Logistics Cost Study of Transport Corridors in Central and West Africa

Final Report

SUBMITTED TO
Anca Dumitrescu
Senior Transport Specialist
Africa Transport Unit
World Bank

SUBMITTED BY
Nathan Associates Inc.
2101 Wilson Boulevard
Suite 1200
Arlington, Virginia, USA

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NATHAN
ASSOCIATES INC.

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Acronyms

AEO	Authorized economic operator
AGEROUTE	Agence de Gestion des Routes
ALC	Abidjan-Lagos Corridor
ALCO	Abidjan-Lagos Corridor Organization
ALISA	ECOWAS Customs Computer Interconnectivity Program
ALTTFP	Abidjan-Lagos Trade and Transport Facilitation Project
APCP	Pan-African Association for Port Cooperation
ASYCUDA/SYDONIA	Automated System for Customs Data
ATP	USAID's Agribusiness and Trade Promotion Project
AR-FER	Authorité Routiere–Fond d'Entretien Routier
AUC	African Union currency
BAC	Bon à charger
BAD	Bon à délivrer
BARC	National Freight Management Bureau in CAR
BFU EMIS	Bordereau de Fichier Unique
BL (B/L)	Bill of lading
BSC	Bordereau de Suivi de Cargaison
CAJAF-COMON	Comptoir AJAVON et Fils-Comptoir Mondial de Négoce
CAFER	Caisse Autonome de Financement de l'Entretien Routier
CAR	Central Africa Republic
CBM	Conventional Buoy Mooring
CCD	City Container Depot
CCIA BF	Chambre de Commerce d'Industrie et d'Artisanat du Burkina Faso
CFS	Container Freight Station
CEMAC	Economic and Monetary Community of Central Africa
CET	Common External Tariff
CIF	Cost, Insurance and Freight

COMESA	Common Market for Eastern and Southern Africa
DO	Delivery Order
ECOWAS	Economic Community of West African States
ETLS	ECOWAS Trade Liberalization Scheme
EU	European Union
FCFA	Franc Communauté Financière Africaine
FEDERMAR	Fédération Maritime de Côte d'Ivoire
FGR	Customs Guarantee Bond (Translated)
FOB	Free on Board
FTZ	Free trade zone
GCMS	Ghana Customs Management System
GDP	Gross domestic product
GIE	Groupement d'interêt économique
GPS	Global Positioning System
GTC	Groupement des Transporteurs Centrafricains
GTZ	German Organization for Technical Cooperation
GUCE	Guichet Unique du Commerce Extérieur
ICD	Inland Container Depot
ICT	Information and Communication Technologies
IDA	International Development Association
IRTG	Improved Road Transport Governance Initiative
ISPS	Ship and Port Facility Security
ISRT/TRIE	Inter-State Road Transit/Transit Routier Inter Etats
FER	Fonds d'Entretien Routier (Road Maintenance Fund)
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IAPH	International Association of Ports
IRTG	Improved Road Transport Governance Initiative
ISPS	International Ship & Port Facility Code
Km/h	kilometer per hour
MAQ	Mise à Quai
MAN	Manufacturers Association of Nigeria
MCA	Millennium Challenge Account
N/A	not applicable
NARTO	Nigerian Association of Road Transport Owner
NCS	Nigeria Customs Service
NGO	Non-Governmental Organization

OCBN	Benin–Niger Common Railway Organization
OIC	Office Ivoirien de Chargeurs
PMAWCA	Port Management Association for West and Central Africa
PFCTAL	Project de Facilitation du Commerce et du Transport sur le Corridor Abidjan-Lagos
PSI/DI	Pre Shipment Inspection / Destination Inspection
REC	Regional Economic Community
ro-ro	Roll-on/roll-off
SBC	Société Benin Control
SBM	Single Buoy Mooring
SEGUB	Société d'Exploitation du Guichet Unique du Bénin
SETO	Société d'Exploitation du Terminal de Ouagadougou
SITARAIL	Société Internationale de Transport Africain par Rail
SMN	Société de Manutention de Ngaoundéré
SMT	Société de Manutention du Tchad
SOBEMAP	Société Béninoise des Manutentions Portuaires
SONATT	Société Nationale des Transports Terrestres
SSATP	Sub-Saharan Africa Transport Policy Program
STTB	Solutions Technologiques pour le Transport au Bénin
T B/L	Through Bill of Lading
TEU	20-foot equivalent unit
TIF	Transit International Ferroviaire
THC	Terminal Handling Charges
TLC	Total logistics costs
Ton	(= metric ton = 1,000 kilogram)
TRCB	Terminaux Routiers à Conteneurs du Burkina Faso
UEMOA	l'Union Economique et Monetaire Ouest Africaine
UN COMTRADE	United Nations Commodity Trade Statistics
VAT	Value Added Tax
WAEMU	West African Economic and Monetary Union
WATH	West Africa Trade Hub

Executive Summary

Over the past two decades, transport corridors have gained particular attention with increased efforts toward regional integration in Africa and elsewhere. African Union programs such as NEPAD and those implemented by the Regional Economic Communities (RECs) all place priority on enhancing interconnectivity and facilitating trade by focusing on transport corridors as microcosms of integration and spatial development on the continent.

In West and Central Africa, trade potential is hampered by inefficiencies of several types, including port congestion, lengthy cargo processing delays, and poor performance of land transit systems. Adverse conditions stem from transportation services, business practices, transport and customs procedures, governance, and infrastructure.

With the overall objective of enabling regional economic communities and individual countries to formulate policies that result in reduction of transaction costs along the main West and Central African corridors, this study makes use of a newly created microeconomic approach first developed by Arvis et al. (2007) for landlocked developing countries and previously applied in Eastern Africa. According to this microeconomic approach, the total logistics costs paid by the shipper/consignee in a landlocked country are the sum of two components: (i) financial costs of logistics services which include gateway costs paid directly or indirectly through freight forwarders, clearing agents and/or shipping agents by landlocked shippers at the port; inland transport costs paid to truckers or rail operators for actual transit transportation; and inland processing costs incurred when crossing the borders and at final destination; and (ii) economic impact of delays and uncertainties (hidden costs), ***including transit inventory capital cost (related to transit time) and costs incurred as part of hedging against unreliability.*** The designed methodology was applied to five gateway corridors in West and Central Africa with new field data. [1.]

This study also analyzes the Abidjan-Lagos Corridor (ALC) which links five coastal countries in West Africa and serves a different purpose than the gateway corridors. Since the ALC has a more complicated role in the logistics system than the other corridors, it has been analyzed differently.

[1] The five gateway corridors are Abidjan (Côte d'Ivoire)-Bamako (Mali), Abidjan-Ouagadougou (Burkina Faso), Cotonou (Benin)-Niamey (Niger), Douala (Cameroon)–Bangui (Central African Republic) and Douala–Ndjamena (Chad).

The period of study began in January 2012 and ended in March 2013. Surveys and data collection along the six corridors took place from March to October 2012. For the Cotonou-Niamey Corridor, data collection began in December 2011 under a previous study conducted by Nathan Associates

Total Logistics Costs

The assessment of those total logistics cost components is based on extensive interviews with the main actors and operators in each corridor and a selection of four case studies for each corridor, based on the most common and frequently transported product types along both the West and Central Africa corridors. Different type of cargo transport conditions, including containerized cargo in 20-ft and 40-ft containers (stripped at the port or not) and bulk cargo were represented.

The results of the field data analysis for the West and Central African corridors are given below and illustrated in Tables ES-1 and ES-2. The main conclusions from the analysis of logistics costs by sub-region are outlined below.

WEST AFRICAN GATEWAY CORRIDORS

Trade flows in West Africa are unique in that they are carried on a network of eight corridors linking ports in seven coastal countries (Senegal, Guinea, Côte d'Ivoire, Ghana, Togo, Benin and Nigeria) to the landlocked countries of Mali, Burkina Faso and Niger. A limited but significant portion of the 6.5 million tons of transit traffic in West African corridors can shift from one port to the next depending on conditions in each coastal country and the state of the logistics system in each country[2]

Table ES-1 below presents the following conclusions about the total logistics costs and their components per ton for two case studies for three West Africa gateway corridors:

- Financial costs are the largest component (79 to 88 percent) except in one case (Cotonou) where the hidden costs amount to 43 percent.
- The inland transport costs are the largest component of the financial costs, especially for road transport, and gateway costs follow.
- Transit inventory cost and hedging reliability cost weight in general the same proportion in both case studies along West African corridors
- Total logistics costs of high value products are almost double than for low value products.
- Total logistics costs for cargo transported by rail is less than by road in both case studies; however the financial/hidden costs distribution is the same.

[2] This was demonstrated for the case of civil conflict in Côte d'Ivoire which shifted 0.5 million tons of traffic from Abidjan to Tema, Dakar and Lomé)

- .In the Abidjan-Ouagadougou corridor, for high-value products, such as household appliances, hidden costs due to transit time and unreliability are close to 25 percent of total logistics costs. For relatively low-value products, such as and edible oil, hidden costs representing about 10 percent.
- In the Abidjan-Bamako corridor, for high-value products hidden costs are close to 20 percent of total logistics costs. For relatively low-value products, hidden costs representing about 10 percent.

Table ES-1

Comparison of Total Logistics Costs in West Africa Corridors for Selected Case Studies (US$/ton)

	Abidjan-Ouagadougou				Abidjan-Bamako		Cotonou-Niamey	
	Road		Rail		Road		Road	
	Case 1a	Case 1b	Case 1a	Case 1b	Case 1a	Case 1b	Case 1a	Case 1b
FINANCIAL COST								
Gateway	105.25	48.70	90.24	44.69	111.38	53.80	54.07	48.03
Inland transport	139.45	109.03	105.65	81.14	143.68	109.03	92.20	63.39
Inland processing	53.99	33.35	59.98	38.30	36.34	19.81	16.47	11.66
Total financial cost	298.70	191.07	255.87	164.13	291.41	182.63	162.74	123.08
HIDDEN COST								
Transit inventory	39.35	10.12	46.55	11.97	46.51	11.96	49.25	8.13
Hedging unreliability	31.16	8.01	46.95	12.07	31.18	8.02	74.97	12.37
Total hidden cost	70.52	18.13	93.49	24.04	77.69	19.98	124.22	20.50
LOGISTICS COST								
Total logistics cost	369.22	209.21	349.36	188.17	369.10	202.61	286.96	143.58

NOTE: Case 1a is for containerized household appliances goods with a value of US$70,000 per 40-ft container, carried by an efficient, formal sector transporter. Case 1b is for containerized edible oil with a value of US$ 30,000 per two 20-ft containers carried by a small formal transporter. US$1=FCFA493.

SOURCE: Nathan Associates' calculations.

CENTRAL AFRICAN GATEWAY CORRIDORS

The two Central African corridors examined in this report, Douala-Ndjamena and Douala-Bangui are longer than those in West Africa with lower trade volumes (1.1 million tons in 2011). These corridors operate independently, although they share a common link by rail or road from Douala to Yaoundé.

Table ES-2 below illustrates the following conclusions about the total logistics costs and their components per ton for two case studies along the Central African corridors. Although the logistics costs per ton are significantly higher for these corridors, the other conclusions are similar to those for the West African corridors.

- Financial costs are the largest component (71 to 89 percent) of total logistics costs
- The inland transport costs are the largest component of the financial costs, and gateway costs follow.
- Transit inventory cost and hedging reliability cost weight in general the same proportion in both case studies for road and rail-road options along West African corridors.
- Total logistics costs are higher for the road option than the rail-road option in both corridors.
- The distribution between financial and hidden costs varies widely across case studies in each corridor however it is very similar for same case studies across both corridors. Hidden costs vary between 10 percent and 29 percent.
- Financial and hidden costs are low for low value products (Case Study 1b) and higher for high value products (Case Study 1a).

Table ES-2

Comparison of Total Logistics Costs in Central Africa Corridors for Selected Case Studies (US$/ton)

	Douala-Ndjamena				Douala-Bangui			
	Road		Rail-Road		Road		Rail-Road	
	Case 1a	Case 1b	Case 1a	Case 1b	Case 1a	Case 1b	Case 1a	Case 1b
FINANCIAL COST								
Gateway	96.20	100.26	107.65	111.57	98.49	99.13	108.80	108.92
Inland transport	223.82	196.08	223.82	160.00	202.84	162.27	138.51	115.75
Inland processing	32.87	48.68	32.87	48.68	35.51	41.93	35.51	41.93
Total financial cost	352.90	345.02	364.34	320.25	336.84	303.33	282.82	266.60
HIDDEN COST								
Transit inventory	47.61	19.73	56.54	23.42	53.42	21.37	59.59	23.84
Hedging unreliability	49.00	20.30	51.98	21.53	51.78	20.71	55.89	22.36

	Douala-Ndjamena				Douala-Bangui			
	Road		Rail-Road		Road		Rail-Road	
	Case 1a	Case 1b	Case 1a	Case 1b	Case 1a	Case 1b	Case 1a	Case 1b
Total hidden cost	96.62	40.03	108.52	44.96	105.21	42.08	115.48	46.19
LOGISTICS COST								
Total logistics cost	449.52	385.05	472.86	365.21	442.04	345.42	398.30	312.79

NOTE: Case 1a is for containerized household appliances goods with a value of US$70,000 per 40-ft container, carried by an efficient, formal sector transporter. Case 1b is for containerized edible oil with a value of US$ 30,000 per two 20-ft containers carried by a small formal transporter. US$1=FCFA493.

SOURCE: Nathan Associates' calculations.

ABIDJAN-LAGOS COASTAL CORRIDOR

The coastal corridor from Abidjan to Lagos was studied more from a logistics system viewpoint than from a total logistics cost perspective, yet factors that contribute to high logistics costs were nevertheless identified as follows:

- Border crossing inefficiencies are a critical issue for this corridor. Border delays can be up to 4 days.
- Although this corridor is more developed logistically than most gateway corridors, there are many factors that have limited the growth of the logistics industries and limited cross-border transactions (e.g. lack of organization of customs clearance and freight forwarding among countries along the corridor, inefficient truck sizes transporting goods, size and structure of the demand, lack of productive integration and the proximity between productive centers that does not promote evolving towards added value logistics, etc.).
- Lack of through container services is a significant impediment to trade, especially in finished goods and intermediate goods for manufacturing. As for the transit corridors, this is related to insurance and container fees, and the lack of enforcement of axle load regulations which encourages the practice of stripping containers in order to load more per truck.
- Nigerian import restrictions appear to encourage major smuggling activities and create border crossing issues between Benin and Nigeria.
- In some cases when ports along the corridor become too inefficient a neighboring country port is used for some imports.

BENCHMARKING WITH NORTHERN CORRIDOR IN EAST AFRICA

A comparison was made between the study results and results from a study of the Mombasa-Kampala Corridor in East Africa (CPCS, 2010a and 2010b) using the same methodology.

Adjusting the East Africa study for comparison,[3] the inland transport cost percentage on the Mombasa-Kampala corridor (26 percent) is about half cost observed in West and Central Africa and the hidden costs percentage (49 percent) is approximately double, with the exception of the Case Study 1a in Cotonou-Niamey corridor which is within the same range (43 percent). These results reflect a more competitive trucking market and more active truckers in East Africa, with high congestion at the Mombasa and Cotonou ports.

OTHER BENCHMARK COMPARISONS WITH EASTERN AND SOUTHERN AFRICA

Additional benchmark analyses of corridor efficiency were carried out for port and border post performance in West and Central Africa compared with the best performance in Eastern and Southern Africa in terms of financial cost, time and reliability. This comparison showed that some ports (e.g. Tema and Abidjan) and some border posts (e.g. Lomé-Ouagadougou) are performing up to benchmark standards, but most are substantially less efficient and call for action.

Significant Inefficiencies

The factors causing inefficiencies and higher costs in the logistics systems in West and Central Africa are similar across the corridors. The major corridor inefficiencies are in order of importance in total logistics costs):

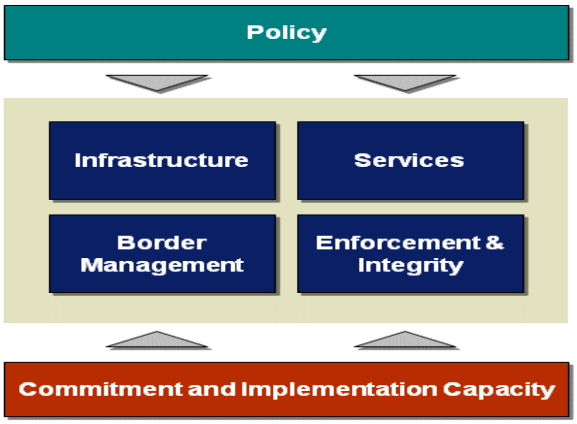
- Process of transit transport price determination without effective competition (all countries except Ghana)
- Organization of the road transport industry and inefficient fleets (all countries, except Ghana and Côte d'Ivoire)
- Port/customs bribery (related to delays and weak information systems- all ports except Abidjan)
- Port congestion and related delays in some ports (including the impact of container stripping in the port- all ports except Abidjan)
- Delays due to cargo allocation in some ports (e.g. Cotonou and Douala) and gateway processes (related to customs procedures and information systems-all ports except Abidjan and Tema)
- Excessive border crossing delays in most corridors
- Inland terminal delays and costs in some countries (e.g. Burkina Faso, Mali and CAR)
- Lack of logistics facilities and services on the Abidjan-Lagos corridor (e.g. logistics centers and coordinated procedures for border crossing)
- Information on corridor trade and performance are not developed enough to fully pinpoint inefficiencies

[3] By excluding sea freight charges which are not considered in the present study.

Recommended Policy Measures

Figure ES-1 shows a framework that can be used as a guide for identifying improvements in the transport and logistics industry. We applied this framework to identify potential improvements in policy related to inefficiencies in each West and Central African corridor. This framework notes the need to consider commitment and implementation capacity in prioritizing opportunities which are presented below.

Figure ES-1
Improvement Opportunities Framework



A matrix of action was developed in response to the challenges faced on the corridors covered by the study listing the factors that negatively impact the logistics chain, policy measures and the physical investments required to reduce their impacts and the main private and public stakeholders involved. This matrix is presented below (Table ES-3) and gives common recommended measures for each factor in the West and Central African corridors. Specific recommendations for individual sets of corridors can then be defined in consultation with the stakeholders on the basis of the general matrix. It should be noted that policy measures generally have much lower costs than physical investments and may have as much or larger impact on inefficiencies as physical investments and would therefore be more cost-effective.

Policies which promote better coordination of information between shippers, logistics service providers, customs, port operations managers and transporters (e.g. advance use of information to eliminate delays for all corridor bottlenecks) should be given high priority along with those that can reduce the number of the overall transit processing steps both in the ports and at the borders. This can be linked with better corridor efficiency monitoring to make the issues more visible.

Interaction of policies should also be considered in setting priorities so that policies that encourage more modern trucking fleets are linked to policies that deregulate the trucking industry and create conditions for more market-oriented trucking firms and more competition in freight pricing. Regional coordination is important for success.

Table ES-3

Cost-raising Factors and Recommended Actions and Policy Measures for West and Central African Corridors

Factor	Causes	Policy Measures	Physical Investments	Actors and Stakeholders
Inefficiencies in the Transit and Clearance processes	• Low costs for cargo storage at the port encouraging lengthy dwell times • Long free time granted for transit cargo, especially bulk cargo • Manual procedures causing delays and adding costs • Lack of professionalism for some clearing agents, unauthorized customs brokers and transport companies • Lack of information sharing between shipping lines / forwarder and receiver at destination • Unreliable Internet connections delaying clearance	• Ensure total automation of customs cargo releases for rail and road transit goods • Build single windows for ports where they don't exist already • Fully automate the Customs declaration process • Improve customs interconnection systems • Ensure that the regional guarantee bond system is in place and is respected by the other regional national guarantors • Develop logistics centers and harmonized border crossing procedures along the Abidjan-Lagos Corridor	• Enabling IT infrastructure	• Port authorities • Transport ministries • Shippers councils • Customs and other border management agencies • National guarantee funds
Inefficient logistics operations	• Incentives that encourage stripping of containers and overloading of trucks • Lack of organization of the truck traffic outside and within the port • Insufficient railway	• Change the incentive system to promote containerization to the hinterland and eliminate or reduce unjustifiable shipping line charges on containers • Review the way inland container terminals are operating to ensure a quicker rotation of trucks • Build regulated zone parking for trucks inside and outside the ports • Build storage facilities (ICD and CFS) outside the ports and move container stripping activities off-port • Engage railway	• Parking areas for trucks outside of the port • ICDs and CFS facilities at the port and at destination (preferably developed by private logistics service providers) • Purchase of additional equipment by rail operators	• Transport ministries • Shipping lines • Shippers councils • Railway companies • Logistics operators

Factor	Causes	Policy Measures	Physical Investments	Actors and Stakeholders
	equipment	company for wagon fleet expansion • Ensure higher performance of private stevedoring companies.		
Poor regulation of logistics services	• High port handling charges and shipping line charges • Lack of professionalism of freight forwarders and trucking companies	• Introduce regulations to professionalize trucking and freight forwarders' activities • Introduce more competition in container handling or establish a public regulatory authority to prevent monopolistic practices • Improve freight forwarders' professionalism and management capacity • Improve truckers' professionalism and management capacity by organizing training sessions for truckers and drivers (by transport associations and/or professional organizations)		• Port authorities • Ministries of Transport • Freight forwarding associations • Trucking companies associations
Trucking market structure	• "Black box" trucking freight rates of fixed costs and limited variable costs • Trade imbalance—imports greatly exceed exports, leading to scarcity of backload cargo • Seasonal demand—tariffs are influenced by season of export commodities (e.g., cotton and onions) • Quota systems inducing excessive market regulation, limiting competition and causing gateway delays • Lack of transparency in business practices • Difficulties for freight access for informal or small truck companies • Old, obsolete fleet operated by poorly qualified	• Liberalize the transport sector which will include all trade within the region (local and transit) and discuss the issue of cabotage • Regulate access to the profession of trucking operator • Create incentives for fleet renewal by increasing access to credit for small, informal transporters • Encourage financial institutions to offer favorable credit to transporters to invest in new	• Truck fleet • Road network expansion and maintenance	• Finance ministries • Trucking companies & associations • Financial institutions • Donors • Shippers councils • Truckers unions • Transport ministries

Factor	Causes	Policy Measures	Physical Investments	Actors and Stakeholders
	truckers • Low annual mileage per truck due to long wait times to obtain freight and for border crossing • Unfair competition from nonprofessional truckers operating old vehicles leading the entire industry to low freight rates that do not guarantee sufficient income for fleet renewal • Bad road infrastructure causing frequent vehicle breakdown and high vehicle operating costs	vehicles • Contribute to the reduction of vehicle operating costs though development and maintenance of infrastructure, and possibly reducing tax burdens on fuel/ lubricant and spare parts • Create freight exchanges based on supply and demand to remove unnecessary intermediaries and brokers		
Predatory practices and unclear governance	• Truck overloading increases load factors and reduces rates • Excessive checkpoints • Informal payments and corruption • Non-compliant operators	• Strictly enforce UEMOA axle load Decision N° 01 4/2005 • Enforce reduced number of checkpoints • Establish observatories on abnormal practices • Provide political commitment at the highest level to reduce corruption and checkpoints • Establish a proper Corridor management that has operational power to work on transport facilitation along the corridor • Strengthen National Facilitation Committees	• Put in place weight and axle load bridges in the port and along the corridor.	• RECs • Shippers councils • Transport ministries • Customs

SOURCE: Nathan Associates.

1.Introduction

Transport Corridors over the past two decades have placed particular attention on growing efforts for regional integration in Africa and elsewhere. African Union programs such as NEPAD and the programs developed by the Regional Economic Communities (RECs) all place priority on enhancing interconnectivity and facilitating trade by focusing on transport corridors as microcosms of integration and spatial development on the continent.

A number of transport cost and price studies for Sub-Saharan Africa have been carried out in recent years highlighting several characteristics, including:

- Transport prices in Africa that are higher than in most other parts of the developing world;
- Low road transport operator efficiency; and
- The large disconnect between transport prices and vehicle operating costs (particularly in West and Central Africa), which seems to be linked to market organization.

The analysis of the contributing factors for high transport costs in Africa draws from two complementary approaches developed by the World Bank:

- The study on transport costs and prices in Africa (Teravaninthorn and Raballand 2008), which analyzed the gaps between vehicle operating costs and market transport prices in the four main Sub-Saharan Africa regions, relating the apparent disconnect to market regulation practices;
- The study on transport costs for landlocked countries (Arvis et al 2007, 2010), which highlights the importance of uncertainties in the transit time as contributing factors for high transaction costs.

In Central and West Africa, there are several multi-country transport corridors characterized by the key role they play as critical economic links between countries and communities, and particularly so for the development of landlocked nations.

The Sub-Saharan Africa Transport Policy Program (SSATP) is creating the Corridor Facilitation Program to eliminate high-priority bottlenecks to trade and regional integration in Africa. Working with regional economic communities (RECs), the SSATP has identified

certain regions in West and Central Africa with particularly high logistics costs and prices that hold back development (as described below). These regions were the subject of analysis in this study.

A number of reports in recent years have noted that inefficient logistics and transport systems and high logistics costs in Central and West Africa have negative effects on trade and are hindering growth and poverty reduction in these regions (Arvis et al. 2007, 2010, 2011). Exports and growth in the agro-pastoral and mining sectors and the supply of capital and consumer goods depend on this transport/logistics system. Inefficiencies and high costs increase landlocked countries' isolation, drive up the prices of imports, and reduce the competitiveness of exports and businesses in West and Central African countries.

The factors leading to inefficiencies in the logistics system include ingrained, poor practices in port clearance and allocation of import and export cargo to transporters, inadequate trade facilitation programs, perverse incentives[4] that lead transporters to forego the modernization of the road transport sector, and inadequate government policies on trade and transport system management. Although the studies noted above have investigated some of these factors, the linkages of these factors with logistics costs and policies in these regions remain to be examined.

A recent study of the Northern Corridor in East Africa (CPCS 2009a, 2009b, 2010a, 2010b) showed that hidden costs make up 42 percent of total logistics costs and road freight transport costs account for 35 percent, with port fees and other charges associated with shipping lines representing the remaining 23 percent. This study was carried out using the comprehensive approach to calculating the economic costs of corridor and logistics system inefficiencies developed by Arvis et al. (2010).

Objectives and Scope

The overall objective of the present study is to "*enable regional economic communities and individual countries to formulate policies that result in reduction of transaction costs along the main West and Central African corridors*". The study is intended to offer policy makers and stakeholders a quantitative analysis of the economic costs of inefficiency in the transport/logistics system and a prioritized set of actions and implementation measures to substantially reduce these economic costs.

The study also has the following specific objectives:

- Determine the components of total logistics costs, including invisible costs, along the main West and Central African corridors;

[4] Example of perverse incentives: the fee storage days allowed by all ports encourage shippers clearing agents to not accelerate the preparation of the necessary transit documentation to clear their cargos but to use the ports as storage facilities as long as they benefit from the free storage period. Such practices increase unnecessarily the ports dwell times.

- Conduct a comparative assessment of logistics costs for different transport corridors in Africa and outside the continent; and
- Analyze linkages between different facilitation strategies and their possible impact on total logistics costs to guide policy dialogue.

The study was conducted from January 2012 to February 2013 and covers the following five gateway corridors and one coastal corridor:

- Abidjan to the capitals of the landlocked countries of Mali, Burkina Faso, and Niger
- Cotonou–Niamey (Niger) corridor
- Douala–Bangui (Central African Republic) and Douala–Ndjamena (Chad) corridors
- Coastal Abidjan–Lagos Corridor (ALC).

Trade data for these corridors were analyzed, and the study also reviewed recent corridor studies to complement the diagnostic on the remaining West African corridors at a lesser level of detail (Booz Allen Hamilton 2010; Nathan Associates 2010, 2012a, and 2012b; West Africa Trade Hub 2010 and 2011a).

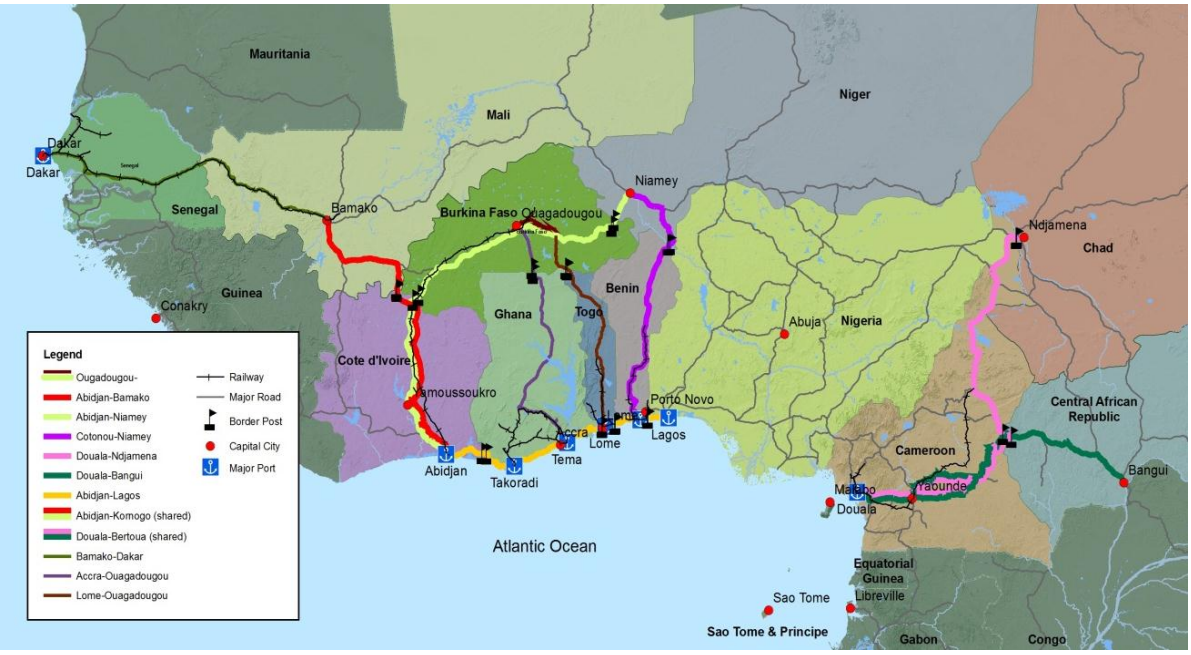
This study applies the comprehensive techniques from Arvis et al (2007) to identify hidden costs which have not been previously applied in corridor studies in West and Central Africa. The study presents an analysis of these hidden costs and their share of total logistics costs as an estimate of the economic costs of inefficiencies, leading to a list of priorities for action by the Corridor Facilitation Program.

