifying the transit procedures and requirements for road transporters and port operations.
- The government of Eritrea review the continued appropriateness of the ERSTAS monopoly at Assab in light of the changing economic conditions and transportation requirements for Ethiopia.

It also is understood that the government of Djibouti has secured funding from the Islamic Development Bank to improve the road section from Ali Shebi to Guelile at the Djibouti/Ethiopia border. Similarly, the Ethiopian government has proposed to upgrade the Dire Dawa-Dewenle section (214 km) from gravel to asphalt at a cost of EBirr 310 million under the ongoing RSDP, with likely funding from the IDA. These efforts will make it easier to use the alternative route to Ethiopia via Dire Dawa-Dewenle, in competition with the Assab-Addis Ababa corridor. These initiatives will go a long way to improve the attractiveness of the corridor. However, to fully realise the benefits, it is recommended that the road link between Yoboki via Galafi to Dobi be fully rehabilitated to make the corridor more competitive. This section would join the Awash-Mille section, which is undergoing rehabilitation. It is understood that both the governments of Djibouti and Ethiopia have jointly put forward

some proposals to the European Development Fund (EDF) to finance the development and upgrading of transport infrastructure along the Djibouti-Addis Ababa corridor as regional projects. This is considered to be a very significant bilateral move that should be emulated among the governments of the entire region to ease difficulties involved in undertaking own or piece-meal development projects in respective countries.

Customs Procedures

The current customs procedures for Ethiopian cargo routed via the ports of Assab and Djibouti, which became effective 1 July 1996, represent a tremendous improvement over previous procedures. However, they remain cumbersome, especially in regard to documenting and verifying cargo. While the intention is to maximize revenue for the government of Ethiopia and discourage traffic diversion, they represent a significant direct cost element. First, the need to initiate clearance procedures in Addis Ababa is understood because revenue must be collected there; however, the requirement for a customs bond, or cash deposit, of 125 percent is excessive. We recommend that bonds be set at 100 percent of the assessed duties and taxes, although the shipper may opt to fully pay these duties and taxes as assessed, pending verification, particularly for bank-permitted imports. Fortunately, as of 1 September 1996, Ethiopia has banned Franco Valuta imports into the country. In this way, customs officials will charge duty and other taxes on the basis of available documents. We further recommend that the Ethiopian government insist on preshipment inspection at foreign ports for all cargo with a CIF value of US\$1,000 or above. In this way, verification will be achieved at either port of entry, Assab or Djibouti, before loading onto trucks.

We also recommend that all vehicles intended to carry Ethiopian transit cargo must be securely enclosed, be capable of being sealed, and be sealed before they can be accepted for carriage of goods to Ethiopia. In this way, the

relevant vehicles may be required to display a transit license number plate, which will serve to reduce the restrictions on goods in secure vehicles. This will give greater freedom to operators to move at their own pace, on the condition that they move along the approved routes for transit traffic and stop at designated “reporting stations” to have transit declarations endorsed. Thus, if a vehicle is secure, i.e., it is locked and sealed such that cargo cannot be interfered with, and it has a transit license (issued only if it is secure — lockable and sealable), then it will be flagged off by Ethiopian customs officials at Djibouti or Assab. All the customs documents will be placed in a sealed envelope, with one copy on top of the envelope addressed to the Lagar Customs Depot at Addis Ababa. At Addis Ababa, the customs officers will check only for broken seals, etc., before accepting duty payable and releasing the vehicle. Only cargo with broken seals would be subject to further verifications in Addis Ababa.

However, if a vehicle is judged to be insecure, it must not be licensed to carry transit goods. If it does, it is secure but has not yet received a transit license, then the vehicle must go under escort, as is currently the practice. Alternatively, duty for cargo to be transported by unsecured vehicles must be collected in advance. We also recommend that customs offices at border posts be well-equipped with proper physical and communications facilities and to remain open for 24 hours.

Railway Services

The governments of Ethiopia and Djibouti, with the support of donors, have taken specific initiatives with respect to the rehabilitation of the CDE. It is acknowledged, however, that additional investments per se will not improve the capacity and operational efficiency of the CDE. This handicap is well known, and the donors proposing to provide funds for both the short-, medium-, and long-term interventions have made it a condition that a management study, originally undertaken by DanRail, must be finalized and its recommendations implemented

as part of the overall initiative to improve the CDE. Specifically, a task force comprising Djibouti and Ethiopian representatives has been mandated to finalize the study.