GEOGRAPHIC SCOPE OF THE STUDY

The six transport corridors in West and Central Africa covered by this report are shown in the map in Figure 1-1. These corridors link six major ports with the capitals of five landlocked countries (Mali, Burkina Faso, Niger, Chad, and Central African Republic).

These corridors can be grouped into West African corridors and Central African corridors; the two groups have distinctly different roles, which are described below.

Figure 1-1
Map of West African and Central African Corridors



SOURCE: Nathan Associates.

West African Corridors

The West African corridors form a network more than 17,000 km long consisting of several transit corridors and a coastal corridor. This network can be conceptualized as 11 overlapping transit corridors connecting five major ports (Dakar, Abidjan, Tema, Lomé, and Cotonou) to three landlocked countries (Mali, Burkina Faso, and Niger). The lengths of these corridors range from approximately 990 km to 2,000 km, as shown in Table 1-1.

Table 1-1
Length of Primary West African Transit Corridors

Corridor	Length (km)
Dakar–Bamako	1,053
Abidjan–Bamako	1,236
Abidjan–Ouagadougou	1,232
Abidjan–Niamey	1,694
Abidjan-Lagos	994
Tema–Bamako	1,967
Tema–Ouagadougou	1,057
Tema–Niamey	1,576
Lomé–Bamako	1,973
Lomé–Ouagadougou	928
Lomé–Niamey	1,222

Corridor	Length (km)
Cotonou–Ouagadougou	1,200
Cotonou–Niamey	1,070
Total (without overlap)	17,202

SOURCE: SOFRECO (2011).
NOTE: Based on road lengths

These corridors are either competitive or supplementary to each other, depending on the circumstances. Normally they serve one coastal country and then compete for transit traffic to the landlocked countries. Because of recent civil unrest in Côte d'Ivoire, and with the Port of Abidjan partially blocked, however, other corridors have taken on part of the traffic that would normally have moved through Abidjan. This demonstrates that alternative transit corridors can serve as a buffer in case of transit issues in the coastal countries. (See further discussion on trade in Chapter 3). These corridors also serve as routes for regional trade (see discussion in Chapter 3 below).

The ALC serves a different purpose, linking the coastal countries, three of which—Côte d'Ivoire, Ghana, and Nigeria—are more developed and populous than the surrounding countries (Nigeria has the largest population in Africa), and with greater diversity in trade as well. The ALC has a more complicated role in the logistics system than the other corridors, and is described in Chapter 7.

Central African Corridors

The two Central African corridors examined in this report, Douala-Ndjamena and Douala-Bangui, are complementary corridors that share part of a common road and rail infrastructure and do not compete for traffic. The lengths of these corridors are 1,618 km and 1,472 km respectively.

As with most West African corridors, the coastal country, Cameroon, is much more developed than the two landlocked countries, and transit traffic is significant but not a dominant part of Port of Douala traffic.

In the case of the Central African corridors there is no significant competition between the corridors as they do not serve the same countries. There is some traffic from Nigeria to Chad and from Congo to the CAR that could be seen as competition for transit traffic, especially for log exports from the CAR.

DATA COLLECTION

Field work during this study was conducted to gather data on port and transit traffic, and port and logistics procedures on six corridors:

- Abidjan–Ouagadougou/Niamey
- Abidjan–Bamako

- Abidjan–Lagos
- Cotonou–Niamey
- Douala–Ndjamena
- Douala–Bangui

Case studies of transport logistics operations and costs were carried out for each of these corridors. For the three other corridors analyzed in this study (Dakar–Bamako, Tema–Ouagadougou, and Lomé–Ouagadougou) data collection was limited to port and transit traffic, and existing reports were used to fill in the rest of the data for analysis.

Details on each corridor are provided in Appendix A.

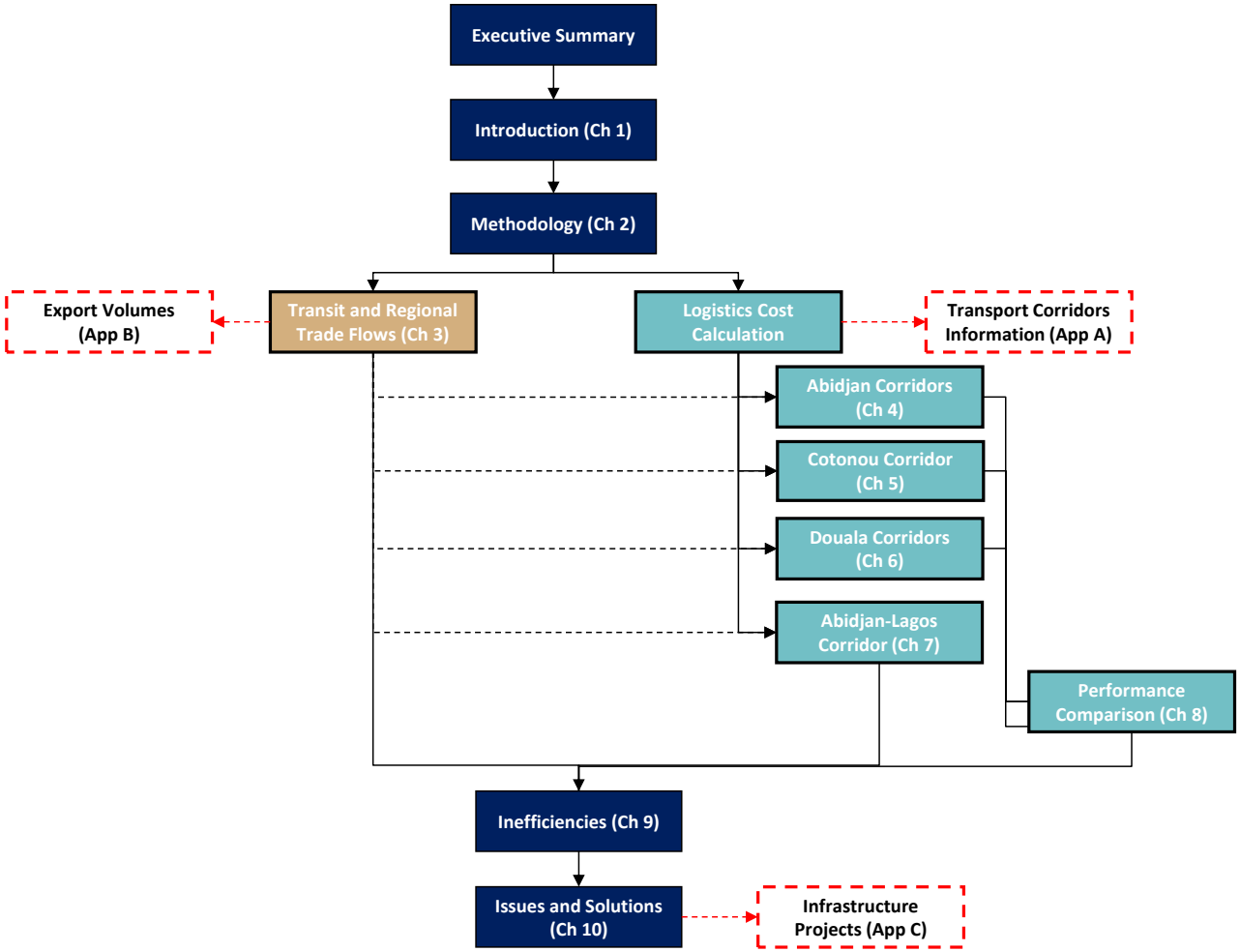
Organization of the Report

In this report we (1) present the findings of our analysis of corridors, trade flows, and logistics costs incurred by corridor users and shippers, (2) compare costs and performance on the subject corridors with those of other corridors and regions, and (3) analyze the links between inefficiencies and policies, draw conclusions, and recommend priorities for action.

Chapter 2 describes the methodology applied in carrying out this study. Chapter 3 presents more detailed information on transit and regional trade flows in the corridors. Chapters 4, 5, and 6 present detailed analysis for the five corridors where field data was collected for this study, and Chapter 7 presents the Abidjan-Lagos Corridor analysis. Chapter 8 summarizes data on five additional corridors in West Africa. Chapter 9 compares the results of corridor performance with international benchmarks, and Chapter 10 draws conclusions about the relationship of policies to logistics costs and suggests potential actions for improvement.

Figure 1-2 presents the structure of the report and shows the links between each chapter and related appendices.

Figure 1-2
Report Flow Chart



2.Study Methodology

Logistics is the management of the flow of goods, information and other resources between a point of origin and a point of consumption, in order to meet the requirements of a final consumer. The movement of goods, particularly across international borders, requires a highly integrated set of activities involving a wide range of stakeholders, facilities and equipment types. Although each international logistics chain varies considerably depending on the type of goods transported, infrastructure networks, rail or road operator performance and transport market structure, in the West and Central Africa region, supply chain management faces several issues including, among others, the following:

- Higher Transport prices than in most of the developing world;[5]
- Lower operator efficiency because of obsolete and inefficient equipment, aged trucking fleets and weak management capacities;
- Low levels of demand, whether predictable or stochastic, and trade imbalances;
- Widespread rent-seeking activities and severe flaws in the implementation of transit systems, which prevents the emergence of reliable logistics services;
- Disconnect between transport prices and costs that appears to be linked to market organization and excessive regulation, suggesting rent-seeking situations;
- Unpredictable supply chain due to uncertainty in shipment delivery time causing higher inventories and ultimately higher logistics costs.

Among the factors explaining high logistics costs, supported by shippers in West and Central Africa, is the average expected transport time and the degree of variability and unreliability in the logistics chain: a fragmented transit chain and variance in processing time not only causes delays but also causes uncertainty and unpredictability. This increases the logistics cost for economic operators who are willing to pay premiums for reliable logistics solutions or need to maintain high inventories.

[5] Transport prices for most African landlocked countries range from 15 to 20 percent of import costs, a figure three to four times more than in most developed countries. Road transport in three Francophone African countries (Cameroon, Côte d'Ivoire, and Mali) was up to six times more expensive than in Pakistan and about 40 percent more expensive than in France (where labor rates are much higher).

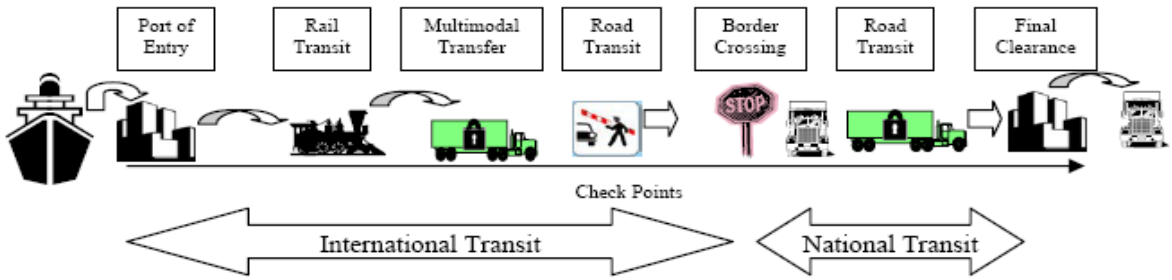
1.1. Conceptual Background

Supply chain literature provides the conceptual framework to understand logistics costs derived from the sequence of transit operations.

In the literature, macro-data are usually used to estimate the transportation costs burden. Using CIF/FOB margin as a proxy for transport cost, Radelet and Sachs (1998) find these costs to be about 50 percent higher for landlocked countries. Using the ratio of "freight payments as percent of total imports," Stone (2001) shows that landlocked developing countries, especially in Africa, bear exorbitant transport costs: out of 15 landlocked African countries, 13 had a ratio higher than 10 percent and for 7 countries the ratio was even higher at 20 percent, as compared with 4.7 percent for industrial countries and 2.2 percent for the US.

In contrast, a microeconomic approach, initially proposed by Baumol (2010), was developed by Arvis, Raballand and Marteau (2007) for landlocked developing countries and applied recently for the Northern Corridor under a NTTCA study (CPCS 2010a, 2010b) According to this approach, the typical steps in the supply chain from port to hinterland are illustrated in Figure 2-1, but each commodity/mode combination has a specific supply chain.

Figure 2-1
Typical Logistics Chain



SOURCE: *Arvis et al (2007).*

The logistics chain costs are directly or indirectly paid by the shipper or consignee, where the shipper is defined, for purposes of this study, as the importer or exporter of goods shipped along an international corridor. Accordingly, the total logistics cost TLC supported by the shipper/consignee in a landlocked country is the sum of two components. These two cost components are defined in detail below.

$$TLC = Financial\ cost\ of\ logistics\ services + Economic\ impact\ of\ delays\ and\ uncertainties\ (Hidden\ costs)$$

FINANCIAL COST OF THE LOGISTICS SERVICE

The financial cost of the logistics service corresponds to the expenses paid to the logistic operators to deliver the goods to the shipper's premises. The economic impact is not a monetary expense, it is the hidden cost of delays and uncertainties in the supply chain that ultimately must be factored into the activity of the shipper, either increasing production costs for an industrial activity, or through excess margins for a commercial activity. As it does not immediately translate into direct expenses, it is frequently overlooked.

In order to identify which are the contributing factors to the cost of each intervention in the logistic chain and "who pays what to whom," we adopted the following decomposition:

$$Financial\ cost\ of\ logistics\ services = Gateway + Inland\ transport + Inland\ processing$$

A single operator can be responsible for the entire logistics process on behalf of the shipper, or the shipper could contract each process with a different service provider:

- Through the B/L, the shipping line assumes responsibility and coordination of the delivery to inland destination terminal, a designated ICD. Individual services (port clearance and inland transport) are sub-contracted, with margin. In this scenario, goods are containerized also for the inland portion of the transport.
- Total inland logistics organized by a freight forwarder. The only difference is that the freight forwarder is offering the service separately from the maritime freight. Usually, only large operators are able to propose this type of service. Containers can be either transferred inland or stripped at the port in this scenario.
- Piecemeal approach, in which the shipper directly contracts in isolation the various logistics service providers.

GATEWAY COSTS

At the gateway, shippers usually contract a clearing agent to handle the whole process, up to the loading of the truck, but the interventions can also be arranged directly by the shipper.

The stages, and the related cost factors to consider, are as follows:

— Clearing and forwarding:
  - Customs payments, either destination clearance or mobilization of the guarantee/bond
  - Clearing fees, usually lump sum for the intervention of the freight forwarder

— Shipping agent (shipping agents used to be remunerated through a commission based on freight rate, but with the competition on rates, this has been replaced with an

increasing list of fees based on the B/L, charged directly by the shipping agent: B/L fee, delivery order (DO) fee, etc., supplemented by demurrage for overstay)

— Cargo handling

- THC/handling
- Movements related to border control (scanners, positioning for physical inspection, etc.)
- Storage (beyond grace period, escalating storage fees)

— Port authority (usually with independent handling companies, only cargo related dues)

— OGA (Other Government Agencies) also impose various fees (PSI/DI certification, Shippers' councils, etc.)

— Truck loading (applies only for stripped containers, otherwise, included in THC)

Port authorities and handling companies impose other charges, but those are recovered from the shipping lines, and are an integral part of the maritime freight paid by the shipper.

INLAND TRANSPORT COSTS

The number of stages is limited:

- Trucking services, corresponding to the movement of the goods from the port area to either an inland terminal, or to an inland clearance area followed by terminal delivery (in which case this is combined with the next function)
- Intermediaries, transport operators relying on sub-contracted capacity for the effective movement of goods

The duration of the roundtrip is influenced by the mode of delivery at destination. Break-bulk cargo is usually cleared while the goods remain on the truck, and the roundtrip is extended by the duration of the final clearance, before the truck can proceed to the shipper's premises for offloading.

For containers, it depends on the destination. In some cases, containers are offloaded from the trucks upon arrival and an empty container is reloaded immediately on the truck for the return trip. This is usually the case when the contract is for total inland logistics. In other cases, the truck has to wait for the same container to be emptied and then return it back to the port.

There is a significant difference in the number of roundtrips a truck can make depending on the two modes of delivery. However, the inland transport price is usually the same. The most efficient operators are therefore benefitting from increased income from their trucks.

A great discrepancy in the trucking operating costs, both variable and fixed, exists along different West and Central African corridors. A similar discrepancy exists within the same

corridors between formal and large truckers operating new vehicles and informal and small truckers operating very aged vehicles.

Trucking companies, whether they are formal or informal, analyze their cost structure in two categories:

- *Fixed costs,* which are pro rata temporis and independent of vehicle usage: financial charges, depreciation of investment, wages, insurance, licenses, taxes and overhead
- *Variable costs,* which are proportional to vehicle usage (distance or trips), including: fuel and lubricants, travel allowances (including informal payments), maintenance, and tires

Average transport prices are difficult to disaggregate because transport prices or freight rates/tariffs are dependent on several factors including the following:

1. *Trade imbalance and return cargo*: where imports far exceed exports, which is the case in West and Central African countries, exporters can often get up to 50 percent discounts for out-bound cargos, compared to in-bound cargos.
2. *Cargo types:* containers, oil products, machinery, and other "strategic" goods are more expensive to transport than general cargo in bags.
3. *Commercial practices/discounts*: there are often large discrepancies between published tariff schedules and what customers actually pay.
4. *Seasonal demand*: prices are seasonal and are highly sensitive to supply/demand, especially for certain export commodities and some imported finished goods.
5. *Load factor*: truck overloading increases load factors and reduces rates but increases the negative externalities of transport..
6. *Physical state of road infrastructure:* there is a strong positive correlation between physical road conditions and maintenance requirements for vehicles. Even though most truck owners don't fully understand the cost structure of their vehicles, there is a general tendency of increasing transportation price when the physical road condition is not good.
7. *Market distribution:* quota systems between landlocked and coastal countries to distribute the market aim to protect the landlocked country transport sector. Since landlocked country firms are less competitive than coastal fleets, the rule encourages high transport price.
8. *Informal payments and bribes: t*ransporters transfer to the transport price the informal payments that they pay along the road.

The cost component of road transport is based on realistic hypotheses for the use of the vehicles (number of rotations per year, availability of return loads, rate for return load), which enables us to construct an annual operating cost based on trip expenses, and obtain the revenue side of the equation. However, the cost of ownership of vehicle is more an accounting cost than an actual expense. In West Africa, there are very different types of trucks operating

in the same market, for which transport prices are fairly uniform, within a range of 10 percent. But the capital and overhead costs for over-aged trucks with poor maintenance, operated by informal individual truckers, is totally different from a more modern fleet managed by a formal company. Yet, they attract very similar rates.

For the purpose of our analysis, our approach to estimate the financing gap is to start from the annual income of the vehicle, deduct all actual expenses (variable and fixed), and consider the residual income as what remains to finance the vehicle.

Table 2-1
Truck Operating Expenses Structure

VARIABLE COSTS	FIXED COSTS	OWNERSHIP COSTS
Fuel and lubricants	Gross wages (driver and apprentice)	Financial expenses
Tires	Insurance, licenses, taxes	Amortization and depreciation
Maintenance	Management overhead	
Travel allowances		

FINAL PROCESSING COSTS

The stages depend on the logistic scenario:

- Border clearance agents, for processing documentation at the border
- Possible additional transport operation
  - In case of mandatory passage through an ICD, such as in the case of TB/L, the inland transport is decomposed into two legs, the main leg described in the previous section, and the final delivery
  - In all other cases, the final leg is the continuation of the main haul
- Customs clearance by a clearing agent, equivalent to the gateway intervention

HIDDEN COSTS

Recent theoretical and empirical research on the subject indicates that a key factor in estimating transport and logistics costs is not only the average expected transport time but also the degree of variability. Shippers seem to be willing to pay a premium for enhanced reliability, e.g. for truck versus rail transport, that is greater than the implied value of time associated with the average reduction in transit time. The practical implication is that it is important to collect information not only about the average duration of each link in the

supply chain, but also the variability measured by standard deviation when it's possible to estimate the transit time distribution curve.

There are several factors causing delays and uncertainty in the West and Central African corridors. For example, initiating transit in ports, final clearance at destination, border crossing delays, mandatory freight procedures, delays en route such as at weighbridges and checkpoints, low speed and vehicle breakdown due to bad condition of infrastructure, trans-shipment at multimodal facilities, customs convoy requirements, etc.

In his model, Baumol (1970) raised the issue of the impact of uncertainty on inventories: a fragmented transit chain and variance in processing time not only causes delays but also causes uncertainty and unpredictability. This increases the logistics costs for shippers in landlocked countries who are willing to pay premiums for reliable logistics solutions or need to maintain high inventories.

The cost of hedging unreliability depends on several factors such as the time value attached to the cargo, the lead-time in transit, its variability, and the cost to the operator of a break in the supply chain (cost of running out-of-stock or of setting up alternative logistics). Typically, this cost can be expressed as equivalent days of inventory.

$$Hidden\ costs = Inventory\ in\ transit + Hedging\ uncertainties$$

In both cases, the costs include financial charges, obsolescence, and loss of damaged or stolen goods. Inventory costs also include the fixed costs of warehousing at destination. Moving inventory costs also include the cost of vessels (container rental, deposit costs or demurrage charges, terminal and storage facilities). These charges do not evolve exactly pro rata temporis, but may increase with time, especially for demurrage fees.[6]

The inventory in transit component is commonly found in the literature on total transport costs, and corresponds to the financial cost of the value of goods for the total duration of transport.

$$Inventory\ in\ transit = Value\ \times Duration\ \times\ Capital\ opportunity\ cost$$

The economic cost of hedging uncertainties corresponds, for instance, to oversized inventory to avoid disruption of activity in case the shipment is delayed beyond the usual duration of transport, or to missed business opportunities.

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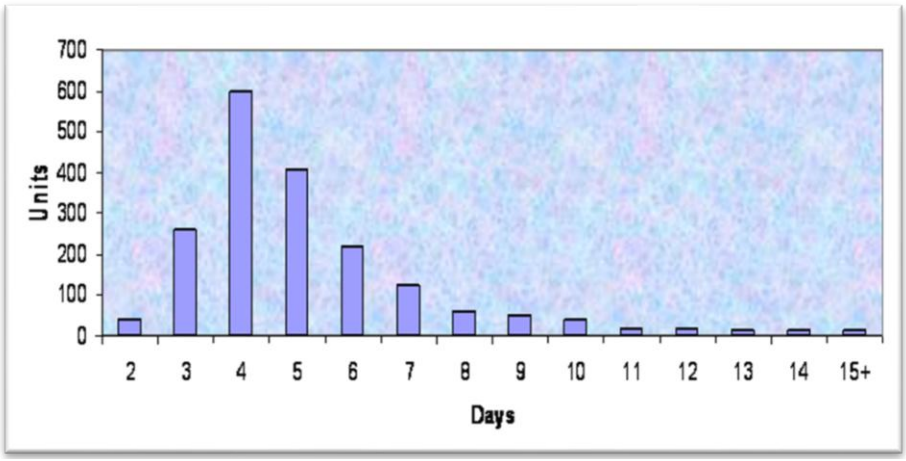
[6] - The estimates provided in Arnold (2006):

- The value of containerized manufactured goods in low and middle income countries range between $2,000-$5,000 per ton ($20,000-50,000 per TEU).
- The value of time is put conservatively at $20-30 per TEU ($40-$60 per trailer or 40-ft) or 0.1 percent of value per day.

- Hummels (2001) found that on average one more day in transit is valued at 0.8 percent of the value of goods.
- Arvis, J.F., Raballand, G. and Marteau, J.-F based their model on a shipment of $50,000, a value of time of $50 a day for a 40-ft container.

The theoretical justification is that the shipper is compensating for a transit time distribution curve that is characterized by an asymmetrical distribution with a broad tail, as shown in Figure 2-2.

Figure 2-2
Distribution of Transit-Time: Mombasa-Kampala



SOURCE: *Arvis st al (2007).*

However, the frequency curve is not always known, and it is necessary to use proxies to determine the economic cost. Therefore, Arvis et al (2007) propose the following formula for estimating the hidden costs:

$$Hidden\ costs = Value \times Capital\ opportunity\ cost \times (T_{mode} + T_{max} - T_{min})$$

In this formula, T_{mode} represents the most frequent duration, T_{max} the worst case scenario and T_{min} the best case scenario. As those values are based on the perception of operators, they may not correspond to the reality, but are probably close enough in the absence of more precise information.

However, when port authorities and/or Customs establish and publish detailed dwell time data, we have given priority to this information and assessed the unreliability costs following the distribution standard deviation (б) instead of the difference between the maximum and the minimum value. In this case, the hidden costs can be presented as:

$$Hidden\ costs = Value \times Capital\ oppotunity\ cost \times (T_{mode} + Standard\ deviation)$$

In this formula the first part corresponds to the usual inventory in transit costs and the second the impact of uncertainties, directly influenced by the range of the variation in duration, measured preferably by the standard deviation.

The hidden costs are being calculated for the entire logistics chain including the port, Customs, inland transport and border clearing processes.

Case Study Selection Methodology

The assessment of total logistics costs is based on four selected case studies for each corridor under the scope of work. Although the transported product types and transport conditions can vary from one corridor to another and from one sub-region to another, it is important for inter-corridor logistics cost comparisons that we base our analysis on the same types of products, CIF values and transport conditions. The criteria of selection of those case studies are therefore fundamental to the pertinence of the analysis.

Although there are as many possible case studies as there are individual transit operations on each corridor, the main difficulty remains in how to select the most representative ones regarding the most critical factors impacting logistics costs and delays. The following factors and criteria were considered:

1. **Cargo product type:** the choice was to select common and frequently transported product types on both Central and West Africa corridors. Household appliances, rice, edible oil and spare parts are the four selected products.
2. **Cargo CIF value:** the hidden costs depend on the transit dwell times and the cargo CIF value. It is important therefore to have a mix of relatively high cargo CIF value (household appliances and spare parts) and relatively low cargo CIF value (rice and edible oil). On the other hand, while some cargo CIF values can reach several hundred thousand US dollars (electronic products such as cell phones, computers or other high value products), it is important that the average cargo CIF value is realistic and in line with other estimations found in previous studies (US$50,000 – US$60,0000).
3. **Cargo transport conditions**: all cargo transport conditions should be represented in the four cases studies:
    a. *Containerized cargo* in 20-ft or 40-ft containers, stripped at the port or not.
    b. *Semi-bulk cargo*: the most common is rice in 50kg bags arriving in 20-ft containers (this is the common practice according to interviewed operators), most of the time stripped at the port and reloaded as general cargo.
    c. *Liquid bulk cargo*: Except for fuel, (which is no longer imported by Chad or Niger, since starting their own oil production, and given the tighter regulations on fuel transport in those countries), the only significant liquid product commonly transported is edible oil. Although this product is liquid, in the majority of the cases it is not transported in tankers but rather bottled and in boxes, and therefore loaded as general cargo.
4. **Trucker's performance and vehicle type:** Vehicle operating cost structures and therefore truckers' performance and profitability vary largely from modern and large transporters operating newly purchased vehicles to small and informal transporters operating second-hand vehicles. Most of time, modern, high performing transporters have the management capacity to negotiate contracts with large and regular shippers and can thereby achieve

higher annual turnover than small truckers collecting loads through middlemen or at the port entrance. Both types of transporters, plus one for intermediate performing transporters (middle size and operating moderately aged fleets) are represented in the four case studies for each corridor.

Following the criteria described above, the case studies developed for the analysis of the transport corridors include:

- Case Study 1a: A medium large sized, formal transporter with large and new purchased fleet transporting a 40-ft container of high-value household appliances
- Case Study 1b: A medium small, formal transporter operating a small and new purchased fleet with transporting edible oil in two 20-ft containers
- Case Study 2: A small, informal transporter with a small and second hand purchased fleet transporting low-value cargo (rice) in 50 kilos bags
- Case Study 3: A large, formal specialized transporter with a large and second hand purchased fleet transporting high-value spare parts equivalent to two stripped 20-ft containers

The difference between Case Studies 1a and 1b is the size of the company and type of cargo (high versus low value cargo).

The details for the case studies presented for each corridor in the report can vary slightly from one corridor to the next, depending on who was interviewed (some selected truckers, for instance, refused to fill the analytical questionnaires and to share details on their professional business practices).