The task force visited Burkina Faso and Ivory Coast to see how railways in those countries are managed and to evaluate an alternative institutional framework that may be adopted for the CDE. It already has presented the draft report of its findings.

Despite the fact that the task force’s findings have not yet been made public, many stakeholders have voiced concern that in order to minimize conflicts over the management and operations of the railway, a third party with relevant experience should be commissioned to run the CDE, although overall direction would be in the hands of the board of directors appointed from the two countries. The third party should be appointed under a management contract linked to performance targets, in which case full commercial orientation, divorced from political or social interference, is necessary.

On this basis, perhaps what the management contractor will need is the goodwill of both Ethiopia (as a shareholder and major client) and Djibouti (as a shareholder) to facilitate efficient operations of the CDE, in effect providing an enabling environment for a semiautonomous railway. This is particularly in regard to the implementation of policies as stated, thereby making CDE more efficient and self-financing. Both governments also should ensure aggressive marketing of the railway and that cargo should be sourced purely on its commercial contribution and not other considerations. CDE should assume commercial responsibility for the goods under its care, in line with worldwide commercial principles, as one of its strategies to attract and retain customers. We therefore recommend that the two governments hold bilateral discussions to seek the appropriate ways and means to underwrite risks for goods carried by the CDE, as of the marketing strategy for the railway.

The CDE tariff also should be reviewed to make it more flexible and to provide for concessionary rates for regular customers or those with large cargo volumes. Finally, as the

situation permits, it is recommended that some of the railway activities be contracted out.

BERBERA CORRIDOR

The Berbera corridor is an important transit route in the region, currently serving Somaliland, Somalia, Ethiopia, and northeastern Kenya. The corridor, however, faces various constraints and weaknesses that affect the utilization.

Port of Berbera

The port of Berbera is characterized by operational problems. These include run-down conditions of facilities (berths and warehouses), a lack of cargo-handling equipment, and the poor condition of the few available, and lack of/poor availability of, spare parts. The port also suffers from poor communications facilities and lacks adequate navigational and piloting equipment, which leads to delays in vessel operations, especially berthing. The port also suffers from poor institutional framework and management. A majority of port employees, including some in key management positions, lack adequate formal and professional training. The shortage of adequate skills is reflected, for example, in the port tariff, which for simplicity in administration is nominated in physically verifiable units rather than by weight, volume, or value of cargo, which are the traditional methods. In this way, the port tariff is considered abstract and a cause for loss of potential revenue.

Finally, the available generators (of electricity) are old, and power often is rationed, which seriously affects operations in some port departments. In practice, work ceases once the power is cut.

Clearing and Forwarding

There are virtually no CFAs at Berbera; however, some ship agents provide clearing and forwarding services. Most consignees clear their cargo personally, but these are mainly small cargo consignments. The lack of proper clearing and

forwarding business operations at the port is a weakness, particularly for transit cargo. Thus, the port can be considered to lack the professional exposure needed to attract cargo.

Customs Services

The provision of customs services is characterized by a lack of infrastructural facilities, equipment, and adequately trained staff. This leads to time-consuming documentation and movement from the main customs office and other port departments. Similarly, customs facilities along the route are lacking. This implies that customs inspections are carried out at police road blocks, which are discretionary and time-consuming.

Roads

A visual survey of the paved road from Berbera to Hargeiza, which is the focus of the corridor, shows that overall road pavement structure is generally in an acceptable condition, with the exception of a stretch of approximately 15 km commencing 12.5 km from Berbera, where the pavement is badly potholed. This section has deteriorated largely due to lack of maintenance.

The road network is currently managed by an engineering division of the Ministry of Public Works at Hargeiza. This body lacks any funding for carrying out capital works, and at present the only maintenance of the network consists of filling potholes using recycled bitumen from earlier projects and labor financed under a “food for work” program. The authority lacks any resources to carry out repairs to damaged structures.

Somaliland also suffers from a lack of private-sector firms that have the adequate capacity for road rehabilitation and maintenance; however, a number of professional local contractors are available to carry out simple work. Although 37 contractors are registered, many of them do not have the required plant and equipment, many claiming capability to import. Skilled and unskilled labor, however, are locally

available, and material for construction can be imported easily once demand is there.

Beyond Wajale, on the Ethiopia/Somalia border, the road route encompasses the currently unclassified Togochale-Jijiga section (154 km), which, despite being in poor condition, is not featured in the current Road Sector Development Program (1997–2007). However, the Harar-Jijiga section (102 km), which currently is categorized as gravel, has been proposed for upgrading to an asphalt surface dressing, under the ongoing upgrading of trunk roads project in Ethiopia, at a cost of EBirr 102,751 million, but no finances have been secured yet. It is noted that even though the Harar-Jijiga section has a high ADT volume (316) it has a low (10.54 percent) Economic Internal Rate of Return (EIRR) when compared to, for example, the Dire Dawa-Dewenle section, which has a rate of 17.75 percent with a net present value of (NPV) of Birr 93.834 million. This means that the Berbera-Addis Ababa corridor clearly is not considered to be a serious alternative to the facilities available from Jijiga via Dire Dawa to the port of Djibouti.

Road Transport

As already noted, the section of the Berbera-Dire Dawa road route beyond Wajale, the border point between Somalia and Ethiopia, would appear to compete with the Djibouti-Dire Dawa corridor. However, its potential for competition is dampened by the relative ease of availability of different transport modes (road and railway) connecting Dire Dawa and Djibouti. Indeed, over the years, the Dire Dawa-Djibouti corridor has accounted for a significantly larger volume of exports and imports to Ethiopia than the Berbera-Dire Dawa corridor. Furthermore, available information indicates that the Berbera corridor is serviced by fairly old trucks, characterized by very low replacement, which is attributed to a lack of credit facilities due to the war situation that has characterized the region over the last few years. It also should be noted that while the Djibouti-Dire Dawa corridor currently constitutes a connecting corridor to Addis Ababa, the

Berbera-Dire Dawa does not. In practice, the bulk of the cargo from the port of Berbera into Ethiopia is destined to the southern Ogaden region in Harerge province.

In addition the corridor lacks a transport service industry per se, because the existing trucks are owned mostly by individuals and merchants as a means of facilitating their own businesses. As a result, they suffer from a lack of operational and managerial skills to effectively provide a proper transport service sector. It is a consideration of this study that the potential of the Berbera-Dire Dawa corridor to serve the Ogaden region exists only insofar as the Wajale/Togochale-Jijiga section (154 km) is improved and, more importantly, if the port of Berbera were to provide facilities, services, and costs comparable to those of the port of Djibouti.

Recommendations

The Port

Against a background of deteriorating and poor-condition infrastructure, the UNDP and UNCTAD already have initiated a high-priority, labor-intensive civil works program at Berbera under the Port Rehabilitation Program Works, which is funded by the EU. The project, divided into four contracts, will cover the repair of the Russian Wharf (400 meters), construction of a gate house, and repairs to the workshop and ancillary buildings. It also will cover the refurbishment of the port administration building, construction of a new port access road, and refurbishment of Berth No. 4 and repairs to transit sheds (warehouses).

In addition, an institutional building program has been initiated at the port by UNDP focusing on human resource development and management training. This aims to improve efficiency, and some port staff already have been trained in the areas of mechanical engineering, operational safety, and cargo handling.

Notwithstanding the rehabilitation of physical infrastructure, there is an urgent need to pay special attention to cargo-handling equipment.

The UNCTAD/UNDP Training Centre (Engineering) has provided basic maintenance courses to port staff and other apprentices. This has helped in the rehabilitation and maintenance of some equipment. However, the port is still in need of cargo-handling equipment. The current practice of discharging cargo manually is slowing down ships' turnaround time. Equipment, such as slings, cranes, and forklifts, should be procured to enhance cargo handling. In light of the maritime trend toward containerized cargo, the port also needs a container terminal and container-handling equipment in order to attract more cargo.