3. Trade Flows and Logistics Systems

Trade flows along the corridors comprise four components: (1) trade between coastal countries[7] and overseas trading partners through corridor ports, (2) transit trade to and from landlocked countries through coastal country ports, (3) regional trade between countries along a corridor, and (4) domestic trade within a corridor country, which is excluded from the scope of this analysis.

Measuring trade volumes is a delicate exercise, which requires combining information from a range of sources that differ in both scope and nature, specifically:

- Port activity statistics, usually based on shipping manifests, which may not fully measure actual transit volumes, notably for export of agricultural products
- Shippers' councils, which usually monitor land transport between country pairs in application of bilateral transit agreements, through road or rail transport documents
- Customs data, through customs declarations, although obtaining transport-relevant information requires specific treatment of the customs statistics

The trade flow analysis in the following sections of this chapter is based on the combination and comparison of the whole range of available sources.[8]

West African Transit Traffic

Port traffic increased substantially in the period 2005 to 2011, during high economic growth in West and Central Africa, rising to more than 50 million tons in 2010 before dropping slightly in 2011 because of the impact of civil unrest on Abidjan port traffic. Both domestic and transit traffic increased, but the relative importance of transit traffic varies widely from port to port, as shown in Table 3-1.[9] The Transit percentage of total port traffic is lowest in Abidjan, Dakar,

[7] Regional trade flows between costal countries is analyzed in chapter 7 as part of Abidjan-Lagos costal corridor.

[8] See Appendix B for more details on the estimates of regional trade volumes.

[9] Conakry is potentially a good option for Mali transit, but its two main competitors (Dakar and Abidjan) have a comparative advantage on both the maritime side (as base ports, they benefit from more competitive rates and more diversified offer of maritime services) and on the inland side (with infrastructure gap on the Conakry Mali corridor and weak logistics services). Takoradi has been acting as the safety valve for Tema at

and Tema, highest in Lomé and Cotonou (up to 50 percent), and average in Douala. The main transit cargo in volume is passing through the Ports of Cotonou, Lomé and Dakar and Abidjan.

The transit traffic serving the landlocked countries in West Africa (Mali, Burkina Faso and Niger) via the main West African ports also significantly increased (by 121 percent) from 2004 to 2011, reaching more than 9 million tons in 2011 despite the economic dip in 2008 and despite unrest in Côte d'Ivoire.

Significant traffic shifted away from the Abidjan corridors during the 10 years of unrest in Côte d'Ivoire (2000 to 2011). However, the Abidjan corridor's share of transit trade is again on the rise.

For all landlocked West African countries, there is a marked trade imbalance, with imports dominating trade volumes.

Table 3-1

Relative Importance of Transit Traffic by Port (000 tons)

Port	Traffic	2004	2005	2006	2007	2008	2009	2010	2011
Dakar[a]	Total	9,375	9,906	8,552	10,064	10,003	8,743	10,271	11,409
	Transit	526	525	639	700	766	700	939	1,515
	% Transit	5.6%	5.3%	7.5%	7.0%	7.7%	8.0%	9.1%	13.3%
Conakry	Total	5,676	6,087	6,243	5,804	6,912	5,948	6,876	n/a
	Transit	46	128	85	91	81	93	91	n/a
	% Transit	0.8%	2.1%	1.4%	1.6%	1.2%	1.6%	1.3%	n/a
Abidjan[b]	Total	16,633	17,537	17,624	19,876	20,740	22,633	22,484	16,643
	Transit	421	592	699	893	712	1,258	1,038	765
	% Transit	2.5%	3.4%	4.0%	4.5%	3.4%	5.6%	4.6%	4.6%
Takoradi[c]	Total	4,184	4,636	4,720	4,054	4,017	3,372	4,012	4,949
	Transit	169	247	256	76	210	14	1	32
	% Transit	4.0%	5.3%	5.4%	1.9%	5.2%	0.4%	0.0%	0.6%
Tema[c]	Total	8,443	9,250	9,251	8,379	8,727	7,406	8,697	10,749
	Transit	764	875	870	844	863	509	447	614
	% Transit	9.1%	9.5%	9.4%	10.1%	9.9%	6.9%	5.1%	5.7%
Lomé[d]	Total	4,429	5,080	5,349	6,184	7,281	7,326	8,006	8,248
	Transit	1,036	1,132	1,176	1,665	2,061	1,814	2,357	2,844
	% Transit	23.4%	22.3%	22.0%	26.9%	28.3%	24.8%	29.4%	34.5%

the peak of the Côte d'Ivoire crisis, when most of the cargo was diverted to alternate ports, generating congestion.

Port	Traffic	2004	2005	2006	2007	2008	2009	2010	2011
Cotonou[e]	Total	3,969	5,153	5,369	6,152	6,998	6,698	6,959	6,805
	Transit	1,242	2,041	2,475	2,849	3,414	3,248	3,886	3,503
	% Transit	31.3%	39.6%	46.1%	46.3%	48.8%	48.5%	55.8%	51.5%

SOURCES: [a]Booz-Allen-Hamilton 2010 ; [b]Port Autonome d'Abidjan; [c]Ghana Ports and Harbours Authority, taking all transit traffic as import traffic; [d]Port of Lomé; [e]Estimate based on total transit traffic
NOTE: "n/a" means not available.

MALI TRAFFIC FLOWS

Mali is served primarily by the ports of Dakar and Abidjan and more recently by the port of Conakry (See Table 3-2). Transit traffic from the port of Tema was significant in the mid-2000s but this has declined to a relatively small amount, while the port of Lomé has increased its share and Cotonou traffic increased dramatically in 2011.

Table 3-2
Transit Traffic for Mali by Corridor Port (000 tons)

Port	2005	2006	2007	2008	2009	2010	2011	% 2011
IMPORT								
Dakar[a]	502	558	407*	482*	542*	787	898	45%
Conakry[b]	50*	85	90	81	93	91	35	2%
Abidjan[c]	153	279	262	243	549*	402	350	17%
Tema[d]	208	135	154	87	64	55	53	3%
Lome[e]	55	79	62	53	95	139	179	9%
Cotonou[f]	42	131	111	107	140	194	680	34%
Total imports[g]	1,110	1,267	986	1,053	1,483	1,668	1,995	100%
EXPORT								
Dakara	35	90	64	46	33	40	50	33%
Conakry[b]	-	-	-	1	-	-	-	0%
Abidjan[c]	133	121	112	83	77	82	18	12%
Tema[d]	80	102	150	120	60	n/a	n/a	n/a
Lome[e]	69	46	36	30	0	0	0	0%
Cotonou[f]	0	-	1	0	-	0	83	65%
Total exports[g]	317	357	363	280	170	112	151	100%
Total transit traffic	1,427	1,624	1,349	1,333	1,653	1,780	2,146	

SOURCES: [a]Booz-Allen-Hamilton 2010 for 2006-2009; with 2007, 2008 and 2009 adjusted to match total Malian imports and other-year volumes estimated with average ratio of Dakar traffic to total Mali traffic and change from year to year in the value of imports or exports, excluding regional trade; [b] Port of Conakry [c]Port Autonome d'Abidjan; [d]Ghana Ports and Harbours Authorit. Statistics actually show total transit time with no breakdown between imports and exports. Export volumes for 2005 to 2009 were estimated assuming 2/3of transit cargo is for import ;[e]Port of Lomé; [f] Port Autonome de Cotonou;. g Totals from

*Mali Trade statistics except 2011which was derived from the evolution of total trade excluding Dakar and the average share of Dakar traffic. *Trade statistics from Dakar reduced significantly to match data from Mali customs on total imports. "–" means a small amount but not zero.*

Total trade flows for Mali are composed of transit and regional trade as shown in Table 3-3. The regional trade is approximately the same volume as transit trade. About half of the regional traffic volume is made up of fuel (coming from Senegal, Benin and Côte d'Ivoire). Figure 3-1 shows the evolution of import flows to Mali from 2006 to 2010.

Table 3-3

Total Regional and Transit Trade Flows to Mali 2006-2010 (000 tons)

Imports to Mali	2006	2007	2008	2009	2010
Total transit traffic	1,427	1,624	1,349	1,333	1,653
Regional petroleum traffic	603	646	603	505	771
Regional other trade products	349	1,361	536	1,078	971
Total trade	2,576	3,356	2,472	3,236	3,522

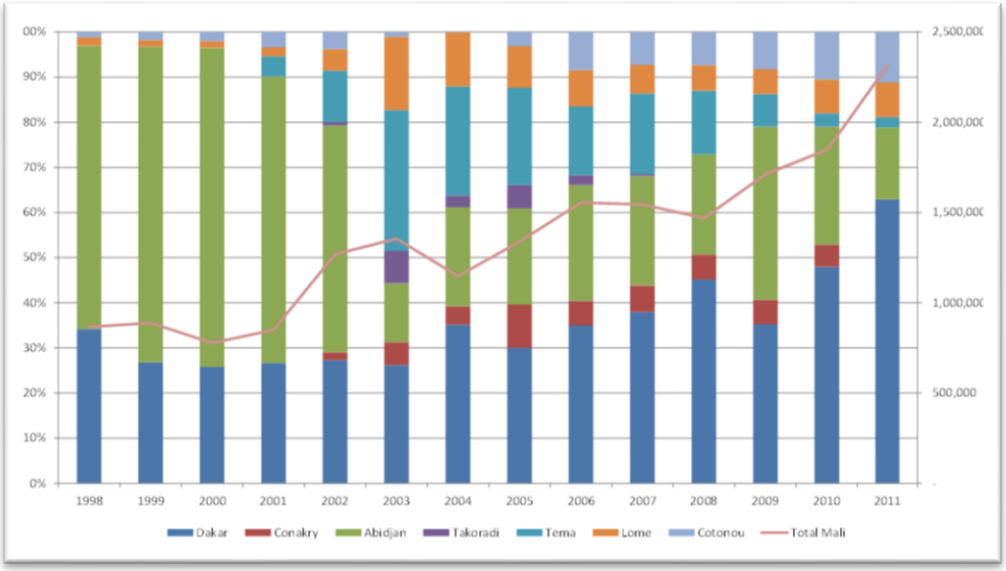
SOURCES: Table 3-2 and Appendix B, Malian Customs. Note: Regional traffic values for Mali were taken from Malian customs statistics and not derived from COMTRADE data. Transit volumes are also relatively accurate as they are based on port statistics, although some data adjustments may have inflated the export data to some extent.

In the case of Mali, cotton exports have dropped dramatically as the markets crashed and incentives to produce this cash crop declined.

The effects of political unrest on trade through the Port of Abidjan are noticeable in Figure 3-1 which illustrates the Mali maritime import transit trade flows by transit port. . In 2000, 76 percent of Malian maritime transit traffic passed through the port of Abidjan, amounting to about 1.5 million tons. Currently, Malian imports come primarily via Senegal and the Abidjan port share is around 15 percent.

Figure 3-1

Mali Maritime Transit Import Trends by Corridor



BURKINA FASO TRAFFIC FLOWS

Burkina-Faso is mainly served by the ports of Abidjan, Tema, Lomé and Cotonou. Political unrest in Côte d'Ivoire has forced Burkina Faso to route its maritime imports through other ports such as Tema, Takoradi, Lomé and Cotonou as illustrated in Table 3-4 and Figure 3-2.

Table 3-4

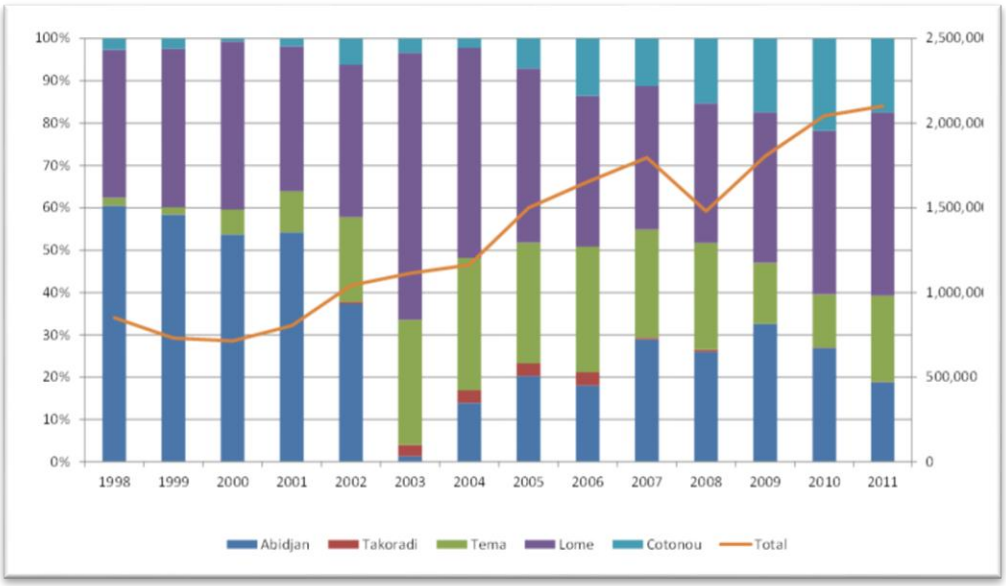
Transit Traffic for Burkina Faso by Corridor Port (000 tons)

Port	2005	2006	2007	2008	2009	2010	2011	%2011
IMPORT								
Abidjan[a]	279	249	444	282	482	442	331	15%
Tema[b]	376	471	442	358	248	247	427	20%
Lome[c]	341	349	361d	290 d	502	638	737d	34%
Cotonou	106	224	196	226	315	437	681	31%
Total imports	1,102	1,293	1,443	1,156	1,557	1,764	2,159	100%
EXPORT								
Abidjan[a]	26	49	74	103	107	109	64	20%
Tema[b]	16	20	18	15	11	11	17	0%
Lome[c]	276	249	278	199	131	151	175	55%
Cotonou	0	-	6	-	-	8	82	25%
Total exports	318	318	370	317	249	279	338	100%
Total transit	1,420	2,011	1,813	1,473	1,806	2,043	2,477	

Source: [a]Port Autonome d'Abidjan; [b]Ghana Ports and Harbours Authority combining Tema and Takoradi traffic and assuming 4 percent export volume out of total transit based on 2008 figures; [c]Port of Lomé; [d]Estimate based on total transit traffic. "–" means a small amount but not zero.

Figure 3-2

Burkina Faso Maritime Transit Import Trends by Corridor



SOURCE: Table 3-3.

Table 3-5
Total Regional and Transit Trade Flows to Burkina Faso 2006-2011 (000 tons)

Type of Trade Flow	2006	2007	2008	2009	2010	2011
Transit traffic	2,011	1,813	1,473	1,806	2,043	2,477
Regional traffic-petroleum products	192	373	171	85	78,127	77,118
Regional trade-other products	306	354	373	289	233	232
Total trade flows	747	1,171	826	856	753	640

SOURCE: Table 3-4 and Appendix B. Note: Regional traffic values are estimates derived from COMTRADE data whose quality varies from country to country and year to year (See Appendix B). These values should be treated as rough estimates. Transit volumes are much more accurate as they are based on port statistics.

Niger Traffic Flows

Niger is served mostly by the ports of Cotonou and Lomé (with small sporadic shipments coming from Tema, Takoradi and Abidjan) as shown in Table 3-6. Transit traffic for Niger was much less affected by events in Côte d'Ivoire, but transit traffic through Ghana declined as a result of the strict enforcement of the UEMOA axle load Regulation 14. The transit trade to Niger has almost doubled over the past six years, but this is partly the result of diverted Nigerian trade, as discussed below. Niger also has growing regional trade with Nigeria, which displaces imports from other countries. Nigerien transit export volume is too small to show in this table for most years (the main foreign exchange earner is uranium, which is very low tonnage for the value).

Table 3-6
Transit Traffic for Niger by Corridor Port (000 tons)

Port	2005	2006	2007	2008	2009	2010	2011	%2011
IMPORT								
Abidjan[a]	-	-	-	1	12	1	1	0%
Tema[b]	272	228	135	241	46	76	93	3%
Lome[c]	144	151	178	194 d	238 d	319	436 d	16%
Cotonou	1,041	1,279	1,697	2,203	2,074	2,486	2,170	81%
Total imports (excl. Lagos)	1,457	1,658	2,010	2,639	2,370	2,882	2,700	100%
EXPORT								
Abidjan[a]	0	0	0	0	0	0	0	0%
Tema[b]	0	0	0	0	0	0	0	0%
Lome[c]	0	0	0	0	0	-	-	0%
Cotonou	-	1	1	3	2	1	-	n/a
Total exports (excl. Lagos)	-	1	1	3	2	1	-	n/a

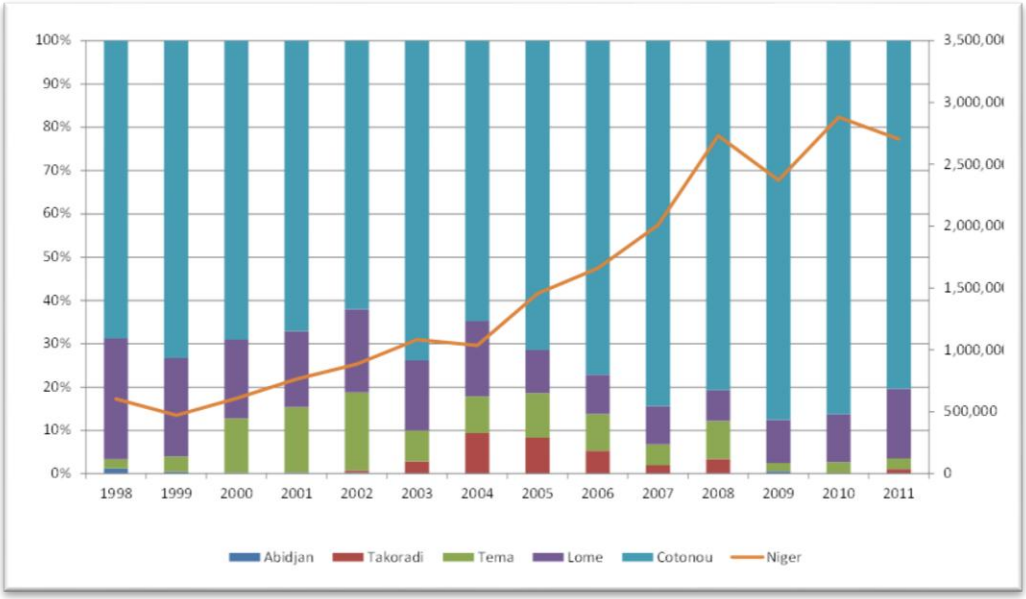
Total trade	1,457	1,659	2,011	2,642	2,372	2,883	2,700	

Source: [a]Port Autonome d'Abidjan; [b]Ghana Ports and Harbours Authority combining Tema and Takoradi traffic and assuming 4 percent export volume out of total transit based on 2008 figures; [c]Port of Lomé; [d]Estimate based on total transit traffic. "–" means a small amount but not zero.

Figure 3-3 shows the evolution of imports to Niger in recent years.

Figure 3-3

Nigerien Maritime Transit Import Trends by Corridor



ABIDJAN PORT TRANSIT TRAFFIC

In recent years, and as presented in Table 3-7, traffic though the Port of Abidjan has fluctuated between 17 and 23 million tons. It was down in 2011 to 16.6 million tons due to the civil war, but based on discussion with port authorities, volumes increased in 2012. Transit traffic has also increased and more than doubled from 2005 to 2010, peaking in 2009-2010 at over 1 million tons, before it shifted to other corridors due to the civil war in 2011. This traffic is expected to shift back to the Abidjan corridors in the near term as normal operations resume. The share of transit traffic is expected to remain under 10 percent of the total cargo handled at the port.

There are large trade imbalances for transit traffic through Abidjan with imports dominating, although they are not as large as for other corridors. Table 3-7 presents the traffic by trade direction and by landlocked country of destination. Trade flows to Mali and Burkina Faso have been growing consistently as a percentage of total trade along all the corridors and the efficiency of the Port of Abidjan and the corridor is higher than for other ports and corridors in the region.

Table 3-7

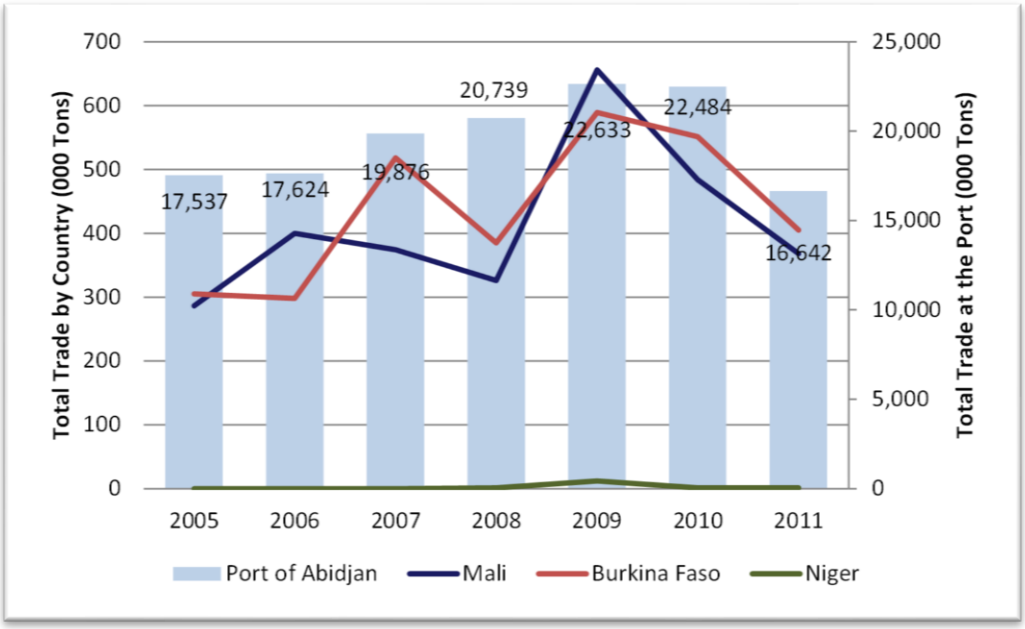
Port of Abidjan, Total Traffic and Transit Traffic by Trade Direction, 2005–2011 (000 tons)

	2005	2006	2007	2008	2009	2010	2011
TOTAL							
Import	10,026	9,806	10,836	11,170	11,892	12,801	9,628
Export	7,511	7,818	9,040	9,569	10,7401	9,683	7,014
Total port	17,537	17,624	19,876	20,739	22,633	22,484	16,642
MALI							
Import	153	279	262	243	579	402	350
Export	133	121	112	83	77	82	18
Total Mali	286	400	374	326	656	484	368
BURKINA FASO							
Import	279	249	444	282	482	442	331
Export	26	49	74	103	107	109	64
Total Burkina	305	298	518	385	589	551	405
NIGER							
Import	-	-	-	1	12	1	1
Export	0	0	0	0	0	0	0
Total Niger	-	-	-	1	12	1	1

SOURCE: Port Authority of Abidjan. Data collected in October 2012.
NOTE: "-"small number greater than zero.

Figure 3-4

Transit Trade Flows via the Port of Abidjan



SOURCE: Port Authority of Abidjan. Data collected in October 2012.

Containerization rates at the port of Abidjan are presented in Table 3-8. While during 2010 the overall containerization percentage decreased, the overall trend shows that containerization is increasing. The percentages presented in Table 3-8 are misleading since they include large quantities of bulk shipments through the port, such as liquid bulk/petroleum trade with Nigeria, which represents 40-50 percent of total tonnage through the port. If we discard liquid bulk products are excluded, the containerization rate in Abidjan is about 60 percent, which is much higher than in other ports.

Figures on transit containers are not readily available, but are assumed to be similar to those for domestic cargo. It is estimated that 80 percent of transit containers are stripped in the port for transit trucking as general cargo.

Table 3-8

Total Container Traffic in the Port of Abidjan, 2009–2011

	2009	2010	2011
Total TEU (000)	610	562	546
Total tonnage in containers (000)	6.95	6.63	5.51
% Containerization	30.5%	29.3%	33.1%

SOURCE: *Port Authority of Abidjan. Data collected in October 2012.*

The total corridor trade flows, including transit and regional trade, for 2010 and 2011 are shown in Table 3-9. Flows with Burkina Faso amounted to 941,000 tons in 2010 and 790,000 tons in 2011, of which 41 and 48 percent was regional traffic for 2010 and 2011, respectively. Flows to Mali amounted to 734,000 tons in 2010 and 613,000 tons in 2011, of which 34 and 40 percent was regional traffic for 2010 and 2011, respectively. Containerization of corridor trade flows is assumed to be the same for all transit flows where 80 percent of imports are stripped from containers and shipped as break bulk cargo.

Regional trade from Abidjan to Mali and Burkina Faso includes a large component of petroleum products due to the refinery operations in Abidjan and favorable pricing for the landlocked countries.

Table 3-9

Estimated Corridor Trade Flows in 2010 and 2011 (000 tons)

Type of Trade Flow	2010	2011	% 2011
TOTAL ABIDJAN-OUAGADOUGOU			
Transit traffic	551	405	-36%
Regional traffic-petroleum products	50	25	-50%
Regional trade-other products	340	360	+6%
Total trade flows	941	790	-19%
TOTAL ABIDJAN-BAMAKO			

Type of Trade Flow	2010	2011	% 2011
Transit traffic	484	368	-31%
Regional traffic-petroleum products	30	35	17%
Regional trade-other products	220	210	-5%
Total trade flows	734	613	-20%

Source: Port Authority of Abidjan and Appendix B (COMTRADE 2011 and SOFRECO 2011). Note: Regional traffic values are estimates derived from COMTRADE data whose quality varies from country to country and year to year (See Appendix B). These values should be treated as rough estimates. Transit volumes are much more accurate as they are based on port statistics.

COTONOU PORT TRANSIT TRAFFIC

Over the past 10 years total traffic at the Port of Cotonou has more than doubled, partly because of a fivefold increase in transit traffic. The share of transit traffic from the Port of Cotonou to Niger has been increasing steadily since 2005, reaching 62 percent of Nigerien transit traffic in 2011 (see Table 3-10). Trade imbalances for domestic and transit cargo at the port are large, with imports dominating (see Table 3-10).

Table 3-10

Port of Cotonou, Total Traffic by Trade Direction, 2005–2011 (mil. tons)

	2005	2006	2007	2008	2009	2010	2011
TOTAL AT PORT							
Import	4.56	4.85	5.53	6.14	5.97	6.24	5.76
Export	0.60	0.51	0.62	0.86	0.73	0.72	1.05
Total	5.15	5.37	6.15	7.00	6.70	6.96	6.83
BENIN							
Import	2.52	2.38	2.69	2.72	2.72	2.36	n/a
Export	0.60	0.51	0.62	0.86	0.72	0.71	n/a
Total	3.11	2.89	3.30	3.58	3.45	3.07	3.30
NIGER							
Import	1.04	1.28	1.70	2.20	2.07	2.46	n/a
Export	-	-	-	-	-	-	n/a
Total	1.04	1.28	1.70	2.21	2.08	2.49	2.17

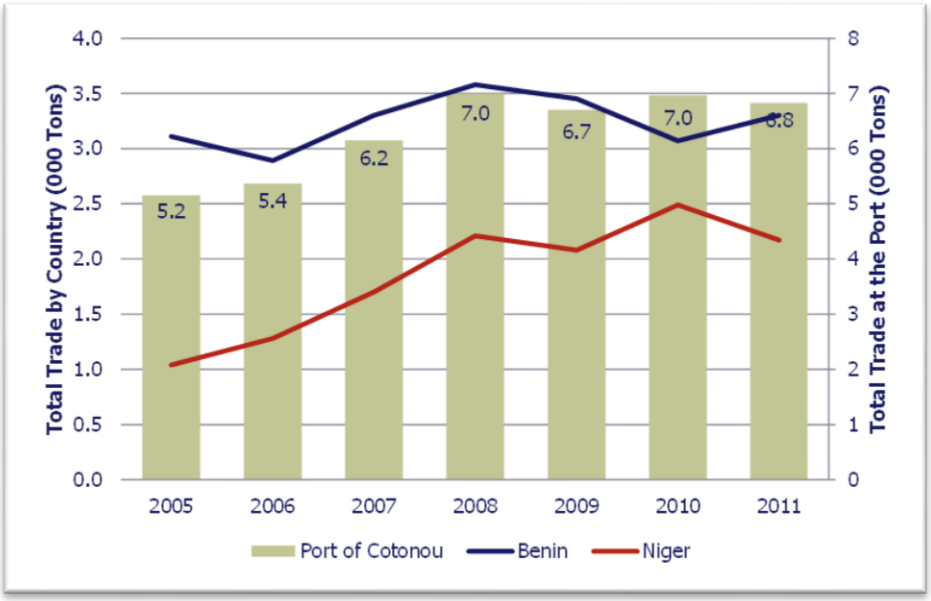
NOTE: "-" means small number greater than zero.
SOURCE: Port Authority of Cotonou. Data collected in December 2011 and October 2012.

Given the embryonic state of its industrial sector and nearly chronic drought, Niger must import most goods consumed in the country. These include food, machinery, intermediate goods, fuel, energy products, manufactured goods and chemicals, construction materials and transport equipment. There is a predominance of imports over exports in quantity and value, which is common in many West African countries.

Nigerien exports consist mainly of agricultural products—such as onions, cowpeas, groundnuts, sesame, cotton, and gum Arabic—whose production fluctuates with the weather.

The main mining export is uranium. On average, Niger exports 4,000 tons of uranium per year, although the tonnage has declined significantly in recent years. Still, it remains Niger's main source of foreign exchange, accounting for 60 percent to 80 percent of the value of exports.