The supply of electricity to the port is another area of urgent priority. Current power generation is acknowledged to be inadequate. We further recommend:

- The improvement of navigational and piloting facilities at the port to enable enhanced berthing safety and navigational efficiency of the increasing number of large and modern vessels to the port, compared to the hitherto dominance of dhows.
- The improvement of telecommunication facilities at the port and with the outside world. While the EU-funded UNCTAD/UNDP program will provide for internal communications through the installation of (PABX), fax/phone connections with the hinterland and with Ethiopia should be provided. This would enhance port operations, such as the notification and clearance of cargo.
- Training the port management staff — both formally and professionally — to enable them to acquire not only the technical skills but also the commercial principles necessary for improving the port's efficiency. Since the port lacks a training facility, staff should in the short term be sponsored for training in the available regional port colleges — Mombasa or Dar-es-Salaam. In addition, formal training such as in language — English — should be considered to enhance

the operations of the port. Currently, some key port staff do not know an international language, and some ship captains have expressed concern about the difficulty of interpersonal communication.

- Finally, in order to maximize revenue, the port should review its tariff. The current port tariff is considered contrary to international practices. A new tariff should be prepared that determines port dues on the basis of the accepted conditions, such as cargo value, weight, or volume. Similarly, the tariff should be related to the quality of services at the port to make it competitive. The revenue from the revised tariff could provide much-needed funds for financing some of the above requirements.

Clearing and Forwarding

The opportunities that exist for professional clearing and forwarding services at the port of Berbera and along the corridor to Ethiopia will depend on the extent to which the port will commercialize its operations. Unfortunately, a large proportion of exports and imports are still handled by merchants.

It is acknowledged that a well-functioning and coordinated clearing and forwarding industry not only will help to achieve efficiency at the port but also will promote the port by marketing it to prospective customers. The extent to which this will be achieved will depend on affiliations with other CFAs in Djibouti and Ethiopia.

Customs Services

Like other departments of the port, customs offices should have adequate operational facilities — computers and telecommunication connections, such as phone/fax. Training also is necessary not only in the aspect of operations but also in a proper international language of communication. Customs facilities en-route also should be considered. Inspection stations should have proper buildings and parking areas, unlike the current police road block system.

Roads

The lack of maintenance and deliberate damage of roads has affected the roads serving Berbera port. The EU, however, has already commissioned a consultant to examine the road infrastructure with a view toward formulating rehabilitation projects that can be undertaken. Currently, the EU Somalia Unit is planning to undertake the funding of Labor-Intensive Rehabilitation Works and capacity building of the local authorities concerned with road maintenance. Already a comprehensive reconnaissance survey of the Dira-Hargeiza-Berber-Burao and Ainabo sections of the road have been carried out. It is estimated that the construction of the project will cost about US\$3 million.

The appropriate institutional set up to take responsibility for the roads is another target area. Notwithstanding, in order that the roads do not suffer premature deterioration, it is recommended that axle-load controls be strictly enforced. Weighbridges should be installed along the main transit sections to Burao and Hargeiza and at the port. To this end, it is acknowledged that additional donor support will be required.

In Ethiopia, the government may consider undertaking an evaluation of the potential traffic distribution (flows) between the Harar-Jijiga region and the ports of Djibouti and Berbera. While acknowledging the fact that the volume of commercial cargo moved along the Berbera corridor, and particularly destined to Addis Ababa, is limited, we consider that much of the central and southwestern parts of the Harerge province in Ethiopia would gain substantially in terms of transit security if the road route to Berbera were improved. Some parts of the province are considered to be too far from the ports of Assab and Djibouti, as to require an alternative outlet to the sea, albeit for transit security reasons.

Road Transport

The low fleet replacement and lack of operational and management skills among operators are

factors that should be considered. In the absence of a banking system, the difficulty of fleet replacement becomes more complex, since loan facilities are not available. While the trucking capacity currently is adequate, the lack of replacement and the expected rise in cargo throughput at the port could present a major constraint. In the face of massive unemployment in the country, a donation of trucks to an association of the locals could help to sustain the capacity, improve efficiency, and provide employment.

Operational and management training should also be provided through seminars and workshops. This could involve the sensitization of the modern principle of management to streamline the trucking industry as a component of the corridor. Such skills therefore would not only help the cost-effectiveness of operations but also the competitiveness of the corridor.