Figure 3-5
Transit Trade Flows via the Port of Cotonou



SOURCE: *Port Authority of Cotonou. Data collected in December 2011 and October 2012.*

Containerization in the port is growing (Table 3-11). Total containerization averaged more than 50 percent over 2011 and has been increasing, in keeping with world trends. Exports are more containerized than imports. Figures on transit containers are not readily available, but are assumed to be similar to those for domestic cargo. It is estimated that 80 percent of transit containers are stripped in the port for transit trucking as general cargo.

Table 3-11
Total Container Traffic in the Port of Cotonou, 2005–2011

	2005	2006	2007	2008	2009	2010	2011
Total TEU (000)	124	141	168	194	193	215	226
Total tonnage in containers (mil.)	1.96	2.04	2.40	3.04	2.92	3.24	3.45
% containerization	38.1%	38.0%	39.0%	43.4%	43.6%	46.7%	50.7%

SOURCE: *Port Authority of Cotonou. Data collected in December 2011 and October 2012.*

Data on Cotonou corridor trade flows, including transit and regional trade, for 2010 and 2011 are presented in Table 3-12. Flows amounted to about 2.5 million tons in 2010 and about 2.2 million tons in 2011, of which one percent is regional traffic (2010). Containerization of corridor trade flows is assumed to be the same as for all transit flows where 80 percent of

imports are stripped from containers and shipped as break bulk cargo. Goods and equipment imported for uranium mining in Niger are almost all shipped in containers. Processed uranium exports are shipped in containers.

Table 3-12
Estimated Corridor Trade Flows in 2010 and 2011 (000 tons)

Type of Trade Flow	2010	2011	2011 (%)
Transit traffic	2,490.0	2,170.0	-15%
Regional traffic	25.5	n/a	n/a
Total trade flows	2,515.5	2,170	-16%

SOURCE: *Port Authority of Cotonou and Appendix B (COMTRADE 2011 and SOFRECO 2011).*

Central African Transit Traffic

DOUALA PORT

Over the last six years, traffic though the Port of Douala has grown steadily from 6 to 8 million tons as shown in Table 3-13. This growth is expected to continue in the future. There are large trade imbalances for transit traffic through Douala with imports dominating.

In total, six countries within the Central African region are served by traffic transiting at the port of Douala as shown in Table 3-13. This traffic fluctuated tremendously from 2002 to 2006, but from 2007 total freight has increased steadily with 2011 as the busiest year. Among all six concerned countries, Chad and CAR share up to 74 percent of the total traffic. This is mainly due to the landlocked status of both countries; whereas the other four countries have other export/import alternatives.

Table 3-13
Port of Douala, Total Traffic by Trade Direction, 2005–2011 (mil. tons)

Countries	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	%
IMPORT											
Gabon	0.03	0.14	0.84	17	0.03	0.91	-	-	0.18	0.15	0,6%
Eq. Guinea	2.42	2.21	9.49	17	3.34	1.79	-	-	6.29	0.45	1,2%
Congo	8.81	3.18	4.58	1.97	4.69	5.44	22	18	12	16	2,7%
CAR	55	49	57	51	193	63	83	96	111	130	25%
Chad	143	132	99	160	181	196	278	478	461	385	71%
Total	209	187	170	248	382	268	384	591	590	532	100%
EXPORT											
Gabon	0.10	0.06	-	0.17	0.05	0.82	-	-	-	0.25	0%
Eq. Guinea	0.10	-	8.91	0.19	-	0.24	-	-	-	0.46	0%

Countries	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	%
Congo	189	53	151	224	171	174	197	103	139	255	47%
CAR	227	124	92	204	245	155	169	104	126	100	43%
Chad	51	36	33	34	28	34	34	24	30	39	10%
Total	467	213	285	463	444	364	400	232	295	394	100%
TOTAL											
Gabon	0.13	0.20	0.84	17.50	0.08	1.73	-	-	0.18	0.39	0%
Eq. Guinea	2.51	2.21	18.39	17.58	3.34	2.03	-	-	6.29	0.91	1%
Congo	198	56	156	226	176	179	219	121	150	271	25%
CAR	281	174	149	255	438	218	252	200	237	230	34%
Chad	194	169	132	194	209	230	312	502	491	424	40%
Total	676	400	456	711	826	632	783	823	885	926	100%

SOURCE: Authorité Portuaire Nationale (APN) of Cameroon
NOTE: 2011 port data were not available.
a. Chad export transit volumes were estimated as 110 percent of agricultural products in transit trade, with imports estimated as total transit trade minus estimated export volumes, based on detailed 2009 figures.
B. CAR export transit volumes were estimated at 100 percent of wood and plywood plus 30 percent of food products and lubricants/chemicals, with imports estimated as total transit trade minus estimated export volumes, based on detailed 2009 figures.

Containerization in the port of Douala has been fairly constant as shown below, varying from 38 to 45 percent. The overall percentage is smaller than for some ports due to the large quantities of bulk shipments through the port, including bulk trade in bananas and petroleum products.

Table 3-14
Total Container Traffic in the Port of Douala, 2007–2010

	2007	2008	2009	2010
Total TEU (000)	217	270	281	228
Total tonnage in containers (000)	2.65	3.22	3.15	2.97
% Containerization	38%	45%	43%	39%

SOURCE: Port Authority of Douala. Data collected in October 2012.

CORRIDOR TRADE FLOWS

The total corridor trade flows for 2009 and 2010 are shown in Table 3-15, including transit and regional trade. On the Douala-Ndjamena Corridor, they amounted to 565,000 tons in 2009 and 988,000 tons in 2010 of which 50 percent was regional traffic; on the Douala-Bangui Corridor, they amounted to 223,000 tons in 2009 and 633,000 tons in 2010 of which 13 percent was regional traffic.

Table 3-15
Estimated Corridor Trade Flows in 2009 and 2010 (000 tons)

Type of Trade Flow	2009	2010	% 2010
TOTAL DOUALA-NDJAMENA			
Transit traffic	502	491	-2%
Regional traffic-petroleum products	2	175	9,095%
Regional trade-other products	61	322	425%
Total trade flows	565	988	75%
TOTAL DOUALA-BANGUI			
Transit traffic	200	551	176%
Regional traffic-petroleum products	-	18	7,348%
Regional trade-other products	33	64	92%
Total trade flows	233	633	171%

SOURCE: Port Authority of Douala, COMTRADE 2011 and SOFRECO 2011
NOTE:"-" means a small number greater than zero.

Chad

The traffic to/from Chad has been following overall global trends. Traffic increased from 2003 until 2009, and began decreasing in 2010. The share of this traffic at the port of Douala is the highest one among all countries. That traffic has mainly consisted of imports with very few exports. Though imports followed the overall traffic trends, exports have been more or less stagnant since 2003. This situation can be explained by the large number of on-going construction projects during these years, which required imports of huge quantities of input materials for construction. Since 2011, most of these construction works have been completed, with a large impact on the traffic flows for Chad.

This traffic has more than doubled over a 5-year period as a result of increased trade in building materials, food products, and flour. These categories made up about 60 percent of the country's total transit traffic in 2010. Total traffic, however, is extremely unbalanced between imports and exports, with imports making up 95 percent of total traffic and exports making up 5 percent. Exports through Douala from Chad include mainly cotton, groundnuts, gum arabic, and sesame, the combination of which accounts for about four-fifths of total Chadian exports. Export traffic is a small part of the total transit traffic (6 percent in 2009).

Regional Chad imports and exports are dominated largely by Cameroon as the main trade partner (87 percent of total regional trade) followed by Niger (8 percent of total regional trade), as can be seen in Table 3-16 and Figure 3-6 below.

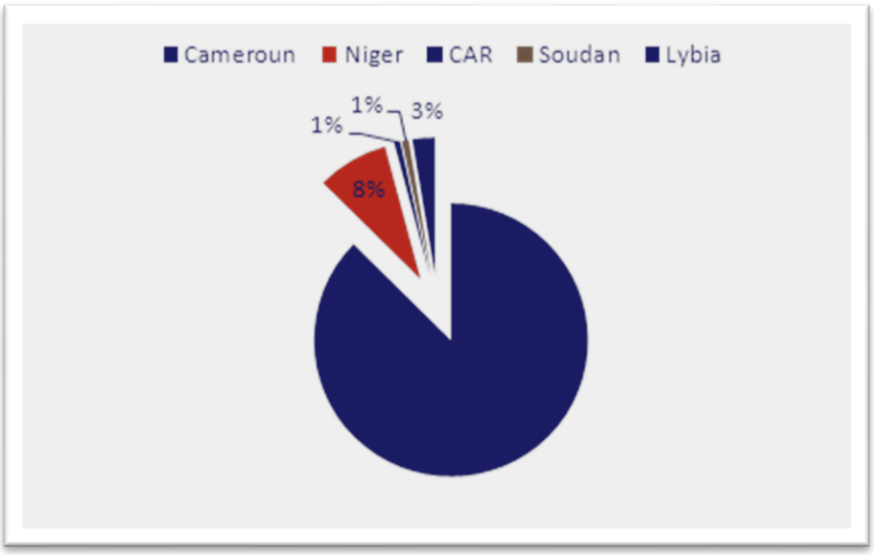
Table 3-16
Transit Traffic to and from Chad by Product Category, 2005-2010 (000 tons)

	2009				2010				2011			
	CMR	Niger	CAR	Libya	CMR	Niger	CAR	Libya	CMR	Niger	CAR	Libya
Regional exports	15.1	2.1	0.1	1.5	14.9	7.3	0.5	1.2	27.3	5.2	1.0	1.2

	2009				2010				2011			
	CMR	Niger	CAR	Libya	CMR	Niger	CAR	Libya	CMR	Niger	CAR	Libya
Regional imports	243.9	30.0	0.5	7.0	308.7	17.9	1.6	4.0	352.2	31.4	2.2	2.1
Total regional trade	259.0	32.1	0.6	8.5	323.6	25.2	2.1	5.2	379.5	36.6	3.2	3.3

SOURCE: Bureau national de fret au Cameroun (BNF) 2012.

Figure 3-6
Chad Regional Trade (2011)



SOURCE: Bureau national de fret au Cameroun (BNF) 2012

Central African Republic

Transit traffic volumes to and from the Central African Republic through the Port of Douala from 2002 to 2011 were smaller than volumes to and from Chad, though CAR ranks second among countries sharing the total traffic flow of that port. The transit traffic from CAR through Douala dropped by 50 percent from 2006 to 2007 then has remained roughly constant through 2010. Though total imports for CAR were lower than those for Chad (for reasons mentioned above), CAR's exports through the port of Douala have always been higher than those for Chad, with a significant portion of export volumes coming from agricultural/forestry products.

Logs are still the largest product category for CAR's transit traffic through Douala, followed by vehicles, food, flour, and petroleum products. Other categories show negligible activity, and the least-traded products fluctuate in volume immensely.

The largest categories of imports are now construction materials, agricultural products, and food products, because vehicle imports are only a small fraction of their peak in 2006. Imports have recovered somewhat, but not to their 2006 levels.

CAR's main regional trade partner is Cameroon, which accounts for 98 percent of regional imports and 74 percent of regional exports (see Tables 3-17 and 3-18).

Table 3-17
CAR Regional Imports (000 tons)

	2009	2010	2011	Total	%
CAR - Chad	0.0	0.8	1.4	2.2	0.4%
CAR – CMR	163.4	188.2	208.4	560.0	98.1%
CAR - Nigeria	0.9	0.6	1.4	2.9	0.5%
CAR - Sudan			0.1	0.1	0.01%
CONGO - CMR		1.8		1.8	0.3%
Transit (CAR - CMR)		1.8		1.8	0.3%
Transit (Congo- CMR)			2.0	2.0	0.4%
Total	164.3	193.2	213.3	570.8	100.0%

SOURCE: BARC 2012

Table 3-18
CAR Regional Exports (000 tons)

	2009	2010	2011	Total	%
CAR - CMR	138.8	129.1	132.3	400.2	73.8%
CAR - Chad	0	0.5	0.9	1.4	0.3%
CAR - NIGERIA	0.1	0.1	0.1	0.3	0.1%
Transit (Congo - CMR)	69.8	33.2	37.0	140.1	25.8%
Total	208.7	162.9	179.3	542.0	100.0%

SOURCE: BARC 2012

Coastal (Abidjan-Lagos) Corridor

The Abidjan–Lagos coastal corridor is primarily a regional trade corridor, but there are also maritime transit flows along several small sections of the corridor. The relative importance of the two categories of flows along the corridor varies, but Togo and Benin are major sources of maritime transit flows to their immediate neighbors, overtaking the regional flows in terms of importance. For the most part, however, the Abidjan-Lagos corridor (ALC) experiences fairly different traffic patterns from those of the corridors serving the region's landlocked countries. The corridor also serves a mixture of traded goods, which are carried by a variety of truck types and sizes, as there is no developed rail mode along the coast (See Appendix A for more details on infrastructure).

REGIONAL (INTRAREGIONAL) TRADE

UN COMTRADE data are useful for analyzing intraregional trade patterns and identifying logistics chains (see Chapter 4 for detailed figures for each pair of trading partners except for

Benin).[10,11]. Collecting customs data directly was out of the scope of this study. We estimate that this activity could take several months because of the following reasons:

- In general detailed data are not systematized in a database and customs are only able to provide hard copies.
- It is difficult to obtain full access to custom's databases for all entry borders
- Even when the international standard classification is usually adopted, some Customs use national codes to register the details, thus additional work is needed to make the data full compatible among all five countries

Table 3-19 provides a matrix summarizing the main products exported between countries. Imports registered by one country differ from exports registered by the partner; this table uses the export figures since import figures were unavailable for Benin. Products are ranked by volume, and only products making up more than 8 percent of total trade volume are listed. Côte d'Ivoire, with refineries in Abidjan, provides petroleum fuels to ALCO countries. Ghana provides manufactured goods and consumer goods, as well as inputs for industry. Togo provides cement for Ghana's industrial activities as well as some products (plastics, cosmetics and clothing) provided by national and international industries benefiting from the Free Trade regime.[12] Nigeria's exports are mixed and vary from petroleum crudes and inputs to industrial processes to Côte d'Ivoire, to manufactured goods, food and consumer goods to other countries.

Table 3-19

Main Products Traded Between Trading Partners in the ALC, by Volume (2010)

Import / Export	Côte d'Ivoire	Ghana	Togo	Nigeria
Côte d'Ivoire		Petroleum products Palm oil Drilling equipment Soap	Petroleum products Pasta Soap	Petroleum products
Ghana	Petroleum products Soap Ferrous products Pasta Soups and broths		Tableware Cartons Palmitic acid Polyester in primary forms Palm oil Plastic articles	Plywood Margarine Palm oil Veneer sheets

[10] Official data do not include smuggling.
[11] UN COMTRADE does not report Beninese data.
[12] In Togo, the free trade zone created in the mid-1980s hosts several manufacturing firms of different nationalities that benefit from fiscal incentives. The free trade zone is not a particular location but actually the whole country (although this may change in the medium term). Sectors allowed are plastics, pharmaceuticals, agro-industries, metallic manufactures, wood products, textiles and clothing, and beauty products. This is partly why packaging material and beauty products appear in Togo's top-10 exports in terms of value.

Import / Export	Côte d'Ivoire	Ghana	Togo	Nigeria
Togo	Garments Soft drinks Waste Plates	Cement clinker		Cosmetics Weaving materials Clothing
Nigeria	Petroleum oils Parts for boring machinery Silicates Crude petroleum Cigarettes	Crude petroleum Aluminum plates Sacks & bags Toothpaste Pasta Cigarettes	Plastic articles Footwear Cocoa powder Chewing gum	

SOURCE: UN COMTRADE 2011.

Interviews conducted in ALC countries gave clues about Benin's trade patterns and allowed the team to fill in some information gaps. Benin imports cosmetics, food, and plastics from Côte d'Ivoire. Benin seems to be the biggest importer of frozen foods in the region, but the ultimate destination seems to be Nigeria.

The following transit traffic patterns are reflected in the data for ports along the ALC:

- Cotonou's primary transit traffic destination is Niger, followed by Nigeria and Burkina Faso. Details of how transit traffic to Niger is smuggled through Nigeria will be discussed later in this report.
- Lomé's transit traffic destinations are Ghana and Burkina Faso, followed by Niger. Traffic to Benin is negligible, confirming discussions about Beninese importers' preference for transit through Lomé because of congestion at Cotonou.
- Ghana's ports were used to the same extent in 2011 by hinterland countries. Of the ALC countries, Togo was the main destination for goods coming from Ghana. Behind these figures is the import of clinker to a cement factory near the Ghanaian border. The Togo Free-Trade Zone has an office at Lomé's port to speed up import and export procedures when goods are under the free-zone regime.[13]
- Abidjan serves transit traffic to Burkina Faso and Mali, but transit traffic to Ghana is also relevant (18 percent of total transit traffic in 2011).
- Cotonou and Lomé have the highest shares of transit traffic among ports in the ALC, but for very different reasons—a significant share of goods at Cotonou are in transit to Niger, but the final destination is actually Nigeria, whereas Lomé port facilitates import procedures with a free trade zone and discourages smuggling.

  For traffic to the hinterland, traders tend to choose the port that requires crossing fewer borders: Mali-Abidjan/Tema, Niger-Cotonou, Burkina Faso-Lomé.

[13] Confirmed in interview with Mr. Sazof Aboudoul-Kadri Amadou

Influence of Trade and Customs Policies on Nigeria

There is significant smuggling from Benin to Nigeria, and to a lesser degree between Ghana and Togo.

Smuggling between Benin and Nigeria through Niger

Diverse analyses provided by the World Bank, anecdotal information obtained during interviews, and analysis of statistics confirm that Cotonou is used by importers from Nigeria to smuggle goods into their country. At Cotonou goods are declared in transit to Niger; once in Maradi, trucks cross into Nigeria headed for Kano, the second-largest city in Nigeria.

In 2010, 46 percent of goods in transit from Cotonou and Lomé went to Niger according to official statistics, while only 14 percent went to Nigeria. Of the two ports, traffic from Cotonou (40-60 percent) has a much higher proportion of transit traffic than Lomé (25-30 percent). Of Cotonou's total transit traffic, officially 66 percent was destined for Niger but the destination is actually Nigeria (See Chapter 7 for more details). The proportion that reportedly goes to Niger appears excessive because other corridors serve Niger, and although Niger has twice the population of Benin, its per capita GDP is only US$ 358 (2010)—less than half that of Benin. This suggests that most of these goods are smuggled into Nigeria following the pattern described below. On the other hand, Lomé is a free port that facilitates import procedures. Togo Free Trade zone has an office at Lomé's port to speed-up import and export procedures when goods are under the free-zone regime.

The World Bank has extensively analyzed the phenomenon of smuggling, concluding that Nigeria's tariff policy, which includes numerous import bans (total and partial) and inconsistent application of tariffs, are the main cause. Up to US$4 billion of cargo enters Nigeria's markets unofficially from Cotonou port, which could make up as much as 15 percent of Nigeria's total imports (Raballand and Mjekiqi 2010). The measures adopted by Nigeria to encourage and protect local production of manufactured goods and agriculture products based on an import-substitution strategy have had the opposite effect. Since 2000, nonoil exports have been negligible, accounting for only 0.9 percent of Nigeria's GDP; the size of the import-substitution industry declined from 175 firms at its peak in the mid-1980s to only 10 factories in stable condition in 2004.

The prohibition list remains unchanged for items produced locally but the list is always undergoing change. This practice generates problems such as the abandoning of cargo at port.

Table 3-20

Reported Transit Flows via Cotonou Port, 2005–2010 (000 tons)

Year	Benin	Niger	Nigeria	Mali	Burkina Faso	Togo	Others	Total	Transit	% Transit	% Benin
2005	3,112	1,041	629	42	106	6	216	5,153	2,041	39.6	60.4
2006	2,894	1,280	798	131	224	2	39	5,369	2,475	46.1	53.9
2007	3,303	1,697	799	112	202	4	36	6,152	2,849	46.3	53.7

Year	Benin	Niger	Nigeria	Mali	Burkina Faso	Togo	Others	Total	Transit	% Transit	% Benin
2008	3,584	2,206	836	108	226	4	35	6,998	3,414	48.8	51.2
2009	3,450	2,076	645	141	315	6	66	6,698	3,248	48.5	51.5
2010	3,071	2,487	615	194	445	6	139	6,959	3,886	55.8	44.2

SOURCE: Official statistics of the Port of Cotonou
NOTE : Others include Chad, Ghana, Côte d'Ivoire and transshipments.

The World Bank's analysis concludes that smuggling originates in Benin, since Niger's and Nigeria's trade imbalances have been declining gradually, which confirms the contradiction between Niger's imports and GDP. Since 2000, the flow of goods entering the customs territory of Benin (measured from mirror import data reported by exporters) has been significantly higher than what Benin reports for imports, with an average ratio of 219 percent from 2000 to 2005, compared to a ratio of 94 percent for Nigeria and 105 percent for Niger.

The World Bank analysis concluded that consumer goods are probably imported to Benin and then smuggled in small quantities along the porous border, which confirms anecdotal information we obtained during field visits. The channels consist of:

- Smuggled re-exports of imports that pay ECOWAS common external tariffs (CET) and/or Benin's tariffs
- Official re-exports to Nigeria from Benin
- Smuggling of imports into Nigeria that are officially in international transit to Niger, but actually cross the border to Nigeria. (The World Bank study also concluded that the greatest unofficial trade from Benin to Nigeria is in used cars, rice, clothing and textiles, as well as general consumer goods)
- Smuggling into Nigeria of imports that were unofficially imported to Benin.

Authorities in Benin are aware of the situation and the need to control it, although it brings in revenue for the port and the country. But the diversion of goods to Nigeria takes place in Niger, not Benin, Benin's control reaches only to the Niger border.

The products with the greatest discrepancies are those on the prohibition list: textiles, used cars, manufactured goods, and miscellaneous manufactured articles. This transit traffic is substantially increased by trade in used vehicles, which includes vehicle smuggling. Table 3-21 shows the destination of vehicles imported through Cotonou.

Table 3-21
Transit Traffic of Used Vehicles at Port of Cotonou, 2005–2010 (units)

Year	Import				Export			
	Passenger Vehicles	Utility Vehicles	Tractors, Trailers	Total Import	Passenger Vehicles	Utility Vehicles	Tractors, Trailers	Total Exports
2005	151,994	1,019	898	153,911	186	101	41	328
2006	201,754	761	1,084	203,599	1,695	33	15	1,743

Year	Import				Export			
	Passenger Vehicles	Utility Vehicles	Tractors, Trailers	Total Import	Passenger Vehicles	Utility Vehicles	Tractors, Trailers	Total Exports
2007	244,100	1,192	1,667	246,959	430	10	12	452
2008	306,529	979	2,942	310,450	377	18	15	410
2009	221,052	1,942	3,510	217,504	523	247	232	1,002
2010	309,314	1,952	314,747	314,747	461	12	15	488

SOURCE: *Official statistics of the Port of Cotonou*

Smuggling of Second-hand Vehicles between Togo and Ghana

Field interviews revealed that some smuggling takes place en route from Togo to Ghana as a consequence of the Ghanaian import prohibition on used vehicles older than 10 years. There are two patterns: (i) vehicles are imported through Lomé and driven into Ghana through the border because of the more relaxed controls at the Ghana border; or (ii) traders pay duties on the vehicles in Togo, and after the vehicles are in the Togolese market they cross the border to be sold in Ghana.

Smuggling is less frequent in or out of Togo because customs authorities there make a full, intrusive inspection when they have a suspicious case. Togo also registers all vehicles transporting transit goods to trace them in case of fiscal fraud.

Overview of Logistics Systems

COMPONENTS

A logistics system is a combination of transport and specialized logistics infrastructure (for instance, container depots and warehouses), services (including freight forwarding and customs clearance), and processes managed by public and private stakeholders to facilitate and control the flow of goods.

IN TRANSIT CORRIDORS TO LANDLOCKED COUNTRIES

The logistics system in the transit corridors serving landlocked corridors is relatively simple and is focused on the ports, border posts, and a few inland terminals with connecting roads and railways. Port and customs processes, especially for imports, dominate the logistics system, including port processing, container stripping and freight allocation to transporters.

IN THE ALC

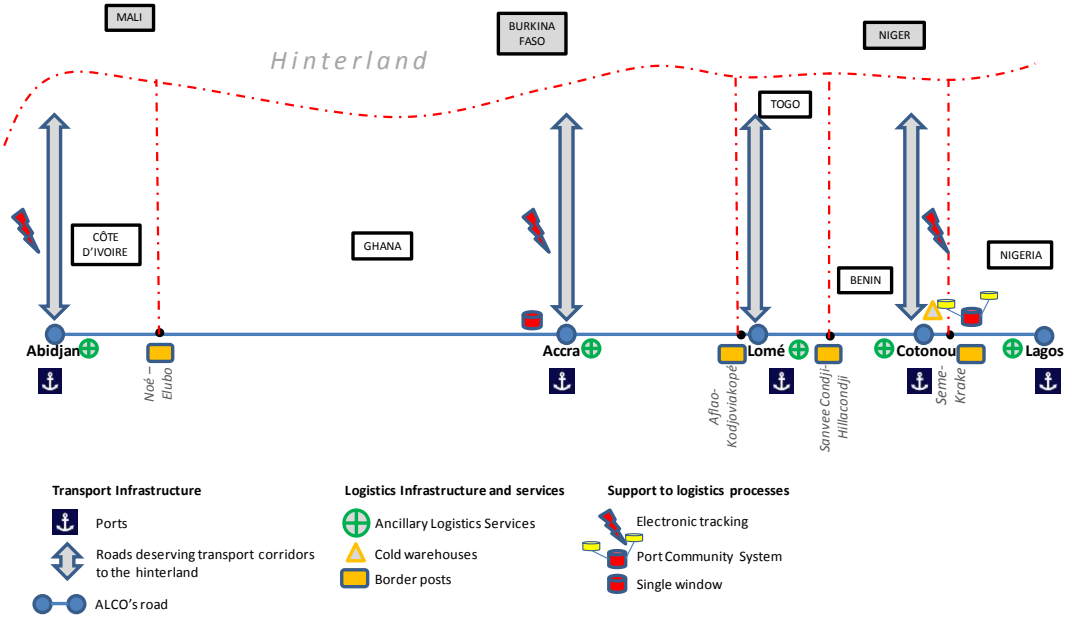
The logistics system in the Abidjan-Lagos Corridor is also rather simple but more complex than that for the transit corridors serving the hinterland. This is because ports compete for

transit cargo, and competition has encouraged the diversification of services, particularly ancillary[14] services.

Figure 3-7 shows the logistics system supply, including transport infrastructure (roads, ports), logistics facilities (border posts, infrastructure for ancillary services, and cold warehouses), services (transport and ancillary logistics services), and processes that take place to allow the flow of goods along the corridor and the tools implemented to facilitate them.

Figure 3-7

Components of the Logistics System in the ALC



SOURCE: *Nathan Associates.*

Logistics services in the ALC are mostly limited to ancillary services. All ports have bonded warehouses. Because of its deep water, the Port of Lomé is the natural transshipment port for ECOWAS countries, which attracts a limited number of value-added services such as consolidation and cross-docking. The short distance of the ALC in Togo and the proximity of the ports have caused the gradual disappearance of bonded warehouses at the borders, which are common in East Africa. Among the services provided is cold storage offered by CAJAF-COMON on the road between Cotonou and Semé, at the border with Nigeria. CAJAF-COMON moves estimated 500–700 containers per month. This operation meets the needs of the Nigerian market, and goods arriving by sea usually maintain the cold chain, but trucks coming from Nigeria are not refrigerated so the cold chain is broken for hours and even days from the cold store to the market.

[14] Ancillary services refer to the type of logistics services linked to movements in ports, airports and border posts. Some ancillary services include: empty container warehousing, forwarding, bonded warehouses, consolidation and deconsolidation. They differ from added-value logistics services in the sense that they are usually considered cost-addition activities and not value addition such as packing/picking, cross-docking, postponement, etc.

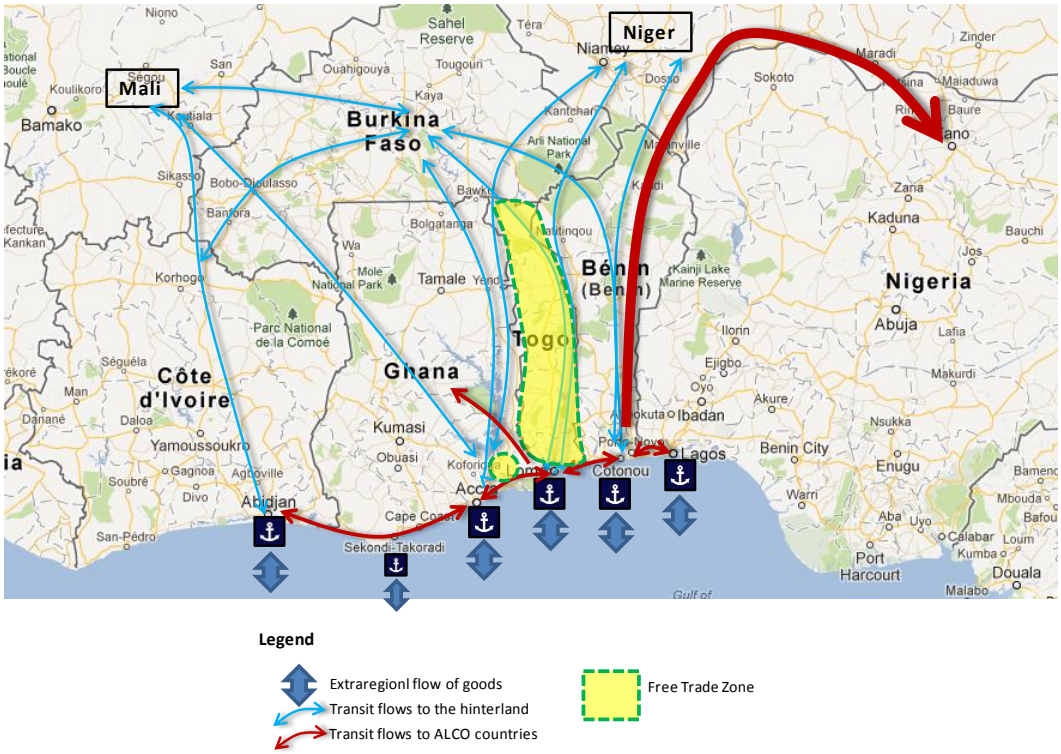
FUNCTIONAL CHARACTERISTICS OF THE LOGISTICS SYSTEM

The ALC serves the most populated areas of the five countries it runs through (See Figure 3-8). Between 33 percent and 42 percent of the urban populations of Benin, Côte d'Ivoire, Ghana, and Togo live in the corridor and its influence area. Consequently, this corridor features a concentration of secondary and tertiary logistics support activities. These activities generate added value and therefore require added-value logistics services (e.g. packaging and transport) as well. Most of these secondary logistics support services are usually provided in-house and the third-party supply is usually only for transport services.

The density of urban population in the ALC generates frequent and more intense trade flows as compared with their own hinterlands, and therefore a regular flow of goods among countries. The volume of non-petroleum products in trade along the corridor is small, however, and shipments are usually consolidated, except for construction materials and industrial inputs. Some countries specialize in specific products and/or services that influence the patterns of the movement of goods. (See Chapter 7 for details on the Abidjan-Lagos Corridor and its logistics systems.)

Figure 3-8

Logistics Flows in ALC and the Influence Area

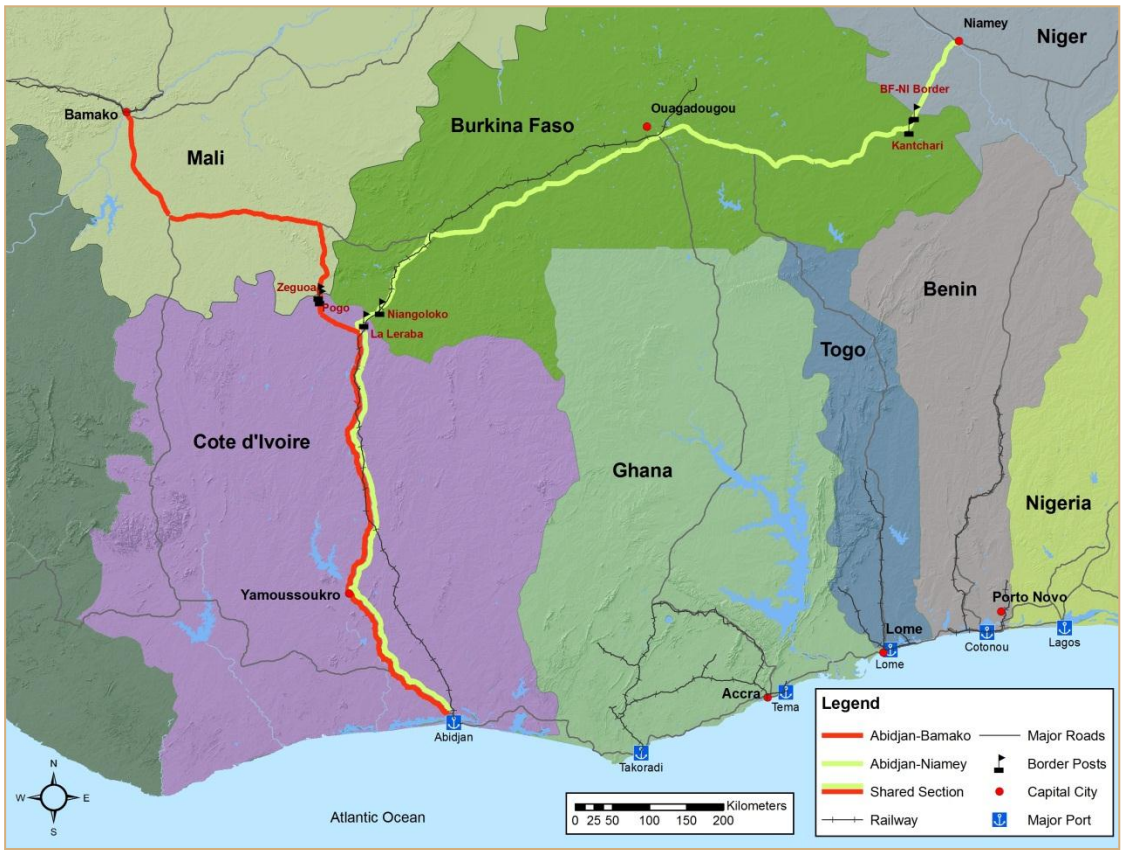


SOURCE: Nathan Associates.

4. Abidjan Corridors

The Abidjan-Ouagadougou and Abidjan-Bamako corridor, presented in Figure 4-1, are partially overlapping corridors that connect Côte d'Ivoire with Burkina Faso and Mali as shown below. They are the primary import/export routes for these two countries, as described in Chapters 2 and 3.

Figure 4-1
Map of Abidjan-Ouagadougou and Abidjan-Bamako Corridors



SOURCE: *Nathan Associates Inc.*

The Abidjan-Ouagadougou corridor is both a road and a rail corridor that is 1,232 km long. The Abidjan-Bamako corridor follows the same road from Abidjan to Ouangolodougou and then branches off to Bamako (a distance of 1,236 km), while the road/rail route takes the

railway from Abidjan to Ferkéssédougou and then continues by road to Bamako. The Ouagadougou route passes through the border posts of Ouangolodougou (Côte d'Ivoire) and Niangoloko (Burkina Faso) on the way to Niamey, although both of these posts are some 30 km from the border town of La Léraba. The Bamako route passes through the border posts of Pogo (Côte d'Ivoire) and Zegoua (Mali).

Shippers using the Abidjan-Ouagadougou and Abidjan-Bamako corridors must contend with the several factors raising logistics costs and hampering their regional and international trade competiveness. In this chapter, following the methodology presented in Chapter 2, we analyze these factors and their impact for corridor users. Logistics cost are categorized in two main groups:

- Financial Costs
  - Gateway Costs—paid directly or indirectly through freight forwarders, clearing agents and/or shipping agents by landlocked shippers at Douala port;
  - Inland Transport Costs—fees paid to truckers or rail operators for actual transit transportation;
  - Inland Processing Costs—incurred when crossing the borders and at final destination.
- Hidden Costs—including transit inventory capital cost (related to transit time) and costs incurred as part of hedging against unreliability.

To quantify the logistics cost along the two Abidjan corridors, we selected four representative trucking companies in term of fleet size, type of vehicle and type of cargo:

- A large sized formal transporter with a fleet of 25 new vehicles with an average age of 3 years transporting a 40-ft container with high-value household appliance from Abidjan to Ouagadougou, and from Abidjan to Bamako. This transporter has signed contracts with shipping lines to deliver shipment as a Through Bill of Lading (TBL-or BL direct) to Ouagadougou or Bamako Almost all the fleet is dedicated to the shipping lines traffic. (Case Study 1a).
- A medium sized formal transporter operating a fleet of 7 new vehicles with an average age of 10 years transporting two 20-ft containers with edible oil going to Ouagadougou or Bamako. This transporter does not have yearly signed contract and has to look for freight at each arrival at port. They are also transporting goods within the country. (Case Study 1b).
- A small, informal transporter operating a fleet of 2-4 secondhand vehicles with an average age of 28 years transporting low-value cargo value in bags (rice) to Ouagadougou or Bamako. This transporter does not have yearly signed contract, they have to look for freight at each arrival at port. They are also transporting goods within Côte d'Ivoire. (Case Study 2).
- A large formal transport company with a fleet of secondhand 45 trucks with an average age of 30 years transporting the equivalent of 2x20-ft containers of high-value spare parts that have been stripped and loaded into the truck as lose cargo, going to Ouagadougou or

Bamako. This company has several yearly contracts with big traders and shipping lines (Case Study 3).

In addition to the truck/road option, the Abidjan-Ouagadougou corridor is served by rail while the Abidjan-Bamako can be served as a mix of rail-road combination; however, due to availability of wagons, the mix rail-road services to Bamako is not operational and the rail services are currently to Ouagadougou primarily. In this route, we also analyzed the logistics costs for rail services for the same products identified in each of the case studies.

Table 4-1 presents additional details for each of the above case studies information about the Case Studies. The results of the analysis for these cases are summarized in the next section.

Table 4-1

Abidjan Corridors Case Studies by Road and by Rail

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Cargo type	40-ft container	2x20-ft containers	1,000 metric tons in 50kg bags	2x20-ft stripped containers
Product type	Household appliance	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	16,800	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	8,282,400	59,160,000
Type of purchased vehicle	New	New	Second hand	Second hand
Present age of the truck	3 years	10 years	Over 20 years	Over 20 years
Number of axles per truck	5	5	5	5
Truck nominal loading capacity in tons	33	40	40	40
Truck effective loading in tons	24	40	44	42
Average number of round trips per year (trucks)	36	36	18	22
ABIDJAN-OUAGADOUGOU				
Round-trip distance road and rail (km)	2,326			
Annual mileage per truck (km)	83,736	83,736	41,868	51,172
ABIDJAN-BAMAKO				
Round-trip distance by road (km)	2,472			
Annual mileage (km)	88,992	88,992	44,496	54,384

NOTE: US$1=FCFA 493.

SOURCE: Interviews December 2011 to October 2012.

Vehicle technical characteristics are similar in most of the corridors of our study, with 4 to 5 axles depending on a nominal loading capacity of 33 tons to 40 tons. The average number of trips per month along the Abidjan corridors vary between 1.5 to 3 trips per month as presented in Table 4-1, depending on the condition of truck and size of the fleet. Annual mileage per truck ranges from 42,000 km per year for an individual transporter operating an old vehicle with frequent breakdowns and few trips per month to 88,000 km per year for a more organized transporter company operating relatively new vehicles. The difference between operating a new or second-hand vehicle has a significant impact on the vehicle operating cost structure in terms of depreciation and financial costs as it will be discussed later in this chapter. Regarding overloading, individual truckers declared that they overload their vehicles, by at least 2 to 4 tons per trip.

The total distance of both corridors is very similar with the Abidjan-Bamako corridor about 150 km longer. However, according to interviews, trucking companies are able to undertake the same number of round trips per year. The road distance presented in the table is indicated on a round trip basis because truckers charge shippers for a round trip considering that, as described in the price determinants in Chapter 2, in the majority of the cases there is no backhaul returning to Abidjan.

Financial Costs of Logistics Services

GATEWAY COSTS

The Port of Abidjan is the largest port in West and Central Africa (See Appendix A for details). In addition to Côte d'Ivoire, it serves the landlocked countries of Mali, Burkina Faso and to some extend Niger. Due to the relative large size of the economy of the Côte d'Ivoire, it handles predominately domestic traffic and transit traffic only represents 3 to 6 percent of the total traffic as described in Chapter 3.

There is not a proper single window in place to manage Customs, port and handling formalities; however, port fees, handling charges and shipping line fees are paid directly by the shipper to the shipping line which redistributes it later to the different parties involved (port, handling companies, etc.)

Port Transit Fees

Transit fees are a sum of all the fees and charges paid during the process of transporting cargo from the port to the final destination. They include the following fees:

- ***Port cargo fees*:** Port cargo fees depend on the type of cargo and the type of arrival transport mode (container or bulk cargo). A port tariff is issued annually. To simplify the process, this fee is invoiced by the shipping line to the shipper. The shipping line pays the port accordingly.

- ***Port handling charges and stevedoring fees***: Stevedoring fees are charged to shippers depending on the type of cargo (container or bulk cargo). Rice arriving in 50-kg bags in a conventional vessel is subject to stevedoring and handling fees, whereas containers are subject to only port handling fees, which for transit cargo is a lump sum per container (rates vary according to the two types of cargo). This fee is invoiced by the shipping line to the shipper according to the tariff published by FEDERMAR (Fédération Maritime de Côte d'Ivoire)[15] and the shipping line pays the stevedoring company.
- ***Shipping agent fees***: Shipping line agents invoice the shipper using the BL exchange and a service charge. The tariffs are the same for all shipping line companies and are published annually by FEDERMAR.
- ***Forwarding and Customs fees***: These fees are invoiced to the shipper by the forwarding agent for processing through Customs. FEDERMAR publishes indicative Customs clearance tariffs that are more or less followed by the clearing agents. The clearing agent also invoices the payments made to other parties (Customs duties and taxes, Customs transit bond, shippers' council fees).[16]

Table 4-2 and 4-3 present the charges described above.

Table 4-2

Port of Abidjan Container and Bulk Transit Fees by Shipper – Port and Shipping Line (FCFA)

			20-ft Container	40-ft Container	Per ton
Port operation	Port fees	Food or agriculture product	10,000	20,000	
		Building materials	25,000	50,000	
		Other	75,000	150,000	
		Rice			221
	Handling and transfer	Handling	124,215	248,430	
		Transfer	66,000	132,000	
		Stevedoring, handling, loading			12,880
Shipping lines representative		Exchange of B/L and service charges	75,000	100,000	150 (max. 100,000)

SOURCE: Port of Abidjan. Interviews in October 2012.

Table 4-3

Port of Abidjan Container and Bulk Transit Fees by Shipper – Customs and Clearing Agent (FCFA)

	Road	Rail	Per ton
Customs clearance and clearing agent (custom bound of 0.5% of the CIF value not included and not applicable for rail)	448,096	455,596	5,552

[15] FEDERMAR is a federation of private enterprises of the maritime and port sector, whose mission is to promote quality and support the competitiveness of the Ivorian maritime economy.

[16] Cargo transported by rail to Burkina is not subject to the payment of the customs bond paid when cargo is trucked to Burkina (0.50 percent of the CIF value).

SOURCE: Port of Abidjan. Interviews in October 2012.

Transiting costs via the Port of Abidjan will vary depending on the type of cargo (container, breakbulk or bulk) and the type of goods. Total gateway costs may range between FCFA 800,000 equivalent to US$1,600 for a 20-ft container with agricultural products to FCFA 1.6 million equivalent to US$3,250 for a 40-ft container. These costs do not include Customs duties or other taxes such as VAT.

Other Transit Costs

The port transit costs listed in the tables above do not include other transit costs such as stripping and reloading of containers, or container demurrage. Table 4-4 summarizes these additional fees; however, these fees are not applicable for all cases.

Table 4-4
Port of Abidjan - Other Charges Paid by Shipper (FCFA)

	Fee
Container stripping and loading (per ton)	4,000
Demurrage or container rental (per day)	Varies from 0 to 6,560

SOURCE: Port of Abidjan. Interviews in October 2012.

INLAND TRANSPORT COSTS

Trucking Industry and Road Transport Tariffs

The trucking industries operating in this corridor are composed of two types of operators: (i) formal sector operators with modern vehicles and modern business practices which handle a small but significant percent of corridor tonnages, and (ii) a majority of small operators with old fleets of trucks using informal business practices.

Within those types, the Authority distinguish two types of transporters: (i) the private transporters which are mostly traders or industry owners who transport for their own private account, (representing 67 percent of the fleet) and (ii) public transporters which are authorized to transport third parties cargo.

Both types of operator own predominantly large trucks (35-40 tons capacity). The average age of these trucks is much younger for Côte d'Ivoire (10-15 years) than for other countries, due to its more developed trucking sector.

Transit truckers employ larger vehicles on average than truckers carrying intra-regional trade. Also there are more formal sector operators in transit while most regional trade is handled by informal sector operators using older and less reliable trucks.

These operators are subject to uneven regulation and can often avoid vehicle inspections by paying bribes. It's now difficult to avoid vehicle inspection along the corridor and drivers find it cheaper to pay for inspection rather than pay bribes.

Tariffs between Abidjan and Ouagadougou and Bamako are subject to market conditions and seasonality. A tariff reference has been published by the main Burkina truckers' union OTRAF in 2009, but it has not been updated for years. The tariff between Abidjan and Bamako is at the same rate than with Burkina Faso. Transport prices are not always related to the transport costs, they are also driven by the factors already presented in Chapter 2, including trade imbalance, seasonal demands, physical state of infrastructure, commercial practices, among others.

Individual transporters who are not established as a company have more difficulties in finding freight than established trucking companies. Those individuals may pay a middle man (called "Coxcer") or even a company specialized in finding freight (called "Société d'appairage") to obtain cargo. The commission may vary from 50,000 to 100,000 FCFA per truck.

Table 4-5 presents the transport tariffs transporters charged in 2012 from Abidjan to Ouagadougou and Bamako.

Table 4-5

Road Transport Tariffs for Abidjan-Ouagadougou and Abidjan-Bamako Corridors in 2012 (FCFA)

	General Tariff	Additional Tariff per Ton
20-ft container	1,500,000 to 1,600,000	45,000 to 55,000
40-ft container or 2 x 20-ft container	1,600,000 to 2,000,000 (average of 1,700,000)	
Break bulk	40,000 to 60,000 FCFA/t (minimum 30 tons)	

SOURCE: *Interviews March to October 2012.*

Truckers' Vehicle Operating Costs Structure

Transport prices should cover operating expenses of transport companies and leave a margin to cover other company's expenses and generate profits. Operating expenses are primarily associated with vehicle operating cost (VOC) and the structure of these expenses depends on the type of truck and its characteristics including number of axles, nominal loading capacity, age, size of the operator's fleet, and annual mileage. Trucking companies, whether formal or informal, break costs down into two categories for analysis:

- ***Fixed costs***—pro rata temporis independently of vehicle usage: financial charges, depreciation of investment, wages, facilities, taxes (including vehicle taxes), and margin.
- ***Variable costs***—proportional to vehicle usage (distance or trips), including fuel, subsistence, road user charges, maintenance, tires, taxes, and informal payments (bribes).

Using the case studies already described, we assessed the VOC structure and the trucking industry profitability for each case study. ***The main parameters and unit costs for the vehicle operations costs are:***

- ***Fuel:*** Transporters interviewed expressed fuel consumption in liters per 100 km. Consumption depends on age, the goods transported, and weight. It varies from between 45 to 60 liters per 100 km. In Côte d'Ivoire, diesel fuel costs FCFA 615 per liter. In Burkina diesel fuel costs FCFA 655 per liter, and in Mali, diesel fuel costs FCFA 550 per liter. The report used the Côte d'Ivoire prices for easy reference.
- ***Tires:*** Transporters interviewed indicated that they change tires at between 30,000 km and 75,000 km of use. Prices for new tires vary between FCFA 300,000 and FCFA 400,000. An average price retained by the report is FCFA 350,000 per tire.
- ***Depreciation:*** Most individual transporters do not calculate truck depreciation. From interview details, we calculate depreciation according to the following methodology:
  - Truck value minus the price of new tires minus the residual value (10 percent of the value) divided by the number of depreciation years.
  - We calculated 3 years for the depreciation of trucks aged more than 10 years, 5 years for trucks aged less than 10 years, and 7 years for new trucks.
  - The depreciation is calculated as followed: The value of the purchased vehicle minus (1) the purchase price of new tires (all tires), and (2) the residual value of the vehicle (10 percent of the purchase price). This amount should be divided by the number of depreciation years to obtain the annual depreciation amount.
- ***Wages and travel allowances:*** Specifically for the Abidjan-Ouagadougou and Abidjan-Bamako corridors, we also took into account ***wages, bribes and access to freight for*** truck drivers and apprentices, who receive average monthly wages of FCFA 120,000 to 170,000. Truck owners provide a lump sum of FCFA 200,000 for each round trip to cover the cost of travel and the bribes distributed to authorities along the way.

Tables 4-6 and 4-7 present the breakdown of VOC into components for each case study on the Abidjan-Ouagadougou and on the Abidjan-Bamako corridors.

Table 4-6

Details of Fixed and Variable Trucking Costs for the Abidjan-Ouagadougou Corridor by Case Study (FCFA)

Expense	Case Study 1a		Case Study 1b		Case Study 2		Case Study 3	
	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total
ANNUAL VARIABLE COSTS/VEHICLE								
Fuel and lubricants	27,548,820	62.0%	27,548,820	62.3%	16,349,292	61.8%	18,408,929	59.5%
Tires	3,000,000	6.7%	1,800,000	4.1%	1,300,000	4.9%	1,400,000	4.5%

Expense	Case Study 1a		Case Study 1b		Case Study 2		Case Study 3	
	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total
Maintenance	2,000,000	4.5%	2,200,000	5.0%	2,000,000	7.6%	1,700,000	5.5%
Total variable costs	32,548,820	73.2%	31,548,820	71.4%	19,649,292	74.3%	21,508,929	69.5%
ANNUAL FIXED COSTS/VEHICLE[a]								
Gross crew wages (including travel expense)	9,240,000	20.8%	9,240,000	20.9%	5,940,000	22.5%	7,490,000	24.2%
Vehicle insurance	500,000	1.1%	500,000	1.1%	500,000	1.9%	500,000	1.6%
Goods insurance		0.0%		0.0%		0.0%		0.0%
Vehicle general taxes	362,000	0.8%	362,000	0.8%	362,000	1.4%	362,000	1.2%
Management overhead	1,800,000	4.0%	2,520,000	5.7%		0.0%	1,100,000	3.6%
Total fixed costs	11,902,000	26.8%	12,622,000	28.6%	6,802,000	25.7%	9,452,000	30.5%
ANNUAL TOTAL COST/VEHICLE								
Total VOC	44,450,820	100%	44,170,820	100%	26,451,292	100%	30,960,929	100%

NOTE: [a] Not including depreciation and financing costs.
SOURCE: Data collected March to October 2012.

Table 4-7
Details of Fixed and Variable Trucking Costs for the Abidjan-Bamako Corridor by Case Study (FCFA)

Expense	Case Study 1a		Case Study 1b		Case Study 2		Case Study 3	
	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total
ANNUAL VARIABLE COSTS/VEHICLE								
Fuel and lubricants	29,165,040	63.3%	29,165,040	63.7%	17,319,024	63.2%	19,495,388	60.8%
Tires	3,000,000	6.5%	1,800,000	3.9%	1,300,000	4.7%	1,400,000	4.4%
Maintenance	2,000,000	4.3%	2,200,000	4.8%	2,000,000	7.3%	1,700,000	5.3%
Total variable costs	34,165,040	74.2%	33,165,040	72.4%	20,619,024	75.2%	22,595,388	70.5%
ANNUAL FIXED COSTS/VEHICLE[a]								
Gross crew wages (including travel expense)	9,240,000	20.1%	9,240,000	20.2%	5,940,000	21.7%	7,490,000	23.4%
Vehicle insurance	500,000	1.1%	500,000	1.1%	500,000	1.8%	500,000	1.6%
Goods insurance		0.0%		0.0%		0.0%		0.0%
Vehicle general	362,000	0.8%	362,000	0.8%	362,000	1.3%	362,000	1.1%

Expense	Case Study 1a		Case Study 1b		Case Study 2		Case Study 3	
	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total
taxes								
Management overhead	1,800,000	3.9%	2,520,000	5.5%		0.0%	1,100,000	3.4%
Total fixed costs	10,902,000	25.8%	12,622,000	27.6%	6,802,000	24.8%	9,452,000	29.5%
ANNUAL TOTAL COST/VEHICLE								
Total VOC	46,067,040	100%	45,787,040	100%	27,421,024	100%	32,047,388	100%

NOTE: [a] Not including depreciation and financing costs.

SOURCE: Data collected March to October 2012.

Truckers' Profitability and Financing Gap

With the VOC information and the operational revenue, and following g the approach described in Chapter 2, we are able to determine gross operating margin for each case study and calculate the residual income for financing the vehicle and other non operational expenses of the companies. For this analysis we used the following assumptions:

- All operators, not only truckers, underestimate their real revenue, by overestimating their expenses and underestimating real income.
- All operators have informal expenses and revenues.
- For some informal transporters an additional source of revenue is backhaul cargo, whether legal outbound exports or illegal cabotage or smuggling in some of the corridors.
- For those informal transporters, two return trips out of three are empty, but one is fully loaded with export or cabotage cargo—that is, outbound traffic is equal to 33 percent of inbound traffic.
- Backhaul traffic is transported with a 50 percent discount.

These assumptions reflect the transport environment and business practices in the Abidjan-Ouagadougou and Abidjan-Bamako and also along other West and Central Africa corridors as observed during field visits.

The calculation of the gross operating margin and the residual income for the Abidjan-Ouagadougou and Abidjan-Bamako corridors are presented in Table 4-8. The following main conclusions are drawn from the results of the analysis:

- All transporters have positive gross operating margins, particularly the Case Study 1a and 1b with amounts over 40 percent of revenues for Ouagadougou and Bamako corridors.
- Informal truckers operating a small fleet of second-hand vehicles generate sufficient income to finance their current vehicle, but not sufficient to finance new vehicles.

Formal truckers operating a large fleet of newly purchased vehicles and transporting containerized cargo charge higher transport tariffs. They generate enough income to finance

another truck after the depreciation time. Additionally, the more they overload their vehicles the faster they can replace the fleet.

Table 4-8
Annual Profit Margin per Vehicle and Financing Gap for Road Transporters on Abidjan Corridors (FCFA)

		Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Abidjan–Ouagadougou Corridor					
Vehicle operating cost		44,450,820	44,170,820	26,451,292	30,960,929
Revenue		72,000,000	77,400,000	31,680,000	39,732,000
Difference		27,549,180	33,229,180	5,228,708	8,771,071
Gross operating margin*		38%	43%	17%	22%
Accounting practice	Depreciation	10,771,429	10,771,429	3,216,667	4,116,667
	Financing	4,712,400	4,712,400	0	0
Financing gap		12,065,351	17,745,351	2,012,041	4,654,404
Abidjan–Bamako Corridor					
Vehicle operating cost		46,067,040	45,787,040	27,421,024	32,047,388
Revenue		72,000,000	77,400,000	31,680,000	39,732,000
Difference		25,932,960	31,612,960	4,258,976	7,684,612
Gross operating margin		36%	41%	13%	19%
Accounting practice	Depreciation	10,871,429	10,871,429	3,216,667	4,116,667
	Financing	4,712,400	4,712,400	0	0
Financing gap		10,349,131	16,029,131	1,042,309	3,567,945

NOTE: Additional revenues minus additional costs for outbound loads.
SOURCE: Data collected March to October 2012.

Rail Transport Tariffs

The railway is operated by Sitarail, a public-private consortium including Bolloré, a logistics company which manages the container terminal in the Port of Abidjan (See Appendix A for details). This arrangement results in the railway being part of a well–integrated logistics service throughout the region.

Sitarail organizes three daily departures from the Port of Abidjan. Ninety five percent of the shipments are loaded at SETV terminal (container and Bulk) in the port where Sitarail has a siding. The trains reach Ouagadougou between 48 to 55 hours after departure and provide a very reliable service in normal times.

Sitarail has suffered from the last 10 years of political unrest in Côte d'Ivoire which made return on investments difficult. They even stopped operation for several months in 2003 and in 2011. The rail maintenance was not performed by the Governments either. Now that the political situation seems to be back to normal, Sitarail is suffering from a lack of wagons which results in additional waiting time for shipments. The waiting time for loading wagons

is presently from 1 day to 10 days. Due to this shortage, Sitarail has temporarily stopped accepting shipments for Mali that would be transferred to road at Ferkéssédougou.[17]

The success of rail transport in the Corridor comes from the time reliability (48h to 55h) between Abidjan and Ouagadougou, the security and the relatively lower fixed tariff offered by Sitarail. Official rates for containers and bulk shipment (bags, boxes) are published and are valid at least for a year. Containers rates depend on the size and the weight whereas bulk shipments rates depend on the weight and nature of the good transported.

A wagon can be loaded to a maximum of 60 tons, and can take one 40-ft'container or two 20-ft containers. Rates are valid all the year and do not depend on the seasons. However, they may be negotiable depending on the volume. Bulk rates are published by commodity type. Table 4-9 presents rail container tariffs.

Table 4-9

Rail Transport Tariffs per Container Abidjan-Ouagadougou in 2012 (FCFA)

	20-ft Container	40-ft Container
From 0 to 20 tons	650,000	1,250,000
From 21 to 25 tons	800,000	1,250,000
From 26 to 30 tons	1,250,000	1,250,000

SOURCE: *Sitarail 2012.*

Dry bulk freight rates depend on the nature of the goods and vary from 33,575 FCFA per ton for dry vegetables and salt to 119,160 FCFA per ton for dangerous goods as presented in Table 4-10.

Table 4-10

Rail Transport Break Bulk Tariffs by Type of Good Abidjan-Ouagadougou in 2012 (FCFA)

Goods	Tariff
Dangerous goods	119,511
General cargo	84,102
Vegetable oil	40,043
Rice	38,500
Cement gravel	39,214
Dry vegetable, salt	33,575

SOURCE: *Sitarail 2012.*

[17] Sitarail will be receiving by the end of 2012, 97 new wagons equivalent to an additional transport capacity of 105,000 tons (11 percent of the present capacity) that will be added to the current 23 locomotives and 900 wagons.