MOMBASA PORT CORRIDOR

The port of Mombasa is by far the most important gateway serving East and Central Africa. Due to the on-going civil war in southern Sudan, the port of Mombasa is also a major routeway for imports, particularly relief cargo destined to the region. To some extent, the port of Mombasa has the potential to serve the southern provinces of Ethiopia via Moyale. In the past, the port was characterized by numerous operational and management problems that prompted the government of Kenya and donors to initiate steps aimed at enhancing its productivity. In the recent past, Mombasa port has undergone tremendous development, involving among other things the commercialization of its management and operations and the privatization of some of its activities, including the management of the container terminal and equipment maintenance, among others. Its management also has been overhauled, creating room for the appointment of professionals on a contractual basis. To improve the working interface with other players in the chain, a memorandum of understanding has been

established, particularly with the Kenya Railways, for the movement of cargo, coupled with a deliberate effort to ease port regulations and requirements, including the simplification of tariffs. As such, with the initiatives and programs that have been put in place, coupled with the risk of losing out to Dar-es-Salaam, the operations and productivity of the port of Mombasa is understood to have greatly improved.

It can be argued that the main constraints and weaknesses along the Mombasa corridor are currently not directly linked to the port but emanates from road transport. This largely affects the routes from the primary destinations to the inland destinations in southern Sudan, which are characterized by the poor condition of the roads and insecurity. Thus, the high transport rates demanded by transporters who 'risk' going to the region reflect these aspects. For example, as already indicated in the literature, the war situation along the Uganda/Congo (formerly Zaire)/Sudan borders have cut off direct linkages between the three countries, with the air connection via Lokichokio being the only current access route to southern Sudan. The only connection through Congo has roads in poor condition that require specialized transport. In addition, transporters were subject to numerous and largely unofficial transit demands along the routes that could reach up to US\$750, depending on the number of military checkpoints. The road conditions inside southern Sudan also are extremely poor, which greatly impedes movement, especially during the rainy seasons, thereby extending transit times. Similarly, a combination of poor roads and insecurity restricts the use of road transport from Lokichokio to inland destinations, thus necessitating the use of expensive airdrops.

It is acknowledged that the war in southern Sudan has adversely affected the development of the local trucking industry. This has been exacerbated by the lack of commercial cargo to southern Sudan. Transport business is dominated by relief cargo. Currently, the region is served by transport firms of neighboring countries, mostly Uganda and Kenya. Terra Firma is the only locally based trucking firm, and it recently

diversified from a purely road construction-based company.

In the last two or three years, major donors, who are increasingly concerned with the high costs of transport, especially by air, to southern Sudan, have initiated a rehabilitation program of roads. So far, around 500 km have been covered, under the sponsorship of USAID, which has led to substantial reductions of transport rates along such roads as compared to the unimproved ones.

The Mombasa corridor also is characterized by poor enforcement of axle-load limits, which has accelerated the pace of destruction of paved trunk roads through overloading. This is common to both Kenya and Uganda, while it is understood to be increasingly experienced in routes inside southern Sudan, where bridges and roads require trucks of no more than 10 MT but trucks carrying 15 to 30 MT are said to be on the increase. On the other hand, the potential for the Mombasa port to effectively serve southern Ethiopia provinces is believed to be curtailed by three factors: (a) poor road conditions, particularly the section between Isiolo and Moyale, which is under gravel, coupled with the steep gradient of the roads in Ethiopia that necessitates that trucks carry loads under capacity; (b) insecurity along the route; and (c) tedious and time-consuming Ethiopian customs procedures at the Moyale border point, which requires offloading trucks for inspection of goods before clearance to enter Ethiopia.

Recommendations

It should be clearly understood that any attempt to address the constraints and weaknesses currently characterizing the Mombasa corridor, and particularly road routes to and inside southern Sudan, must be cognisant of the civil war in the country and the general insecurity along the other routes comprising the corridor. It is a consideration of this study that restoration of peace and security along the routes and the regions served by the corridor is the first step in solving road transport problems. This also will accelerate regional cooperation, trade and food,

security.

The restoration of security also will provide for a suitable environment for developing and rehabilitating roads, improving agricultural production and increasing investments in all sectors in general. This will provide an impetus for the development of local trucking capacity. Every effort and strategy therefore should be made to achieve a lasting solution to the deteriorating security situation along the corridor.