Comparison Between Rail and Road Transport

In addition to greater reliability (goods reach Ouagadougou 48-55h after Abidjan departure), rail transport offers freight rates that are in general lower than the truck freight rates. This freight rate comparison only considers the amount paid to the railways or the truck and does not include Terminal handling costs nor loading or unloading cargo at final delivery. For example, for a single 20-ftcontainer the rail rate is 50 percent less than the road tariff for an equivalent tonnage of cargo. For two 20-ft containers loaded in a single truck, if each of them weighs less than 20 tons, the rail freight rate is 23 percent less than the truck tariff and for 40-ft'containers, the train rate is 24 percent less expensive than road transport.

For bulk cargo, train tariffs may be less attractive for some types of cargo but it is not subject to a minimum of tonnage as truck freight rates usually are.

INLAND PROCESSING COSTS

The inland transit trip along these two corridors utilizes a GPS device to keep track of the transit cargo destined to Burkina Faso or Mali, while it is in Ivorian territory. After customs formalities are completed at the Port of Abidjan, the Côte d'Ivoire Chamber of Commerce the national guarantor in charge of Customs bounds (FGR) and truck tracking, installs a tracking device at the port so the truck can travel to the actual border without Customs escort. The tracking device is collected back at the border in Ouangolodougou or Pogo respectively. Once cargo is processed at the Ivorian border, trucks proceed to the landlocked country border.

Cargo destined to Burkina Faso proceeds to Niangoloko where the clearance process begins and cargo information is entered into Customs system. Customs convoy escorts for trucks which are not carrying containers are organized twice a day (11h00 and 15h00) to continue their trip to its inland terminals Boborinter or Ouagarinter, where all cargo entering the country is finally cleared and cargo is released to continue the trip to the final destination. Non containerized cargo in transit through Burkina is also subject to Customs escort up to the exit border. This service is paid by the shipper as part of the clearance procedure. Cargo traveling by rail is partially processed by the customs office located in the Niangoloko rail station and final clearance is performed at Ouaga-gare. Cargo destined to Mali, is processed at Pogo and the Customs office organizes two convoy escorts daily (11h00 and 15h00) to the actual border of Zegoua for non-containerized transit cargo. From there, Customs convoy escorts are organized to Sikasso where all non–empty trucks are scanned.

Table 4-11 presents border Customs formalities and inland terminal costs.

Table 4-11
Clearing Formalities Costs at Borders and Final Destination and Inland Terminal Handling Fees (FCFA)

	Rail	Road
CUSTOMS		
Border formalities	50,000	76,000
Customs fees at Ouagarinter/Boborinter	465,020	397,820
INLAND TERMINAL		
Handling fees – 20-ft container	120,360	102,000
Handling fees – 40-ft container	194,700	165,000

SOURCE *interviewed freight forwarders*

SUMMARY OF FINANCIAL COST OF LOGISTICS SERVICES TO THE SHIPPER

Total financial costs are the sum of financial costs for gateway, inland transport and border-crossing and inland destination/clearance costs to Ouagadougou and Bamako respectively. Tables 4-12 through 4-14 summarizes total financial costs for each case study by road and rail accordingly.

Table 4-12
Total Financial Costs of Logistics Services to Ouagadougou by Road by Case Study (FCFA)

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Origin-destination	Abidjan-Ouagadougou			
Round-trip distance (km)	2,326			
Cargo type	40-ft container	2x20-ft containers	1,000 t in 50kg bags	2x20-ft stripped containers
Product type	Household appliances	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	16,800	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	8,282,400	59,160,000
GATEWAY COSTS				
Total handling and port transit fees	398,430	329,270	421,684	536,900
Clearing fees (including customs, shipping line and Customs clearance fees)	720,646	504,788	395,762	936,466
Container stripping charges	-	0	155,320	168,000
Container demurrage charges*	126,292	126,292	-	
Total gateway costs	1,245,368	960,350	829,288	1,641,366
INLAND TRANSPORT COSTS				
Total road transport price	1,650,000	2,150,000	1,760,000	1,806,000

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
BORDERS AND INLAND DESTINATION COSTS				
Terminal handling at final destination	165,000	204,000	0	0
Customs clearance formalities	397,820	377,580	244,365	468,720
Border crossing formal costs at Ouangolodougou / Niangoloko	76,000	76,000	76,000	76,000
Total Borders and inland Terminals and formalities costs	638,820	657,580	320,365	544,720
TOTAL FINANCIAL LOGISTICS COSTS				
Total financial logistics costs (FCFA)	3,534,188	3,767,930	2,909,653	3,992,086
Total financial logistics costs per ton (FCFA)	147,258	94,198	66,128	95,050
Total financial costs per ton (US$)	299	191	134	193

NOTE: US$1=FCFA 493
SOURCE Nathan Associates' calculations.

Table 4-13
Total Financial Logistics Costs to Ouagadougou by Rail by Case Study (FCFA)

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Origin-destination	Abidjan-Ouagadougou			
Round-trip distance (km)	2,326			
Cargo type	40-ft container	2x20-ft containers	1,000 t in 50kg bags	2x20-ft stripped containers
Product type	Household appliances	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	16,800	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	8,282,400	59,160,000
GATEWAY COSTS				
Total handling and port transit fees	398,430	329,270	421,684	359,270
Clearing fees (including customs, shipping line, customs bounds and Customs clearance fees)	555,596	438,338	218,450	648,166
Container stripping charges / Wagon loading	0	0	155320	168000
Container demurrage charges*	113,663	113,663	0	0
Total gateway costs	1,067,689	881,271	795,454	1,175,436
INLAND TRANSPORT COSTS				
Total rail transport price	1,250,000	1,600,000	1,694,000	2,135,159

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
BORDERS AND INLAND DESTINATION COSTS				
Terminal handling at final destination	194,700	240,720	132,000	126,000
Customs clearance formalities	465,020	464,580	244,365	443,720
Border crossing formal costs at Ouangolodougou / Niangoloko	50,000	50,000	50,000	50,000
Total Borders and inland Terminals and formalities costs	709,720	755,300	426,365	619,720
TOTAL FINANCIAL LOGISTICS COSTS				
Total financial logistics costs (FCFA)	3,027,409	3,236,571	2,915,819	3,930,315
Total financial logistics costs per ton (FCFA)	126,142	80,914	66,269	93,579
Total financial costs per ton (US$)	255.87	164.13	134.42	189.82

NOTE: US$1=FCFA 493
SOURCE Nathan Associates' calculations.

Table 4-14
Total Financial Logistics Costs to Bamako by Road by Case Study (FCFA)

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Origin-destination	Abidjan-Bamako			
Round-trip distance (km)	2,472			
Cargo type	40-ft container	2x20-ft containers	1,000 t in 50kg bags	2x20-ft stripped containers
Product type	Household appliances	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	16,800	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	8,282,000	59,160,000
GATEWAY COSTS				
Total handling and port transit fees	398,430	329,270	421,684	536,900
Clearing fees (including customs, shipping line, customs bounds and Customs clearance fees)	742,646	554,788	286,284	841,150
Container stripping charges/ Truck loading	-	-	155,320	168,000
Container demurrage charges	176,810	176,810	-	
Total gateway costs	1,317,886	1,060,868	863,288	1,546,050
INLAND TRANSPORT COSTS				
Total road transport price	1,700,000	2,150,000	1,760,000	1,806,000
INLAND DESTINATION COSTS				
Border crossing formal costs at Pogo / Zegoua	71,000	71,000	71,000	71,000

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Customs clearance formalities at final destination	359,020	319,580	206,565	358,320
Total border and inland destination costs	430,020	390,580	277,565	429,320
TOTAL FINANCIAL LOGISTICS COSTS				
Total financial logistics costs (FCFA)	3,447,906	3,601,448	2,900,853	3,781,370
Total financial logistics costs per ton (FCFA)	143,663	90,036	65,928	90,033
Total financial costs per ton (US$)	291.41	182.63	133.73	182.62

NOTE: US$1=FCFA 493
SOURCE: Nathan Associates' calculations.

The main findings associated with financial logistics costs are as follows:

- When comparing the cost per ton, at an almost equivalent tonnage (40 – 44t) per truck, the cargo transported in container and trucked is almost 42percent more expensive at 94,198 FCFA/ton than a shipment in bulk at 66,128 FCFA/t. The impact can be even bigger the more light is a container. It is one of the reasons why shippers are likely to strip light containers at port arrival especially if the shipment is made of several containers
- For containerized cargo, the gateway costs are dominated by the Customs & clearance formalities at Abidjan where the forwarder service charge and the shipping lines fees accounts for more than 65 percent of customs formalities in Abidjan.
- Road transport and logistics cost for a 40-ft container (24t) is equivalent to 147,000 FCFA/ton and is 11 percent higher than rail transport and logistics cost, equivalent to 126,000 FCFA /ton. This is mostly due to a higher transport cost (+32 percent) and a slightly higher logistics cost (5 percent) on the road section.
- On the bulk shipment (rice arriving in bags) the transport and logistics costs per ton are slightly the same whether it is transported by road or rail at 66,128 FCFA/ton. Indeed, the relatively lower rail transport rate is compensated with additional handling fees.
- Customs bounds may greatly affect the logistics cost, it counts for 9 percent of the logistics cost for a container transporting high value equipment like the household appliance. Note that railed cargos are not subject to pay customs bounds.
- Cargo transported by rail to Ouagadougou is less expensive than cargo trucked to Ouagadougou it is mainly due to the transport tariff which is less expensive by rail.

Hidden Costs

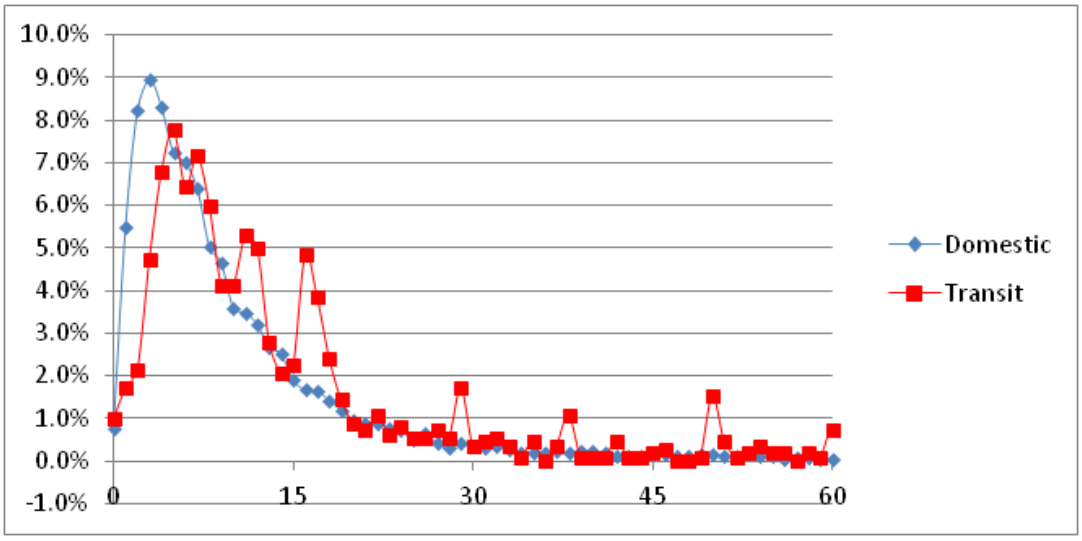
Hidden costs are the indirect costs supported by shippers, whether in landlocked countries or not, in addition to direct payments to operators and truckers along the logistics chain. These hidden costs include transit inventory costs, based on the opportunity cost of capital and the most frequent total transit time from shipment arrival to shipper's warehouse, and hedging of

unreliability costs, associated with uncertainty and unpredictability. In both cases, hidden costs include the capital opportunity cost of equivalent days of extra inventory, financial charges, obsolescence, fixed costs of warehousing at destination, and loss of damaged or stolen goods.

To calculate the hidden costs, it is first necessary to analyze dwell times, transit times, and their variation along the Abidjan-Ouagadougou and Abidjan-Bamako corridors.

Figure 4-2 presents the dwell time distribution for domestics and transit full containers according to detailed data provided by Abidjan port authorities. As it can be observed in the graphic, the modal value for transit containers is about 7.5 days which concerns 7% to 8% of the total transit containers. Interviewed freight forwarders at Abidjan port reported nearly the same most frequent dwell time (7 days), but with a most frequent minimum of 4 days and a most frequent maximum of 11 days. Considering that extreme values appearing on the graphic, such as a maximum of 60 days concerns in fact less than 1% of total transit containers and therefore is not significant, we based our assessment of the transit inventory costs and unreliability costs on a most frequent value (7.5 days), a minimum of 4 days, a maximum of 11 days, with a dwell time variation of 7 days as presented in Table 4-15. This table also presents the transit times for land transport and inland customs processing.

Figure 4-2
Dwell Time Distribution at Abidjan Port (2012)



SOURCE *Abidjan Port Authority*

Table 4-15
Dwell and Transit Times for Abidjan-Ouagadougou and Abidjan-Bamako Corridors (days)

	Minimum	Most frequent	Maximum	Range
ABIDJAN-OUAGADOUGOU BY ROAD				
Port dwell time	4	7.5	11	7
Travel time on the corridor (round trip)	7	9	10	3
Times for customs clearance at final destination	1	1.5	2	1
Total corridor transit time	12	18	23	11
ABIDJAN-OUAGADOUGOU BY RAIL				
Port transit dwell time	4.2	10.5	17.8	13.6
Travel time on the corridor (round trip)	4	6	6	2
Times for customs clearance at final destination	1	3	5	4
Total corridor transit time	9.2	19.5	28.8	19.6
ABIDJAN-BAMAKO				
Port transit dwell time	4	7.5	11	7
Travel time on the corridor (round trip)	7	9	10	3
Times for customs clearance at final destination	1	1.5	2	1
Total corridor transit time	12	18	23	11

SOURCE: *Abidjan Port Authority and Interviews 2012.*

As Table 4-15 shows, total transit time from vessel at anchor at the port of Abidjan to final destination in Ouagadougou averages 18 days, with trucking time accounting for about 8 days (or 45 percent of the total), and port dwell time accounting for 36 percent. Total transit time for cargo transported by rail averages about 20 days, with port dwell time accounting for 10.5 days (or 53 percent), and land travel time accounting for 9 days (47 percent for both travel time and Customs clearance at destination). The excessive time spent at the port is essentially due to a shortage of wagons from Sitarail despite three daily departures.

The total average dwell times for road and rail travel are nearly the same with a difference of 1.5 days longer by rail. Clearing agents complain that the time for wagon allocation has greatly increased in the last 2 years. Before that, Sitarail was able to deliver a wagon 24h after vessel arrival. In general, shippers prefer to send their cargo by rail because rail travel time is more reliable and railed cargos are not subject to paying the Customs Bond Fee (called Fond de Garantie Routier, 0.50 percent of the CIF value).

HIDDEN COSTS BY CASE STUDY

Tables 4-16 to 4-18 present our calculations of hidden costs for our four representative cases. These vary depending on the mode of transportation and the value of the underlying type of

cargo.[18] The cost per destination (Bamako or Ouagadougou), however, does not vary considerably. For road transport and relatively cheap products, such as rice and edible oil, hidden costs make up close to 15 percent of trucking price, while for more expensive products they make up between 50 to 95 percent of the trucking price. For rail transport to Ouagadougou, hidden costs make up on average 15 to 30 percent of the rail transport price for cheap products and about 90 percent for more expensive products.

Table 4-16

Transit Inventory Costs and Costs of Hedging Against Uncertainty for Road Transport Abidjan-Ouagadougou by Case Study (FCFA)

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Round-trip distance (km)	2,326			
Cargo type	40-ft container	2x 20-ft container	1000 t in 50kg bags	2 x 20-ft stripped container
Product type	Household appliances	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	16,800	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	8,282,400	59,160,000
Transport rates per trip (FCFA)	1,650,000	2,150,000	1,760,000	1,806,000
Annual capital opportunity cost				30%
TRANSIT INVENTORY COSTS				
Total transit inventory costs	465,649	199,564	118,563	846,879
HEDGING UNRELIABILITY COSTS				
Unreliability costs due to port transit delays	170,186	72,937	51,623	368,737
Unreliability costs due to corridor land transit delays	113,458	48,625	27,230	194,499
Unreliability costs due to customs clearance at final destination	85,093	36,468	20,422	145,874
Total hedging unreliability costs	368,737	158,030	99,275	709,110
TOTAL HIDDEN COSTS				
Total hidden costs (FCFA)	834,386	357,594	217,838	1,555,989
Total hidden costs (FCFA) per ton	34,766	8,940	4,951	37,047
Total hidden costs (US$) per ton	70.52	18.13	10.04	75.15

NOTE: US$1=FCFA 493
SOURCE Nathan Associates' calculations.

[18] The hidden costs are calculated by multiplying the daily capital opportunity cost, the range between the minimum and maximum delay and the CIF cargo value (for more information, please refer to Chapter 2).

Table 4-17

Transit Inventory Costs and Costs of Hedging against Uncertainty for Transport by Rail Abidjan-Ouagadougou by Case Study (FCFA)

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Round-trip distance (km)				2,326
Cargo type	40-ft container	2x 20-ft container	1000 t in 50kg bags	2 x 20-ft stripped container
Product type	Household appliances	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	19,200	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	9,465,600	59,160,000
Transport rates per trip (FCFA)	1,250,000	1,600,000	1,694,000	2,135,159
Annual capital opportunity cost				30%
TRANSIT INVENTORY COSTS				
Total Transit Inventory costs	550,742	236,032	133,029	950,207
HEDGING UNRELIABILITY COSTS				
Unreliability costs due to port transit delays	385,283	165,121	92,468	660,485
Unreliability costs due to corridor transit delays	56,729	24,312	13,615	97,249
Unreliability costs due to customs clearance at final destination	113,458	48,625	27,230	194,499
Total hedging unreliability costs	555,469	238,058	133,313	952,233
TOTAL HIDDEN COSTS				
Total hidden costs (FCFA)	1,106,211	474,090	266,342	1,902,440
Total hidden costs (FCFA) per ton	46,092	11,852	6,053	45,296
Total hidden costs (US$) per ton	93.49	24.04	12.28	91.88

NOTE: US$1=FCFA 493
SOURCE Nathan Associates' calculations.

Table 4-18

Transit Inventory Costs and Costs of Hedging against Uncertainty for Road Transport Abidjan–Bamako by Case Study (FCFA)

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Round-trip distance	2,472			
Cargo type	40-ft container	2x 20-ft container	1000 t in 50kg bags	2 x 20-ft stripped container
Product type	Household appliances	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	19,200	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	9,465,600	59,160,000

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Transport rates per trip (FCFA) (inbound)	1,700,000	2,150,000	1,760,000	1,806,000
Annual capital opportunity cost				30%
TRANSIT INVENTORY COSTS				
Total transit inventory costs	550,269	235,830	138,872	991,943
HEDGING UNRELIABILITY COSTS				
Unreliability costs due to port transit delays	170,423	73,038	51,113	365,090
Unreliability costs due to corridor transit delays	85,093	36,468	20,422	145,874
Unreliability costs due to Customs clearance at final destination	113,458	48,625	27,230	194,499
Total hedging unreliability costs	368,973	158,131	98,765	705,463
TOTAL HIDDEN COSTS				
Total hidden costs (FCFA)	919,242	393,961	237,637	1,697,406
Total hidden costs (FCFA) per ton	38,302	9,849	5,401	40,414
Total hidden costs (US$) per ton	77.69	19.98	10.96	81.98
% of transport price	54%	18%	14%	94%

NOTE:: US$1=FCFA493
SOURCE Nathan Associates' calculations.

Total Logistics Costs

Table 4-19 summarizes the total logistics costs and their components for each of the case studies that were examined for these corridors. Figures 4-3 to 4-5 illustrate the following conclusions about total logistics costs for the Abidjan corridors:

- For high-value products such as household appliances and mechanic spare parts, hidden costs due to transit time and unreliability represent about 20 to 30 percent of total logistics costs.
- For relatively low-value products, such as rice and edible oil, total financial logistics services are the most important components of the total logistics costs, with hidden costs representing only about 10 percent.
- For the entire Abidjan-Ouagadougou and Abidjan-Bamako corridors—and though the arithmetic mean isn't a representative statistic indicator—the hidden costs represent on average 22 percent of total logistics costs, the transport price 43 percent, and gateway/inland processing costs 35 percent.
- This analysis reveals that the hidden costs along the Abidjan Corridors are significant but not dominant.

Table 4-19

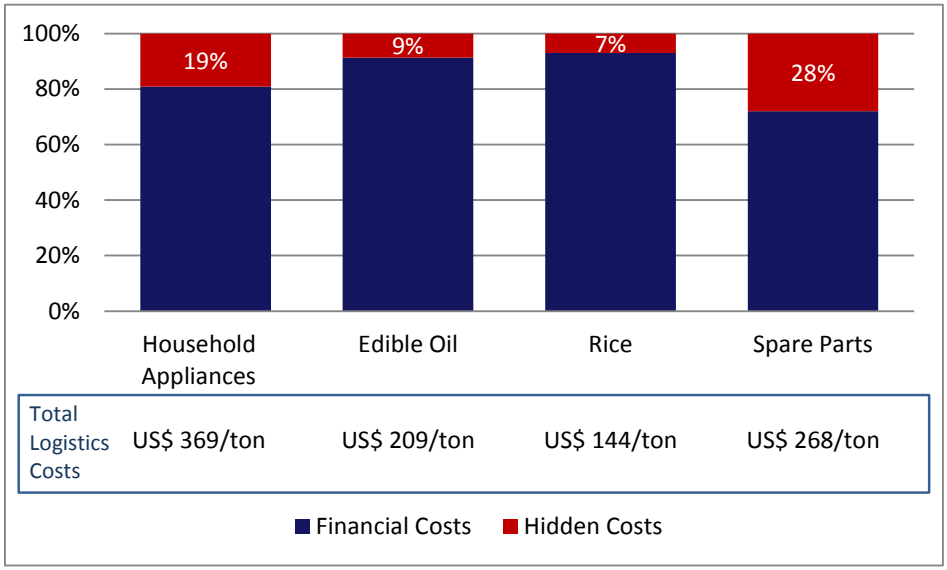
Total Logistics Costs for Transport Abidjan–Ouagadougou by Road and by Rail and to Bamako by Road for Each Case Study (FCFA)

Component	Case Study 1a		Case Study 1b		Case Study 2		Case Study 3	
	FCFA	%	FCFA	%	FCFA	%	FCFA	%
ABIDJAN-OUAGADOUGOU BY ROAD								
Financial logistics costs	3,534,188	80.9	3,767,930	91.3	2,909,653	93.0	3,992,086	72.0
Hidden costs	834,386	19.1	357,594	8.7	217,838	7.0	1,555,989	28.0
Total logistics costs	4,368,574	100	4,125,524	100	3,127,491	100	5,548,075	100
Total logistics costs per ton (FCFA)	182,024		103,138		71,079		132,097	
Total logistics costs per ton (US$)	369		209		144		268	
ABIDJAN-OUAGADOUGOU BY RAIL								
Financial logistics costs	3,027,409	73.2	3,236,571	87.2	2,789,627	91.3	3,930,315	68.6
Hidden costs	1,106,211	26.8	474,090	12.8	266,342	8.7	1,795,156	31.4
Total logistics costs	4,133,620	100	3,710,661	100	3,055,968	100	5,725,471	100
Total logistics costs per ton (FCFA)	172,234		92,767		69,454		136,321	
Total logistics costs per ton (US$)	349		188		141		277	
ABIDJAN-BAMAKO BY ROAD								
Financial logistics costs	3,447,905	79.0	3,601,447	90.1	2,900,853	92.5	3,781,370	69.0
Hidden costs	919,242	21.0	393,961	9.9	237,637	7.5	1,697,406	31.0
Total logistics costs	4,367,147	100	3,995,408	100	3,138,489	100	5,478,776	100
Total logistics costs per ton (FCFA)	181,964		99,885		71,329		130,447	
Total logistics costs per ton (US$)	369		203		145		265	

NOTE: US$1=FCFA 493
SOURCE: Nathan Associates' calculations.

Figure 4-3

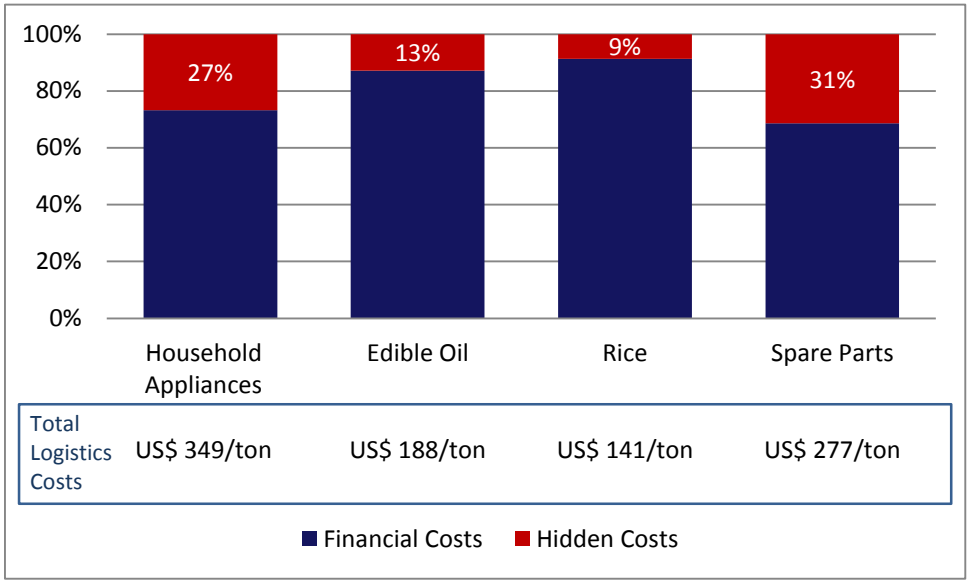
Total Logistics Costs Structure in the Abidjan-Ouagadougou Corridor by Road



SOURCE: Nathan Associates' calculations.

Figure 4-4

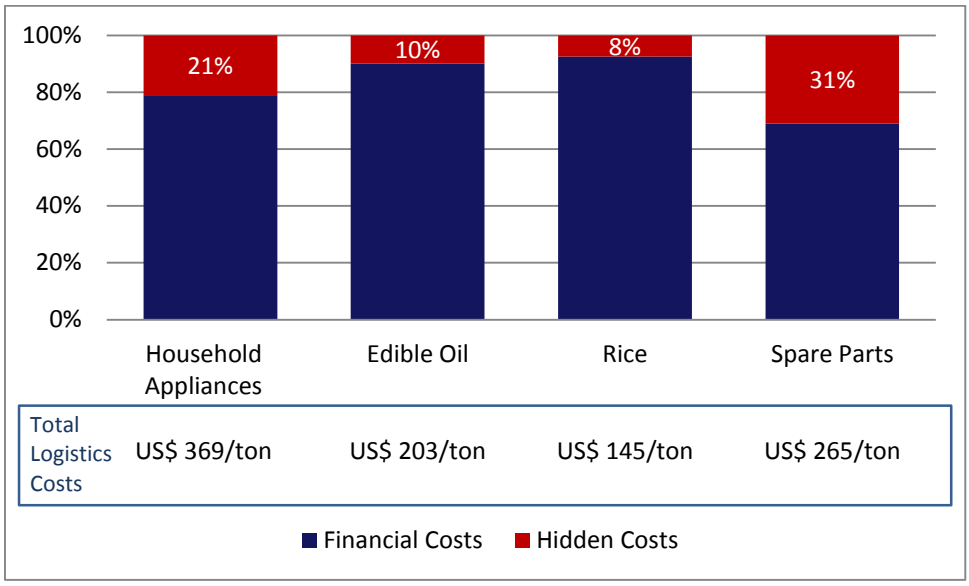
Total Logistics Costs Structure in the Abidjan-Ouagadougou and Abidjan-Bamako Corridors



SOURCE: *Nathan Associates' calculations.*

Figure 4-5

Total Logistics Costs Structure in the Abidjan-Ouagadougou and Abidjan-Bamako Corridors



SOURCE: *Nathan Associates' calculations.*

SUMMARY OF KEY FINDINGS

Most of inefficiencies and factors raising the total logistics cost in the Abidjan corridors are common to all West and Central Africa corridors. According to the interviewed stakeholders and on the basis of our own findings, we conclude that the corridor's main inefficiencies are as follows:

Gateway Inefficiencies

- Lack of single windows
- Low cargo storage costs at port encouraging lengthy dwell times
- Cargo custom clearance is a mixed of electronical and manual process (physical submission of cargo invoices and packing lists)Lack of equipment for the GPS tracking system

Trucking Industry Inefficiencies

- Trade imbalance: imports exceed exports leading to a scarcity of backload cargo
- Seasonal demand: tariff can be greatly influenced by export commodity season
- Transport demand exceeding supply during most of the year, especially for high-value products
- Current incentives are to strip containers and overload trucks
- Powerful transporter unions where trucking freight rates are "black box" types of pricing, with predominant fixed costs and very limited variable costs
- Lack of market transparency in business practices
- Old and obsolete fleet operated by poorly qualified truckers
- Low annual mileage per truck due to long wait times for obtaining the freight
- Unfair competition from nonprofessional truckers operating old vehicles leading the entire profession to low freight rates that do not guarantee sufficient income for fleet renewal

Rail Inefficiencies

- Insufficient number of wagons to serve existing demand
- Excessive delays to load wagons
- Low speed of train because of the poor state of the rails due to low maintenance.
- Excessive delays to discharge the wagons
- Poor exchange of information with Abidjan Terminal

Transport and Trade Facilitation Inefficiencies

- High port handling charges and shipping line charges
- Lack of professionalism of freight forwarders
- Unreliable Internet connection going down frequently delaying the clearing processes
- Trucks overloading increases load factors and reduces rates
- Too many checkpoints along Abidjan-Ouagadougou corridor, probably the highest number compared to other West Africa corridors assessed.

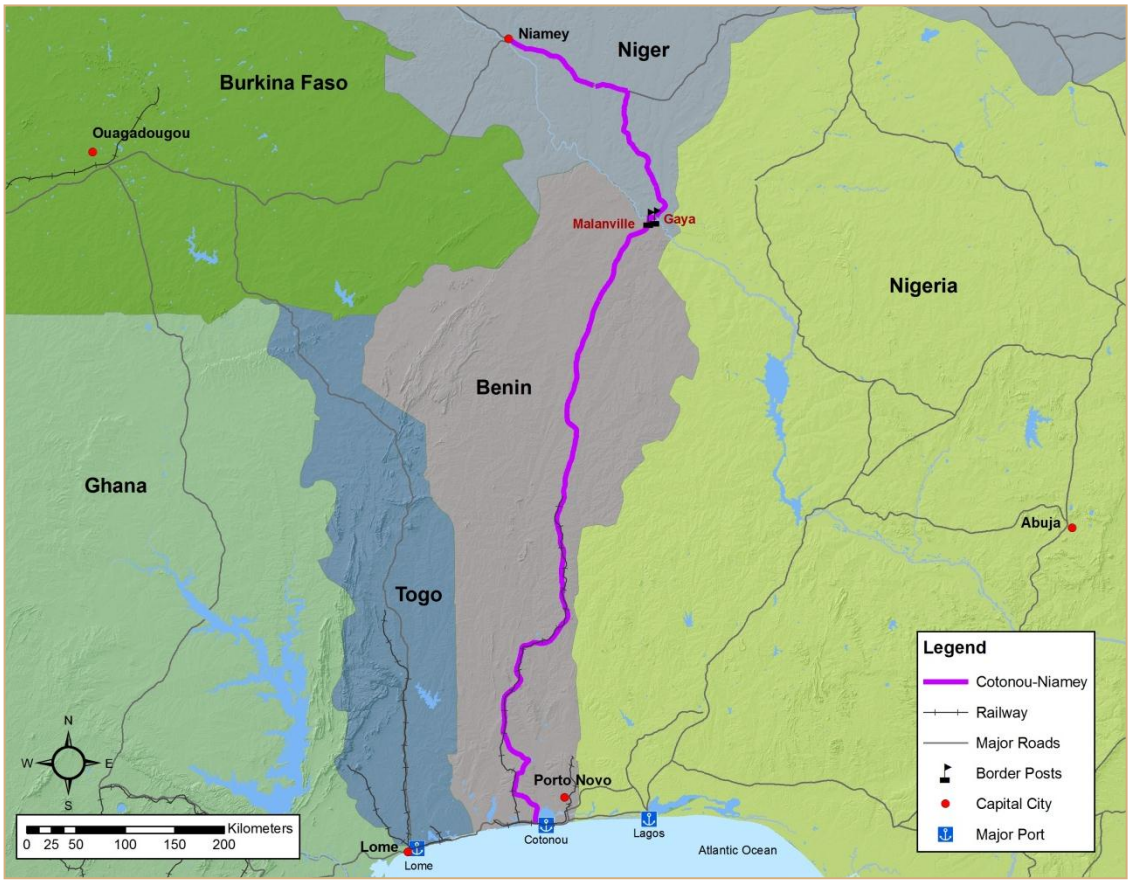
- Informal payments and corruption

In Chapters 9 and 10 we elaborate on these inefficiencies and how they can be remedied.

5. Cotonou-Niamey Corridor

The Cotonou-Niamey corridor is primarily a road corridor 1,070 km long. As shown in Figure 5-1, it starts from the Port of Cotonou and passes through the border posts of Malanville in Benin and Gaya in Niger on the way to Niamey. This transit corridor once included rail service from Cotonou to Parakou (in Benin), but service was stopped back in 2000.

Figure 5-1
Map of Cotonou-Niamey Corridor



SOURCE: *Nathan Associates Inc.*

The Cotonou–Niamey corridor connects Benin and Niger and is the primary import–export route for Niger. Transit routes to Niger are also provided through Nigeria, Togo, Ghana, and the Cote d'Ivoire as described in Chapter 3. Some traffic along the corridor is composed of shipments to or from Nigeria

via the Port of Cotonou. Traffic volumes associated with this corridor are analyzed in Chapter 3, while a detailed description of the corridor physical infrastructure is presented Appendix A.

Nigerien shippers using the Cotonou–Niamey corridor face a number of problems that raise logistics costs and lower their competiveness in regional and international trade. Similar to the Abidjan corridors, many of these issues are common to West Africa, while others are specific to this corridor. In this chapter we will analyze in detail the main components of the logistics cost along the Cotonou-Niamey corridor following the methodology explained in Chapter 2, where total logistics costs supported by the Nigerien shippers consist of two major groups:

- ***Financial Costs of Logistics Services, which include:***
  - — ***Gateway Costs—paid directly or indirectly through freight forwarders, clearing agents and/or shipping agents by landlocked shippers at Douala port;***
  - — ***Inland Transport Costs—***fees paid to truckers or rail operators for actual transit transportation;
  - — ***Inland Processing Costs—***incurred when crossing the borders and at final destination.
- ***Hidden Costs—including transit inventory capital cost (related to transit time) and costs incurred as part of hedging against unreliability.***

The assessment of each of the total logistics costs components is based on the four case studies selected according to the methodological guidelines presented in Chapter 2. Each case reflects various transporter sizes[19] and performance, products and vehicles types, and final destinations, as applicable for this corridor with the following assumptions:

- A large -sized, formal and well performing transporter with a fleet of 25 new vehicles with an average age of 3 years transporting a container of high-value household appliances from Cotonou to Niamey and achieving 18 round trips per year (Case Study 1a)
- A small, formal and medium performing transporter operating a fleet of 7 vehicles with an average age of 10 years transporting edible oil from Cotonou to Niamey and achieving 14 round trips per year (Case Study 1b).
- A small, informal and much less performing transporter with a secondhand fleet of 2-4 vehicles with an average age of 28 years transporting low-value cargo in bags (rice) from Cotonou to Niamey and achieving only 12 rounds trips per year (Case Study 2).
- A large, formal transporter with a fleet of 45 secondhand vehicles with an average age of 30 years transporting high-value spare parts for the mining industry from Cotonou to Arlit and achieving 9 round trips per year (Case Study 3).

Table 5-1 presents additional information about the Case Studies. The results of the analysis for these cases are summarized in the next section.

[19] Although the only available statistics is the Nigerien fleet distribution by type of vehicles (11 percent are small trucks, 17 percent are mediums-size trucks and 72 percent are large trucks loading 35-40 tons, there are no official statistics on the transporters type and performance distribution. From the Transporters Unions sources, the majority is however informal ones operating small fleet with low performances in terms of turnovers: on average one round trip per month

Table 5-1
Cotonou-Niamey Corridor Case Studies

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Cargo type	40-ft container	2x20-ft containers	1,000 metric tons in 50kg bags	2x20-ft stripped containers
Product type	Household appliance	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	16,800	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	8,282,400	59,160,000
Type of purchased vehicle	New	New	Second hand	Second hand
Round-trip distance (km)	2,100	2,100	2,100	3,972
Number of axles	6	5	5	5
Nominal loading capacity in tons	33	40	40	35
Effective loading in tons	33	44	48	35
Average number of round trips per year	18	16	12	9

NOTE: US$1=FCFA493.

SOURCE: Interviews December 2011 to October 2012.

Financial Costs of Logistics Services

GATEWAY COSTS

These costs are associated with activities undertaken at the port of Cotonou including port fees, terminal charges, transit Customs clearance, and other charges as applicable. Transit cargo arriving to the Port of Cotonou normally undergoes the following activities:

- Provide customs declaration with transit documentation
- Pay dues and deposits
- Obtain the Bon à Délivrer (BAD)
- Consolidate loads onto trucks if necessary
- Obtain exit pass for the truck to remove the cargo
- Head for the country of destination.

Port Transit Fees

Port fees are defined according to the volume of the ship. In the example used we considered a 75,000 cu. m. gauge container ship transporting 950 TEU, with all TEU destined for discharge at the Port of Cotonou. Table 5-2 summarizes the port transit fees for 20-ft and 40-ft containers and bulk cargo. Table 5-3 summarizes general cargo fees. Unofficial fees are usually collected whenever a cargo-handling tool, such as a reach stacker, is in short supply, during time-critical processes, and whenever a signature or a release authorization is required. Most charges are negotiable.

Table 5-2

Port of Cotonou Container and Bulk Transit Fees by the Shipper (FCFA)

		20-ft Container	40-ft Container	Per ton
Port operation	Port fees	16,815	36,061	213
	Handling and transfer	97,350	160,952	7,108
Shipping lines representative	Documentation fees	40,250	46,720	120
Customs clearance and others (FGR not included)		218,236	232,389	7,892
Clearing agent		100,000	225,000	2,950
Total		472,651	701,122	18,283
Total (US$)		958.72	1,422.15	37.09

NOTE US$1= FCFA 493.
SOURCE: Interviews December 2011 to October 2012.

Table 5-3

Port of Cotonou General Cargo Transit Fees Paid by the Shipper (FCFA)

Cargo Handling Organization	Per Ton
Bill of Landing documentation exchange	118
Conseil National des Chargeurs du Pays Enclave	400
Direction de la Marine Marchande (DMM)	722
Temps Supplementaire Customs	550
Stevedoring	4,295
Port Authority of Cotonou	3,281
Handling	750
Transport	3,400
Others	100
Commissions	900
Subtotal	14,516
Introduction of clearing request	1,500
Other fees	100
Unofficial fees	900
Subtotal	2,500
Total transit cost (FCFA)	17,016
Total transit cost (USS)	34,5

NOTE: US$1= FCFA 493.
SOURCE: Interview December 2011 to October 2012.

Transiting via the Port of Cotonou costs an average of US$959 per 20-ft container, US$1,422 per 40-ft container and US$34.5 per ton of general cargo, with a variation of 5 to 10 percent. This cost does not include Customs duties, or other taxes such as VAT paid on containerized cargo.

Other Transit Costs

The port transit costs listed in the tables above do not include other transit costs such as those incurred for stripping and reloading containers, or container demurrage[20]. Table 5-4 summarizes these additional fees; however, these fees are not applicable for all cases.

Table 5-4
Cotonou-Niamey Corridor Other Charges Paid by Shipper (FCFA)

	Fee
STRIPPING CONTAINERS	
Reloading per ton	1,000
Per 20-ft container	10,000
Per 40-ft container	25,000
DEMURRAGE [a]	
Per 20-ft container/day	7,500
Per 40-ft container/day	14,000

NOTE: [a]Deposit of 1 million FCFA for a 40-ft. container and 500,000 FCFA for a 20-ft. container required. Containers must be returned within 21 days or demurrage fees are charged.
SOURCE: Interviews with freight forwarders in Benin. Data collected December 2011 to October 2012.

INLAND TRANSPORT COSTS

Inland transport cost corresponds to trucking and rail services to the inland destination. The Cotonou-Niamey corridor currently does not offer rail services and therefore inland transport cost refers only to trucking services.

Trucking Industry

The trucking industry in Niger and Benin consists of formal and informal operators. Formal operators have modern vehicles and follow modern business practices; they handle a small but significant portion of corridor tonnages. The vast majority are small operators with old fleets and informal practices. Both types of operators own mostly large trucks (35-40 ton capacity). In Niger, the average age of these trucks is 25 years (the oldest in West Africa) and in Benin, about 20-25 years.

The annual mileage of Nigerien truckers is low, especially for transit truckers, because of a number of factors, including long wait times at the Port of Cotonou. This has a big impact on truck operating costs, which are described below. Similar than along other West African corridors, operators are subject to uneven regulation and in the past have often avoided vehicle inspections by paying bribes. However, as mentioned in previous chapters, it is now difficult to avoid inspections and drivers find it cheaper to pay for inspections rather than to pay bribes.

[20] Container stripping charges and demurrage estimates are based on the assumption that 80 percent of containers are stripped inside or outside the port and returned to the shipping line. The demurrage fee calculation takes into account that containers must be returned within 21 days or demurrage fees are charged, and the total round trip transit time.

Vehicle Operating Cost Structure

The VOC analysis for the Cotonou-Niamey corridor has a similar structure ans the same assumptions than the analysis presented in the Abidjan corridors, where vehicle operating cost is calculated based on the fixed and variables expenses declared by truckers represented in each of the four case studies. Table 5-5 shows the breakdown of VOC into variable and fixed cost for the case studies 1a, 1b and 2 [21]. The breakdown reveals interesting facts:

- Crew wages and salaries (including travel expenses and facilitation payments along the way) make up 10 to 15 percent of VOC for all types of transport.
- About 70 percent of total VOC is variable and 30 percent is fixed for older vehicles operated by small informal truckers. This ratio is less prominent for newer vehicles that are operated by large, formal transporters.
- Companies face higher VOCs when transporting high value products since they offer more professional services.

Table 5-5

Fixed and Variable Trucking Costs for the Cotonou- Niamey Corridor by Case Study (FCFA)

Expense	Case Study 1a		Case Study 1b		Case Study 2	
	Amount	% of total	Amount	% of total	Amount	% of total
ANNUAL VARIABLE COSTS PER VEHICLE						
Fuel and lubricants	11,850,000	49.0	7,650,000	46.8	8,001,000	48.9
Tires	3,628,000	15.0	2,188,000	13.4	2,892,204	17.7
Maintenance	1,512,000	6.3	1,295,000	7.9	1,620,000	9.9
Total variable costs	16,990,000	70.3	11,133,000	68.1	12,513,204	76.4
ANNUAL FIXED COSTS PER VEHICLE [a]						
Gross crew wages (including travel expense)	2,238,000	9.3	2,434,000	14.9	2,107,000	12.9
Vehicle insurance	395,000	1.6	315,000	1.9	136,000	0.8
Goods insurance		0.0		0.0		0.0
Vehicle general taxes	441,000	1.8	264,000	1.6	180,000	1.1
Management overhead	4,113,000	17.0	2,193,000	13.4	1,441,368	8.8
Total fixed costs	7,187,000	29.7	5,206,000	31.9	3,864,368	23.6
ANNUAL TOTAL COST PER VEHICLE						
Total VOC	24,177,000	100.0%	16,339,000	100.0%	16,377,572	100.0%

NOTE: [a] Not including depreciation and financing costs. Details not available for Case Study 3.
SOURCE: Data collected December 2011 to October 2012

[21] Case Study 3 does not provide sufficient detail to separate depreciation and financial expenses from the other fixed costs.

Truckers' Profitability and Financing Gap

Regarding the sensitive issue of trucking profitability, most interviewees consider that despite high transport prices, only the transport of high-value, strategic products—such as mining equipment and spare parts, sulfur, petroleum—is reasonably profitable, not the transport of low-value products, such as food and cement.

This opinion is not shared by all. Representatives of the "Conseil National des Utilisateurs des Transports (CNUT)", argue that fierce competition from Benin's truckers drives transport prices so low that most transporters' real costs are not covered, and that a good portion of trucking price is attributable to fees paid to informal middlemen and "brokers" or to bribes paid in the port and on the road. Others, such as shippers councils and freight forwarders, say that bribes and facilitation payments paid at checkpoints range from 10,000 FCFA to 50,000 FCFA, with an average of 30,000 FCFA, and that because the number of checkpoints varies by day and time of day (between four and nine, with six being the average), bribes are not as large as truckers' unions claim and represent only a small share of total logistics costs.

As described in Chapter 2, we used an alternative approach to calculate residual income for financing the vehicle for each type of trucker represented in the case studies.

Table 5-6 presents the gross operating margin calculations, from which we draw the following main conclusions:

- All transporters have positive gross operating margins, particularly formal trucking companies (38 percent of revenue).
- Only the informal trucker overloading and operating a small fleet of second-hand vehicles generates positive income to finance the vehicles, but not sufficient to finance new vehicles.
- Formal truckers operating a large fleet of newly purchased vehicles do not generate enough income to keep financing new vehicles.

Table 5-6

Annual Profit Margin per Vehicle and Financing Gap for Road Transporters along the Cotonou-Niamey Corridor (FCFA)

		Case Study 1a	Case Study 1b	Case Study 2
Vehicle operating cost		24,177,000	16,339,000	16,377,572
Revenue		31,500,000	26,250,000	21,000,000
Difference		7,323,000	9,911,000	4,622,428
Gross operating margin		23%	38%	22%
Accounting practice	Depreciation	8,610,000	7,650,000	3,000,000
	Financing	6,752,000	4,800,000	1,219,750
Financing gap		8,039,000	(2,539,000)	(402,678)

NOTE: Data collected through interviews, 2012

There seems to be a substantial amount of smuggling in this corridor for goods transiting to Nigeria without transit documentation, which may increase the actual operating margin for some transporters. However, with our analysis, it is clear that the current operating conditions are not compatible with financing new vehicles.

Transport Price Determinants

In transport markets more competitive than West Africa's, transport prices are closely related to logistics costs and result from market supply and demand equilibrium. In West and Central Africa, particularly on the Cotonou–Niamey corridor, the relationship between transport prices and logistics costs is unduly influenced by powerful transporter unions, excessive regulation, markets thick with middlemen and verbal contracts, and other factors already described in detail in Chapter 2 such as trade imbalance, seasonal demand, commercial practices, load factors, among others.

To measure the influence of these factors on Cotonou–Niamey transport prices, we interviewed stakeholders and operators about price determinants and policies affecting the trucking market. Their answers reflected their place in the logistic chain and the differences in answers express conflicts of interest and the strong tendency to think first of protecting one's own interests and income. But all interviewees—shippers, transporters, freight forwarders, staff in the ministries of transport in Niger and Benin, representatives of professional associations, and others—agree that logistics costs in the Cotonou–Niamey corridor are very high. They attribute high costs to the following factors:

- High port handling charges and shipping line charges.
- Bad roads causing breakdowns and driving up vehicle operating costs.
- Transport demand exceeding supply in most periods of the year, especially for high-value, strategic products.
- Lack of backload due to trade imbalance causing truckers to charge for round trips even when transport is one-way.
- Excessive checkpoints and informal payments.

Transport prices are determined in the corridor in a variety of ways. Where there is no allocation of freight, prices are negotiated directly between the shipper (usually via an agent or relative) and the trucker, usually with reference to an indicative price set by trucking associations. Prices for shipping strategic goods are higher because of cartel actions by Nigerien trucking associations. Shippers in niche markets and freight forwarders for imports with direct bills of lading can arrange contracts with truckers, usually through a bidding process to determine the lowest price. This applies primarily to larger truckers in the formal sector and to markets where there is more competition among trucking companies.

Therefore, for each situation price is established in a different manner but there seems to be conflicting information among interviewees. Many of them are of the opinion that transport prices are no longer set by truckers associations, but by direct negotiation between shippers or their representatives and truckers, with the prices set by the truckers' unions serving only as reference in the negotiation.

Importer and exporter association representatives do not share this view; they believe that CNUT still exerts major influence on transport prices and that traders can be sanctioned if they do not pay them.

Another issue affecting transport prices is the one-third/two-thirds quota system: all interviewees confirm that the system is no longer enforced and that Nigerien importers are free to use the transporter of their choice, Nigerien or not. There is a separate quota system for "strategic cargo" which is supposed to be allocated entirely to Nigerien truckers. The CNUT representative in Port of Cotonou pointed out that even for strategic cargo, a large volume is actually transported by Beninese trucks registered in Niger and employing Nigerien drivers because there are no Nigerien trucks to carry the cargo.

Furthermore, transport demand exceeds transport supply during most periods of the year, especially for strategic products. Interviewees had the following comments about market equilibrium in Cotonou–Niamey corridor:

- Transport supply does not meet demand, especially from November to February each year, when Benin harvests cotton and Niger harvests onions.
- Containerized and other cargo is left waiting in the port because of a lack of trucks.
- Fleet obsolescence, bad infrastructure, and bad weather reduce truck availability and supply several months each year.
- The lack of trucks is more severe for strategic goods because only Nigerien truckers or trucks registered in Niger may transport those goods.
- Trucks are unavailable (and transport costs are therefore higher) because of congestion at Port of Cotonou (waiting time at the gate and dwell time inside the port) and slow clearance at Gaya-Malanville border posts and at final destinations.

All these factors cut into transporters' profits, and truckers must raise prices to cover idle time. Prices obtained for the Cotonou–Niamey corridor in February 2012 indicate a range of FCFA 1.4-1.9 Million per 40-ft container, depending on the cargo type (strategic or not) and value.

INLAND PROCESSING COSTS

The inland cargo processing in this corridor is simpler than for other corridors, since there are currently no dry ports and no special inland terminals, although there are Customs escorts required in both Benin and Niger. Once cargo leaves the port where most container stripping and cargo consolidation onto trucks takes place, the main activity occurs at the border posts and for customs clearance at the main office in Niamey. After customs formalities are completed at the Port of Cotonou, customs officers escort goods under cover of a customs document to Malanville, where trucks park until customs formalities are completed (usually in one day).

Table 5-7

Clearing Formalities Costs at Borders and Final Destination (FCFA)

CUSTOMS FORMALITIES AT MALANVILLE/GAYA	
Per ton	1,700
Per 20-ft container	38,000
Per 40-ft container	43,000
FORMALITIES AT FINAL DESTINATION (NIAMEY)[a]	
Per ton	2,500
Per 20-ft container	100,000
Per 40-ft container	225,000

NOTE: [a]Excluding Customs duties and taxes and guarantee fund (0.25 percent CIF) and local insurance (0.17 percent CIF)
Source: interviewed freight forwarders

SUMMARY OF FINANCIAL COST OF LOGISTICS SERVICES TO THE SHIPPER

Total financial costs are the sum of financial costs for gateway, inland transport and border-crossing and inland destination/clearance costs in Niamey. Table 5-8 summarizes total financial costs for each case study.

Table 5-8

Total Financial Costs of Logistics Services by Case Study

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Origin-destination	Cotonou-Niamey	Cotonou-Niamey	Cotonou-Niamey	Cotonou-Arlit
Round-trip distance (km)	2,100	2,100	2,100	3,972
Cargo type	40-ft container	2x20-ft containers	1,000 t in 50kg bags	2x20-ft stripped containers
Product type	Household appliances	Edible oil	Rice	Mining spare parts
Cargo value (CIF) in US$	70,000	30,000	16,800	120,000
Cargo value (CIF) in FCFA	34,510,000	14,790,000	8,282,000	59,160,000
GATEWAY COSTS				
Total port transit costs and clearing fees	701,122	945,302	877,584	562,310
Container stripping charges	n/a	n/a	73,000	45,000
Container demurrage charges	178,500	191,250	n/a	n/a
Total gateway costs	879,622	1,136,552	950,584	607,310
INLAND TRANSPORT COSTS				
Road transport price	1,500,000	1,500,000	1,500,000	2,700,000
INLAND PROCESSING COSTS				
Border crossing formal costs at Malanville/Gaya	43,000	76,000	81,600	59,500
Customs clearance formalities at	225,000	200,000	120,000	87,500

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
final destination				
Total inland processing costs	268,000	276,000	201,600	147,000
TOTAL FINANCIAL COSTS				
Total financial costs of logistics services (FCFA)	2,647,622	2,912,552	2,652,184	3,454,310
Total financial costs of logistics services per ton (FCFA)	80,231	66,194	55,254	98,695
Total financial costs per ton (US$)	163	134	112	200

NOTE: US$1=FCFA 493.
SOURCE: Nathan Associates' calculations.

Hidden Costs

As explained in the methodological Chapter 2, hidden costs are the indirect costs incurred by landlocked shippers, in addition to direct payments to operators and truckers along the logistics chain. As already presented in Chapter 2 and 4, these hidden costs are closely associated with dwell times and transit times and variation in these times.

PORT DWELL TIME

For the study of the phases contributing to the cargo dwell time, we focused on the containerized cargo and considered operational and transactional phases. We were not able to obtain a detailed analysis of the port dwell time for the port of Cotonou; however, based on information collected through interviews, we identified operational processes at the port, which are done in a sequential manner, and also transactional processes which can be done in parallel with the operational processes. Table 5-9 summarizes this information.

Table 5-9
Different Phases Involved in the Transit of Containerized Cargo in the Port of Cotonou (hours)

Process	Min.	Most Frequent	Max.	Range	Remark
PHYSICAL PROCESSES					
Vessel at anchorage	24	60	96	72	From shippers view, the vessel at anchorage waiting time due to port congestion induces higher delivery delays
Vessel in mooring and berthing	5	8.5	12	7	Tug boating and berthing will depend on tidal conditions
Cargo unloading (estimated for a container ship transporting 1,200 TEU)	48	60	72	24	Port operates with ship to shore equipment - for 1500 TEU
Transfer to yards and special warehouses	36	54	72	36	This operation is done even after done off loading ship
Stripping containers and loading on trucks	8	9	10	2	80% of containers are stripped at the port for transit cargo
Total sequential operations		191.5			

Process	Min.	Most Frequent	Max.	Range	Remark
DOCUMENTATION PROCESSES					
Domiciliation and pre-shipment inspection	-	-	-	-	This operation is done in parallel with above transaction
Ship board inspection and controls	5	12.5	20	15	Pre-clearance done after ship docks at berth
Establishment of lodging and customs declaration	-	-	-	-	This operation is done during transfer of container to yard
Payment of NVOCC's, port authority, tug boating	-	-	-	-	This operation is done during transfer of container to yard
Request for position of container to be inspected	-	-	-	-	Inspection not normally done at the port for transit cargo
Completion of clearance admin procedures	48	64	80	32	Transaction depends on preparedness of documentation. When all documentation is in order, can go faster. In theory this payment can be done as soon as the manifest is submitted and approved by custom i.e., operation can begin prior vessel arrival , but in practice, shippers clearing agents take several days to do it because they know that they have several free of charge days to accomplish all transit formalities
Payment of taxes and duties	-	-	-	-	This operation is done in parallel with above transaction
Payment of storage fees, of cargo handling, and dues	24	48	72	48	Different paying stations - requires time to move around
Mobilizing the transport and obtaining the title of transport	24	60	96	72	The shipper rep proceeds to the mobilization
Obtaining the green light to exit port	24	48	72	48	This operation is done in parallel with above transaction
Operators perception of total dwell time (days)	10.0	18.0	25.0	15.0	Interviews report a dwell time modal value of 18 days , including about 2.5 days vessel at anchorage waiting time due to port congestion

SOURCE: Interviews December 2011 to October 2012.

Since some of the operational and transactional processes run in parallel, the resulting overall most frequent dwell time is about 18 days. The variations for the overall dwell time at the port of Cotonou display a very wide range; from a relative low 10 days to a maximum of 25 days for containerized cargo.

The dwell time for port transit time for general cargo is comparable to containerized cargo. Bulk cargo dwell time, however, is determined mainly by ship operations since the handling is done using the ship's gear, which tends to take a much longer time than when done by ship to shore or mobile harbor cranes.

TOTAL CORRIDOR TRANSIT TIME

Table 5-10 synthesizes the port dwell time and corridor transit time according to a detailed analysis of port procedures and land transit delays based on interviews with truckers and freight forwarders. The table illustrates the main components of total transit delays and shows that from vessel anchorage at

Port of Cotonou to the final destination in Niamey, transport takes most frequently 28 days.[22] Most of that time—18 days—is spent at the port, while land transit (including border crossings and cargo clearance at final destination) takes only 10.25 days. Those results confirm that the congestion at Port of Cotonou is by far the main problem in the Cotonou-Niamey logistics chain and the primary source of delays and costs.

Table 5-10

Cotonou-Niamey Corridor Containerized Cargo Transit Delays by Stage (days)

Process		Min.	Most Frequent	Max.	Range
Port transit dwell time		10.00	18.00	25.00	15.00
Total land transit time	Travel time on the corridor	4.50	5.50	7.25	2,75
	Gaya-Malanville borders crossing and formalities	1.75	2.38	3.50	1,75
	Time for customs clearance at final destination	2.25	2.38	4.25	2,00
Total corridor transit time		18.50	27.92	40.08	21.33

SOURCE: *Interviews December 2011 to October 2012.*

The resulting total hidden costs are presented in Table 5-11. For high value products, such as household appliance and spare parts, hidden costs are higher than road transport costs (respectively 133 percent and 137 percent), while they represent only 32 percent and 57 percent for low value products (rice and edible oil respectively).

Table 5-11

Transit Inventory Costs and Costs of Hedging Against Uncertainties, by Case Study (FCFA)

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Origin-Destination	Cotonou-Niamey	Cotonou-Niamey	Cotonou-Niamey	Cotonou-Arlit
Round-trip distance (km)	2,100			3,972
Cargo type	40-ft container	2x20-ft containers	1,000 t in 50kg bags	2x20-ft stripped containers
Product type	Household Appliances	Edible oil	Rice	Spare parts
Cargo value (CIF) in US$	70,000	30,000	16,800	120,000
Cargo value (CIF) in FCFA	34,510,000	14,790,000	8,282,400	59,160,000
Transport rates per trip (inbound)	1,500,000	1,500,000	1,500,000	2,700,000
Annual capital opportunity cost	30%			
TRANSIT INVENTORY COSTS				
Port transit dwell time	510,559	122,534	218,811	875,244
Total land transit time	290,735	69,776	124,601	498,403
Total Transit inventory costs	801,294	192,311	343,412	1,373,647

[22] Five additional days to reach Arlit.