Conclusions

Notwithstanding any initiative to achieve lasting peace and security in southern Sudan, it is imperative that some interim action be taken to address the difficulties in transportation. To this end it is recommended that an association of all transporters serving southern Sudan be formed. It is acknowledged that some attempts are being made to form a transporters consortium serving southern Sudan. However, some misgivings have been expressed about allegations of sidelining some of the firms currently serving the corridor. We recommend that the transporters' consortium be formed out of mutual consensus and involvement of all parties in the transportation business. In addition, it should have clear terms of reference, with the objective of collective bargaining and not instituting a monopoly. The TOR should inter alia consider

- official determination of applicable baseline transit charges;
- harmonization and reduction of current transit charges, which are admittedly too many and too high;
- enhanced security for transporters;
- improvement of road conditions;
- regulation of truckers' operations — for instance, checks on overloading;

Kenya and Ethiopia have a great potential for improving trade and food security, but, as already noted, this is limited by the poor road condition linking the two countries, as well as insecurity. The design for the 136-km section from Isiolo to Merille River already has been prepared. The

feasibility study for the whole road (510 km) has been undertaken and funded by the EC at US\$130,000. Funding for implementation, however, is still not obtained, and, due to the regional significance of this route, a regional approach in soliciting donor support is recommended. In addition, the customs procedures should be simplified to cut down on the time and money expended. Similarly, security, particularly in northern Kenya, should be enhanced.

SUMMARY OF RECOMMENDATIONS

In this final section of the report, we summarize our recommendations covering ports, clearing and forwarding issues, customs, services, and the various modes of transport in the subregion, by country.

Eritrea

Ports

- Improve physical facilities
- Improve berthing facilities and aids
- Initiate preventive maintenance programs for equipment
- Contract out equipment maintenance
- Procure additional cargo-handling equipment
- Revise port tariff
- Initiate staff training program
- Fully commercialize ports operations
- Improve communication facilities

Clearing and Forwarding

- Fully liberalize shipping agency business
- Liberalize transit cargo forwarding
- Initiate a training program

Railways

- Establish viability of the railway
- Reorient railway to serve potential regional markets — Ethiopia and Sudan

Roads

- Reorient roads to provide regional linkages
- Establish road maintenance fund
- Enforce axle-limit controls

Road Transport

- Restructure ERRA to coordinate relief
- Seek wider regional markets
- Apply COMESA regulations and agreements

Customs

- Reduce customs bond to 100 percent of assessed tax value

Ethiopia/Djibouti

Ports

- Procure cargo-handling equipment — mobile cranes
- Promote the port through bilateral agreements
- Make port autonomous
- Improve communications with hinterland

Clearing and Forwarding

- Promote local clearing and forwarding capacity at Djibouti
- Liberalize ERSTAS monopoly arrangements with MTSE

Railways

- Make CDE semi-autonomous
- Appoint management contractor
- Set performance targets
- Revise tariffs
- Privatize noncore railway operations
- CDE should accept commercial responsibility for goods it carries

Roads

- Improve road route via Dewenle
- Undertake joint regional projects
- Establish technical committee to review regional projects

Road Transport

- Support the full implementation of recent bilateral agreements on road transport from the port of Djibouti.
- Apply COMESA regulations and agreements on transit traffic

Customs

- Reduce bond to 100 percent of assessed tax
- Ensure 24-hour operation
- Improve working facilities
- Synchronize verifications

Somaliland

Ports

- Procure cargo-handling equipment
- Provide adequate power supply
- Initiate a training program
- Improve berthing and navigational facilities
- Review the tariff
- Improve communication facilities
- Construct a container terminal

Clearing and Forwarding

- Promote the establishment of CFAs

Roads

- Initiate a road maintenance program
- Enforce axle-load limits
- Establish road funding scheme

Road Transport

- Provide management and operations training
- Form truckers' associations

Customs

- Initiate training program
- Improve working conditions
- Provide adequate facilities

Southern Sudan

Security

- Restore peace and security along routes

Road Transport

- Enforce axle-load limits
- Form a transporters' consortium

Appendix I

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Appendix II

List of People Interviewed

ERITREA

1. Dr. Georgis Tesfamichael
Minister for Transport
2. Asafa Abraha
Minister for Construction
3. S Aferworki
Head, Planning and Programmes
Ministry of Transport
4. Enrico Strampelli
Second Secretary for Technical Affairs
Delegation of the European Union to Eritrea
5. Said Ibrahim
Director
Eritrean Relief and Refugee Agency (ERRA)
6. John Prout
Project Officer
United Nations World Food Programme
Asmara
7. Asghedom Russom Hadera
Transport Manager
Eritrean Relief and Refugee Agency (ERRA)
Addis Ababa
8. Mengsteab Teclezion
General Manager
Eritrea Truck Owners' Association (ERRITRUCKO)
Asmara
9. Paulos Kahsay Teklu
Director
Eritrean Civil Aviation Authority
Asmara
10. Stifanos Habte
Acting Head
Land Transport Department, Eritrea
Asmara
11. Mokonnen Habtezion
Director
General Department of Maritime Transport, Eritrea
Massawa
12. Ato Zewengel Skum
Head of Statistics
Massawa Port
13. Ato Berhane Weldehaimanot
Manager
Eritrean Shipping and Transit Agency Services (ERSTAS)
Asmara
14. Ato Chialla
Custom's Director Administration
Massawa Port
15. Ato Tekhlemariam Hagos
Chairman
Association of Transitors
16. Ato Tsegai Haile
Road Transport Supervisor at Zalambesa
Eritrean/Ethiopian Border
17. Ato Habtemicael W/micael
Customs Officer at Senafe Border
Eritrean/Ethiopian Border
18. Ato Estifanos Tecele
Chief Accountant of Customs Office, Zalambesa
Eritrean/Ethiopian Border

19. W/or Kiros Ayale
Storekeeper at Zalambesa
Eritrean/Ethiopian Border
20. Ghebrewahid Ghebremariam
Road Transport Authority, Zalambesa
Eritrean/Ethiopian Border
21. W/ro Mentsegeba Ghebretinsae
Inland Revenue Clerk at Zalambesa
22. Ato Yohannes
Eritrean Civil Aviation Authority
Asmara
23. Ato Debesai Haile
Road Transport Authority, Asmara
24. Ato Tsegai Gissope
Road Construction Authority
25. Ato Kifle
Railway expert (pensioned but working on
a contractual basis in the ERRA Transport)
26. Ato Ghebreab Weldeab
Consignee
Massawa Port
27. Ato Akale Teklai
Driver
Asmara-Gonder Route
28. Ato Ghirmai Berhane
Branch Manager
Eritrean Truck Owners at Tessenei
29. Ato Tewelde T/mariam
Branch Manager
Eritrean Truck Owners at Assab
30. Ato Mehari Embaye
Branch Manager
Eritrean Truck Owners at Massawa

DJIBOUTI

31. Mohammed Ali Ismael
Conseiller Technique
**Ministere des Transports et des
Telecommunications**
Republique de Djibouti
32. Jean Pierre Courtois
Secretaire General
**la Chambre internationale de com merce et
d'industrie de Djibouti**
33. Mohammed Said Omar Head
Administration Unit
**Intergovernmental Authority on
Development**
34. Aboubaker Omar Hadi
Chef De Service Exploitation (Operations
Manager)
Port Autonome International de Djibouti
35. Haid Mohammed
Station Master, Djibouti
Chemin De Fer Djibouti-Ethiopien
36. Ahmed Douale
Commercial Manager
Chemin De Fer Djibouti-Ethiopien
37. M L Celestin
Manager (administration and Finance)
**Compagnie Maritime et de Manutention
de Djibouti**
38. Aden Ahmed Douale
Directeur
Port Autonome International de Djibouti
39. Haroun Block Abdou
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Port Autonome International de Djibouti
40. Ali A Hettam
Managing Director
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Interim Team Leader
GTZ/IGAD Support Project

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2nd UN Decade on Transport in Africa

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Ports Manager
Berbera Port, Somaliland

58. Eng. Mohammed Ahemed Francis
Maintenance Engineer
Berbera Port, Somaliland

59. Noor Abdi Ali
Customs Manager
Berbera Port, Somaliland

60. Juma Nur Abymn
Deputy Operations Manager
Berbera Port, Somaliland

61. Adar Bile Atiya
Operations Officer
Berbera Port, Somaliland

62. Saeed Farah Mohamoud
Manifest Officer
Berbera Port, Somaliland

63. Hassan Abdulahi
Traffic and Claims Manager
Berbera Port, Somaliland

64. Mohamed Hassan Ali
Transporter
Somaliland

65. Musa Hersi
Truck Driver
Somaliland

66. Ali Barud
Truck Driver
Somaliland

KENYA

67. David Gilmour
Deputy Director
CARE-Southern Sudan

68. Graham Wood
Manager
Relief and Agriculture Programme
Norwegian Peoples Aid (NPA)
Nairobi

69. David Lisamulah
Commodity Trucking Officer
Norwegian Peoples Aid (NPA)
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70. H Sidi
Managing Director
Intereact, Nairobi
Nairobi

71. Mr Purshortam Bharmila
Manager
Intereact-Uganda

72. S K Macharia
Managing Director
Saki Holdings Ltd
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73. Andy Roberts. Managing Director/Partner
Terra Firma (road construction company
based in Southern Sudan)
Nairobi

74. Musa Saidi
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TANAD Transporters
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81. Yigezu Tamrat
Department Head
CRS Logistics
82. Ayenew Bitewelign
Vice Minister
Ministry of Transport and Communications
Addis Ababa
Mulpoc Gisenyi
83. M Belayne
General Manager
Ethiopian Civil Aviation Authority
Addis Ababa
84. Mr Georgis
General Manger
Djibouti-Ethiopian Railways
Addis Ababa
85. Solomon Eshetu
Chef Service Etudes & Recherches
Chemin de fer Djibouto-Ethiopien
Addis Ababa
86. Gashawbeza Teferra
Marketing Manager
Maritime & Transit Services Enterprise
Addis Ababa
87. Hapto Kebede
Managing Director
Railways Customs Branch Office
Addis Ababa
88. Belai Tewelde
Managing Director
Red Sea Marine & Trading Company
Addis Ababa
89. Tesfaye Kidane
Supply & Equipment Div. Manager
Ethiopian Road Transport Authority
Addis Ababa
90. S Hapte Mariam
Red Sea Marine & Trading Company
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Head
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Operations Division
COMET Transport Company
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94. Kebede Desalegne
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96. Assefa Aboye
Head of Transit
Packing & Forwarding Department
Trans Africa Transport Co.
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97. Betru Admassie
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Trans Africa Transport Co.
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99. Herbie Smith
Food and Humanitarian Assistant Officer
USAID/Ethiopia
Addis Ababa
100. Tesfai Teclehaimanot
Driver
Asmara-Addis Ababa Road near Dekemhare
101. Solomon Sahle
General Manager
Alpha Truckers' Association
Addis Ababa
102. Bouh Houssein Oumar
Directeur General
Chemin de fer Djibouti-Ethiopien
Addis Ababa
103. Hirpa Kabeta
Head
Transport Coordination Division
Disaster Prevention and Preparedness Commission (DPPC)
Addis Ababa

Appendix III
Samples of Specific Documents

A. BILL OF LADING

B. SUPPLIERS INVOICE

C. PACKING LIST

**D. NOTIFICATION FORM AND CLEARING AND FORWARDING
INSTRUCTIONS
(ERITREA)**

**E. TRANSIT DECLARATIONS
(ETHIOPIA AND ERITREA)**

**F. CARGO MANIFEST — IMPORTS
(SOMALILAND)**

**G. ENTRY FOR GOODS LIABLE FOR IMPORT DUTY — FORM C1
(SOMALILAND)**

**H. CUSTOMS EXPORT ENTRY FORM
(SOMALILAND)**

**I. EXPORT (OUTWARD) (CARGO MANIFEST)
(SOMALILAND)**

Appendix IV
Road Freight Costing Model (Ethiopia)

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Office of Sustainable Development Bureau for Africa U.S. Agency for International Development

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- *61/ *Comparative Costs of Transport: The Northern Tier Countries of the Greater Horn of Africa: Executive Summary*

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Office of Sustainable Development
Productive Sector Growth and Environment Division
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