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
HEDGING UNRELIABILITY COSTS				
Unreliability costs due to port transit delays	425,466	102,112	182,342	729,370
Unreliability costs due to land transit delays	794,203	190,609	340,373	1,361,490
Total hedging unreliability costs	1,219,669	292,721	522,715	2,090,860
TOTAL HIDDEN COSTS				
Total hidden costs (FCFA)	2,020,962	485,031	866,127	3,464,507
Total hidden costs per ton (FCFA)	61,241	10,105	19,685	98,986
Total hidden costs per ton (US$)	124	20	40	201

NOTE: US$1=FCFA 493
SOURCE: Nathan Associates' calculations.

Total Logistics Costs

Table 5-12 summarizes total logistics costs and their components for each of our four representative cases. Figure 5-2 illustrates the following conclusions about total logistics costs for the corridor:

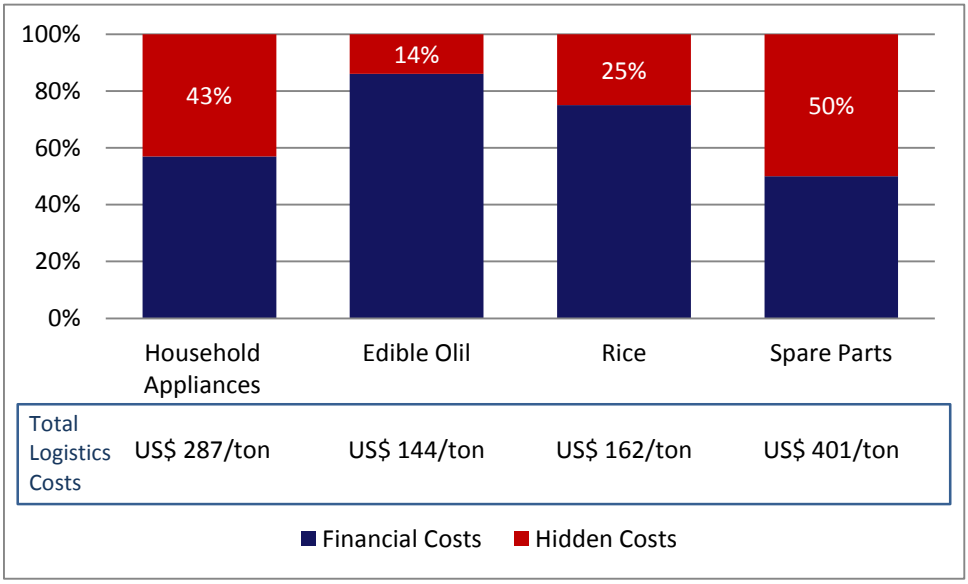
- For high-value products, such as household appliances and mechanic spare parts, hidden costs due to transit time and unreliability are close to 50 percent of total logistics costs.
- For relatively low-value products, such as rice and edible oil, total financial costs of logistics services (gateway, trucking, inland processing costs) are the most important components of total logistics costs, with hidden costs representing about 20 percent.
- The importance of hidden costs highlighted by several research papers and studies is confirmed for the West African corridors.

Table 5-12
Total Logistics Cost by Case Study (FCFA)

Component	Case Study 1a		Case Study 1b		Case Study 2		Case Study 3	
	FCFA	%	FCFA	%	FCFA	%	FCFA	%
Total financial logistics costs	2,647,622	57%	2,912,552	86%	2,652,184	75%	3,454,310	50%
Hidden costs	2,020,962	43%	485,031	14%	866,127	25%	3,464,507	50%
Total logistics costs	4,668,584	100%	3,397,583	100%	3,518,311	100%	6,918,817	100%
Total logistics costs per ton (FCFA)	141,472		70,783		79,962		197,680	
Total logistics costs per ton (US$)	287		144		162		401	

NOTE: US$1=FCFA 493
SOURCE: Nathan Associates' calculations.

Figure 5-2
Total Logistics Costs Structure in the Cotonou-Niamey Corridor



SOURCE: *Nathan Associates' calculations.*

Summary of Findings

Most of inefficiencies and factors raising the total logistics cost in Cotonou–Niamey corridor are common to all west and central Africa corridors. According to the interviewed stakeholders and on the basis of our own findings, we conclude that the corridor's main inefficiencies are as follows:

GATEWAY INEFFICIENCIES

- Insufficient equipment for piloting and tug boating
- Lack of space at quays, with too-narrow working and traffic areas
- Lack of coordination between port services
- Lack of adequate equipment for general cargo and bulk handling
- Yards are of limited space, constantly congested with containers and lorries unloading
- Lack of operational ICD where the cargo can be transferred for further processing
- Low cargo storage costs at port encouraging lengthy dwell times
- Manual interface procedures causing delays and adding costs
- Lack of equipment for the GPS tracking system

TRUCKING INDUSTRY INEFFICIENCIES

- Current incentives are to strip containers and overload trucks
- Trucking freight rates are "black box" types of pricing, with predominant fixed costs and very limited variable costs
- Trade imbalance: imports exceed exports leading to a scarcity of backload cargo
- Seasonal demand: tariff can be greatly influenced by export commodity season, like cotton and onions

- Transport demand exceeding supply in most periods of the year, especially for high-value strategic products
- Quota system inducing excessive regulation and limiting competition
- Lack of market transparency in business practices
- Old and obsolete fleet operated by poorly qualified truckers
- Low annual mileage per truck due to long wait times at the Port of Cotonou
- Unfair competition from nonprofessional truckers operating old vehicles leading the entire profession to low freight rates that do not guarantee sufficient income for fleet renewal
- Poor roads causing frequent breakdowns and high vehicle operating costs

TRANSPORT AND TRADE FACILITATION INEFFICIENCIES

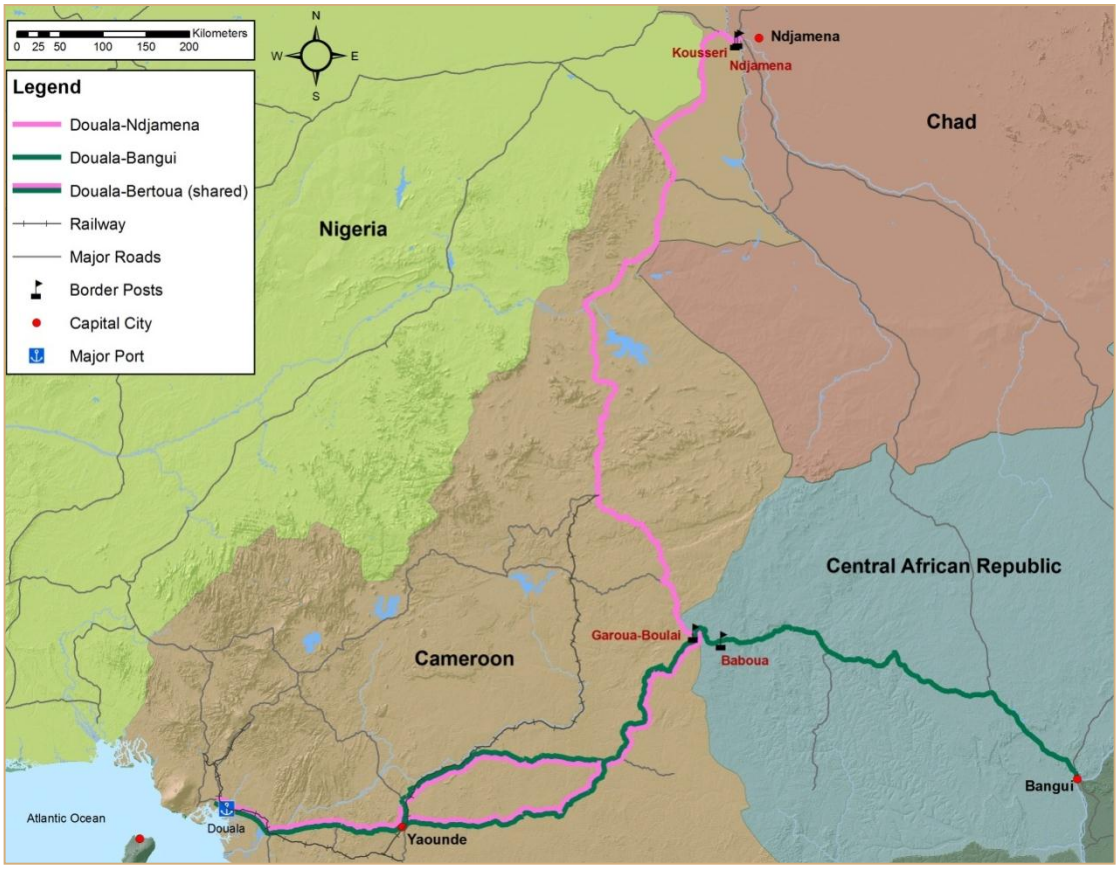
- High port handling charges and shipping line charges
- Lack of professionalism of freight forwarders
- Unreliable Internet connection going down frequently delaying the clearing processes
- Briberies and non-official fees are required to accomplish transactions
- Trucks overloading increases load factors and reduces rates
- Too many checkpoints along the corridor
- Informal payments and corruption

In Chapters 9 and 10 we elaborate on these inefficiencies and how they can be remedied.

6. Douala Corridors

The Douala-Ndjamena and Douala-Bangui corridors are overlapping corridors that connect Cameroon to the countries of Chad and Central African Republic (CAR) and are the primary import/export routes for these two countries as described in Chapter 3. These two corridors are multimodal since there is both a road and a rail/road option for transport along each corridor. A detailed description of the corridors physical infrastructure is presented in Appendix A.

Figure 6-1
Map of Douala-Ndjamena and Douala-Bangui Corridors



SOURCE: *Nathan Associates Inc.*

Central African shippers face a number of problems that raise the logistics costs and lower their competitiveness in regional and international trade. In this chapter we will analyze in detail the main components of the logistics costs along the Douala corridors.

As explained in Chapter 2, total logistics costs supported by Central African shippers consist of two major groups:

- ***Financial Costs of Logistics Services, which include:***
  - ***Gateway Costs—paid directly or indirectly through freight forwarders, clearing agents and/or shipping agents by landlocked shippers at Douala port;***
  - ***Inland Transport Costs***—fees paid to truckers or rail operators for actual transit transportation;
  - ***Inland Processing Costs***—incurred when crossing the borders and at final destination.
- ***Hidden Costs—including transit inventory capital cost (related to transit time) and costs incurred as part of hedging against unreliability.***

The assessment of each of the total logistics costs components is based on four case studies selected accordingly to the methodological guidelines presented in Chapter 2. The products selected for the analysis are common in Central Africa (household appliances, rice, edible oil, and spare parts for transport vehicles) and therefore representative of the type of transit traffic in both Douala corridors. Despite the existence of several route options for the two corridors, the case studies focus on the same conventional itinerary for each corridor. This provides a good basis for comparing the vehicle operating costs between case studies. Each case study reflects various transporter sizes and performance, products and vehicles types with the following assumptions:

- A large sized, formal transporter with a total fleet of new 40 vehicles with an average age of 10 years (varying from 5 to 20) transporting a container of high-value household appliances from Douala to Ndjamena and Bangui. This transporter deals with some of the shipping lines and also with individuals. (Case Study 1a).
- A medium sized, formal transporter with 10 vehicles transporting low cargo value (edible oil) in 2x20-ft containers from Douala to Ndjamena and Bangui. Half of his fleet was purchased in new condition and currently is 25 years old; this study presented the results for the brand-new purchase vehicles. (Case Study 1b).
- A small, informal trucker operating a fleet of 3 secondhand vehicles with an average age of 20 years transporting low-value cargo in bags (rice) to Ndjamena and Bangui. (Case Study 2).
- A medium, formal transporter with a total fleet of 15 new trucks with an average age of 7 years transporting stripped 2x20-ft containers of high-value spare parts to Ndjamena and Bangui. The transporter has a formal contract with business firms and has also established a very long and good relationship with several main shipping lines and shippers. (Case Study 3).

Table 6-1 presents additional information about the Case Studies selected by corridor. The results of the analysis for these cases are summarized in the next section.

Table 6-1
Douala Corridors Case Studies by Road and by Rail-Road Option

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Cargo type	40-ft container	2x20-ft containers	1,000 metric tons in 50kg bags	2x20-ft stripped containers
Product type	Household appliance	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	16,800	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	8,282,400	59,160,000
Type of purchased vehicle	New	New	Second hand	Second hand
DOUALA-NDJAMENA CORRIDOR				
Round-trip distance by road and rail-road (km)	3,636 / 3,250			
Number of axles	6	5	6	6
Nominal loading capacity in tons	35	35	35	40
Effective loading in tons	29	30	30	35
Average number of round trips per year by road	13	8	7	11
Average number of round trips per year by rail-road	14	10	8	12
DOUALA-BANGUI CORRIDOR				
Round-trip distance by road and rail-road (km)	3,140 / 2,544			
Number of axles	6	6	5	5
Nominal loading capacity in tons	43	35	40	43
Effective loading in tons	28	30	30	28
Average number of round trips per year by road	13	9	8	11
Average number of round trips per year by rail-road	9	5	4	8

NOTE: US$1=FCFA493.
SOURCE: Interviews December 2011 to October 2012.

The annual number of turnarounds along the Douala-Ndjamena corridor using the multimodal transportation is higher than the road option only; however the opposite happens along the Douala-Bangui corridor since more than 70 percent of the total transit freight transported by rail from Douala go to Ndjamena (source CAMRAIL).

Financial Costs of Logistics Services to the Shipper

GATEWAY COSTS

Port fees are defined according to the volume of the ship. In the example used we considered a 72,500 cu. m. gauge container ship transporting 1,250 TEU, with all TEU destined for discharge at the Port of Douala. Table 6-2 summarizes the port transit fees for 20-ft and 40-ft containers. Table 6-3 summarizes general cargo fees.

Table 6-2

Port of Douala Container Transit Fees Paid by the Shipper (FCFA)

		20-ft Container	40-ft Container
Port operation	Port fees [a]	400,000 / 450,000	700,000 / 800,000
	Handling and transfer	140,950	281,900
Shipping lines representative	Documentation fees	3,000	6,000
Customs clearance and others (FGR not included)		80,000	160,000
Clearing agent		47,500	95,000
Total [a]		671,450 / 721,450	1,242,900 / 1,342,900
Total (US$) [a]		1,361.97 / 1,463.39	2,521.10 / 2,723.94

NOTE: a The first value corresponds to cargo transiting by road and the second value refers to cargo traveling to rail and road. Additional fees are charged when cargo is traveling multimodality. Port fess per ton for the road and rail-road options is FCFA 19,000. US$1= FCFA 493.
SOURCE: Interviews March to October 2012.

Table 6-3

Port of Douala General Cargo Transit Fees Paid by the Shipper (FCFA)

Cargo Handling Organization	Per Ton
Bill of Landing documentation exchange	150
Conseil National des Chargeurs du Pays Enclave	500
Direction de la Marine Marchande (DMM)	850
Temps Supplementaire Customs	650
Stevedoring	2,820
Port Authority of Douala	2,940
Handling	720
Transport	3,500
Others	150
Commissions	700
Subtotal	12,980
Introduction of clearing request	750
Other fees	80
Unofficial fees	520
Subtotal	1,350
Total transit cost (FCFA)	14,330
Total transit cost (US$)	29.1

NOTE: US$1= FCFA 493.
SOURCE: Interviews March to October 2012.

Transiting via the Port of Douala costs an average of US$1,362 per TEU (i.e. 20-ft container) when cargo traveling by road, US$ 1,463 per TEU when traveling by rail and road and US$29.1 per ton of general cargo, with a variation of 5 to 10 percent. This cost does not include maritime transportation to the Port of Douala, customs duties, or other taxes such as VAT paid on containerized cargo.

Other Transit Costs

The port transit costs listed in the tables above do not include other transit costs such as those for stripping and reloading containers or container demurrage. Table 6-4 summarizes these additional fees; however, these fees are not applicable for all cases.

Table 6-4

Douala Corridor Other Charges at the Gateway Paid by the Shipper (FCFA)

	Douala-Bangui	Douala-Ndjamena
STRIPPING CONTAINERS		
Reloading per ton	1,200	1,200
Per 20-ft container	10,900	10,900
Per 40-ft container	15,000	15,000
DEMURRAGE [a]		
Per 20-ft container/day	5,600	5,600
Per 40-ft container/day	10,600	10,600

NOTE: [a]Containers must be returned within 19 days or demurrage fees are charged.
SOURCE: Interviews with freight forwarders in Benin. Data collected March to October 2012.

INLAND TRANSPORT COSTS

Trucking Industry

The trucking industries operating in the corridors are composed of two types of operators: (1) formal sector operators with modern vehicles and modern business practices which handle a small but significant percent of corridor tonnages, and (2) a majority of small operators with old fleets of trucks using informal business practices. Both types of operator own predominantly large trucks (35-40 tons capacity). The average age of these trucks is somewhat younger for Cameroons (15 years) than for other countries, due to its more developed trucking sector. In the landlocked countries, Chad's fleet has been expanding, but as of 2010 more than half of the vehicles were 15 years old or more (one of the oldest fleets in Central Africa) while in the CAR, the fleet is about 20-25 years.

Transit truckers employ larger vehicles on average than truckers carrying intra-regional trade. There are also more formal sector operators in transit while most regional trade is handled by informal sector operators using older and less reliable trucks.

These operators are subject to uneven regulation and can often avoid vehicle inspections by paying bribes. However, it is now difficult to avoid vehicle inspection along the corridor and drivers find it cheaper to pay for inspection rather than pay bribes.

More than half of the fleet operating in Central Africa's corridors, starting from Douala, are registered in Cameroon and make the same average number of trips per year as others (Table 6-5). This does not mean that Cameroon leads trucking in the region; Chadians and Central Africans both own part of the fleet. Field interviews confirm that registration of vehicle ownership is a strategy to take advantage of the rating distributed among some countries as mentioned in the bipartite conventions.

Table 6-5

Characteristics of Truck Fleet using Central African Corridors, 2010

Vehicle Ownership	Fleet Size	Average Annual Turnarounds[a]	Fleet Age (Years)	Truck Loading Capacity (Tons)
Cameroon	1,930	12	11.5	26.0
Chad	710	12	12.5	26.7
CAR	230	12	12.0	26.0

NOTE: [a] The numbers of annual turnarounds obtained from official sources are averages and are not case study specific. For each Case Study above, more precise data has been taken into account.

SOURCE: Data on Cameroon and Chad, BNF and BARC. Data on CAR, BARC and GTC.

Vehicle Operating Cost Structure

Using the methodology described in Chapter 2, we calculated the VOC structure for each case study along the two Douala corridors. The assumptions for the cost structure for these corridors were the same as for the previous corridors (see Chapter 4). Tables 6-6 and 6-7 show the breakdown of VOC into variable and fixed costs for the four case studies in each Douala corridor.[23]

The following conclusions can be drawn from an analysis of the results obtained from calculations of the VOC:

- Fuel and lubricants are the highest variable costs; they are almost 50 percent of the variable cost.
- Variable costs (accounting more than 60 percent of total cost) are globally higher than fixed costs.
- Crew wages and salaries (including travel expenses) are less significant for vehicles traveling short distances (due to a reduced number of control points) and those with fewer round trips (because of the number of checkpoints).
- Companies face higher VOCs when transporting high value products since they offer more professional services.

[23] In the case of Central African Republic, only new trucks are considered, whereas in Chad both second-hand and new trucks were taken into account. Sample of vehicles were selected among small and medium trucking company owners.

Table 6-6

Details of Fixed and Variable Trucking Costs for the Douala-Ndjamena Corridor by Case Study (FCFA)

Expense	Case Study 1a		Case Study 1b		Case Study 2		Case Study 3	
	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total
A. ANNUAL VARIABLE COSTS IN FCFA/VEHICLE								
Maintenance costs	1,690,000	5%	800,000	4%	1,120,000	6%	1,650,000	6%
Tires costs[a]	4,680,000	15%	4,680,000	22%	4,500,000	23%	4,500,000	16%
Fuel and lubricants	13,935,000	43%	9,200,000	43%	8,890,000	45%	13,750,000	48%
Total variable costs per year	20,305,000	63%	14,680,000	68%	14,510,000	73%	19,900,000	69%
B. ANNUAL FIXED COSTS IN FCFA/VEHICLE[b]								
Vehicle insurance cost	540,000	2%	520,000	2%	540,000	3%	500,000	2%
Goods insurance cost	-	0%	-	0%	-	0%	-	0%
Gross wages per crew (including travel expenses, etc.)	5,850,000	18%	2,800,000	13%	1,400,000	7%	3,850,000	13%
Vehicle general taxes	2,500,000	8%	2,300,000	11%	2,400,000	12%	2,504,000	9%
Management overhead	3,000,000	9%	1,200,000	6%	960,000	5%	2,160,000	7%
Total fixed costs per year	11,890,000	37%	6,820,000	32%	5,300,000	27%	9,014,000	31%
C. ANNUAL TOTAL COST IN FCFA/VEHICLE								
Total VOC	32,195,000	100%	21,500,000	100%	19,810,000	100%	28,914,000	100%

NOTE: [a]Trucking companies change the tires 2 to 3 times per year in all their vehicles which are used for local and international transportation. Since we are only analyzing the Douala-Ndjamena corridor, we assume trucking companies changing tires once per year. [b]Not including depreciation and financing costs

SOURCE: Interviews March to October 2012

Table 6-7

Details of Fixed and Variable Trucking Costs for the Douala-Bangui Corridor by Case Study (FCFA)

Expense	Case Study 1a		Case Study 1b		Case Study 2		Case Study 3	
	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total
A. ANNUAL VARIABLE COSTS IN FCFA/VEHICLE								
Maintenance costs	1,100,000	3%	1,260,000	5%	1,840,000	8%	1,700,000	5%
Tires costs[a]	4,680,000	12%	4,680,000	18%	4,500,000	19%	4,500,000	14%
Fuel and lubricants	19,110,000	50%	12,960,000	49%	12,240,000	50%	16,500,000	52%
Total variable costs per year	24,890,000	65%	18,900,000	72%	18,580,000	76%	22,700,000	71%
B. ANNUAL FIXED COSTS IN FCFA/VEHICLE[b]								
Vehicle insurance cost	650,000	2%	620,000	2%	640,000	3%	640,000	2%
Goods insurance cost	-	0%	-	0%	-	0%	-	0%
Gross wages per crew (including travel expenses, etc.)	4,875,000	13%	2,250,000	9%	1,200,000	5%	3,300,000	10%
Vehicle general taxes	2,804,000	7%	2,750,000	10%	2,700,000	11%	2,775,000	9%
Management overhead	5,040,000	13%	1,800,000	7%	1,200,000	5%	2,400,000	8%
Total fixed costs per year	13,369,000	35%	7,420,000	28%	5,740,000	24%	9,115,000	29%
C. ANNUAL TOTAL COST IN FCFA/VEHICLE								
Total VOC	38,259,000	100%	26,320,000	100%	24,320,000	100%	31,815,000	100%

NOTE: [a]Trucking companies change the tires 2 to 3 times per year in all their vehicles which are used for local and international transportation. Since we are only analyzing the Douala-Bangui corridor, we assume trucking companies changing tires once per year. [b]Not including depreciation and financing costs
SOURCE: Interviews March to October 2012

Truckers' Profitability and Financing Gap

As described in Chapter 2, we used an alternative approach to calculate the residual income for each type of trucker after subtracting operating costs from revenues, to estimate what remains to finance the vehicle. Table 6-8 presents the gross operating margin calculations and the financial gap analysis.

Table 6-8

Annual Profit Margin per Vehicle and Financing Gap for Road Transporters along the Douala Corridors (FCFA)

		Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
DOUALA-NDJAMENA CORRIDOR					
VOC		32,195,000	21,500,000	19,810,000	28,914,000
Revenue[a]		48,464,000	23,582,300	22,018,500	42,981,510
Difference		16,269,000	2,082,300	2,208,500	14,067,510
Gross operating margin		34%	9%	10%	33%
Accounting practice	Depreciation	21,400,000	21,500,000	11,000,000	16,000,000
	Financing	1,337,143	600,000	480,000	950,000
Financing gap		(6,468,143)	(20,017,700)	(9,271,500)	(2,882,490)
DOUALA-BANGUI CORRIDOR					
VOC		38,259,000	26,320,000	24,320,000	31,815,000
Revenue[a]		42,406,000	25,164,000	23,300,000	34,600,500
Difference		4,147,000	(1,156,000)	(1,020,000)	2,785,500
Gross operating margin		10%	-5%	-4%	8%
Accounting practice	Depreciation	21,400,000	21,500,000	11,000,000	16,000,000
	Financing	1,011,429	912,000	462,857	771,429
Financing gap		(18,264,429)	(23,568,000)	(12,482,857)	(13,985,929)

NOTE: [a]Annual revenue is the number of turnarounds times inbound price plus backhaul trips transported with a 50 percent discount. Outbound traffic is equal to 33 percent of inbound traffic.
SOURCE: Interviews March to October 2012.

The Douala-Ndjamena corridor is more profitable than the Douala-Bangui corridor. When transporting high value products in a regular basis (at least 12 trips per year), companies face a gross operating margin of 30 percent (Case Studies 1a and 3); however while transporting low value products 8 to 9 times per year causes, truckers make no profit (Case Studies 1b and 2).

Along the Douala-Bangui corridor our estimates confirm that average transporters are not making profit when only focus on providing services along the corridor (low value product transporters are breaking almost even); however all interviewed transporters offer local transport services to increase revenue. Further analysis should be conducted to understand the cost and revenue structure of transporters offering local and international services.

For all the case studies in both Douala corridors the financing gap is negative. Average trucking companies cannot afford renewing their fleet with the current cost and revenue structure, which could be solved by increasing the number of turnarounds per year.

Railway Operations

Douala-Ndjamena and Douala-Bangui corridors are rail-road multimodal corridors. The railway goes from the Port of Douala to Ngaoundéré and is 884 km long. The railway network is all in Cameroon and is managed by a private company, CAMRAIL.

In 1999, the Government of Cameroon granted a member of Bolloré group, CAMRAIL, the concession for the railway network. The contract was reviewed in 2008 and CAMRAIL is now responsible for operating transport services and maintaining railway infrastructure, including equipment capacity. The Government of Cameroon still owns the railways.

Freight transport services are provided by the railways company from the Port of Douala to the stations, and then shippers must transport cargo by road to landlocked country destinations. Railways serve the traffic to Ndjamena via the rail-road platform of Ngaoundéré and the traffic going to Bangui through Belabo, mostly for timber. Both rail-road corridors are shorter than the road-only route.

Tables 6-9 and 6-10 present CAMRAIL freight and container handling tariffs since June 2011. If the minimum taxable is greater than the wagon capacity, then the minimum weight taxed will be the capacity of the wagon. For containerized hydrocarbon, taxation is based on the container' row weight and the handling tariff is the same as for other containers.

Table 6-9
CAMRAIL Freight Tariffs since 2011 (FCFA)

Freight		Freight Tariff	Unit	Minimum Taxable
Timber wood	White wood	50.03	m3 km	50 m3
	Light red wood	53.32	m3 km	40 m3
	Heavy red wood	58.15	m3 km	35 m3
Manufactured wood	White wood	48.97	m3 km	50 m3
	Light red wood	56.74	m3 km	40 m3
	Heavy red wood	70.04	m3 km	35 m3
Hydrocarbon (including engine oil, lubricant, fat, etc.)		62.63	ton km	40 tons
Cotton fiber		35.76	ton km	30 tons
Grains and crab		25.80	ton km	40 tons
Flour and cereal (rice, salt, malt, wheat, maize, etc.)		40.00	ton km	50 tons
Livestock		41.85	ton km	13/17 tons
Fertilizers and pesticides		40.00	ton km	50 tons
Local sugar		40.00	ton km	50 tons
Consolidated freight		40.38	ton km	40 tons

Freight		Freight Tariff	Unit	Minimum Taxable
Full container	20-ft container (14 tons)	65.00	ton km	
	40-ft container (27 tons)	58.50	ton km	
Construction materials (iron, steel, cement, gravel, sand, etc.)		37.10	ton km	50 tons
Other freight		40.00	ton km	50 tons

SOURCE: CAMRAIL (2011)

Table 6-10
CAMRAIL Handling Tariffs at Ngaoundéré for Containers since 2011 (FCFA)

Freight	Direction	Handling Tariff
20-ft container	Inbound	90,000
	Outbound	65,000
40-ft container	Inbound	160,000
	Outbound	130,000

SOURCE: CAMRAIL (2011)

Transport Costs Determinants

In addition to the factors listed in Chapter 2, the liberalization of the transport sector in the Central African economic region in the 90s stated that transport prices (for the transporter but costs for the shipper) are determined on the basis of mutual agreement between transporters, shippers and freight forwarders. The new regulatory measures aimed to contribute to more professionalized stakeholders and greater performance of the transport sector in the regional economy, however, they led to a series of changes that impacted the whole sector, including:

1. *Mixed stakeholders*. Though the liberalization clearly stated requirements and guidelines to carry out the activity, the lack of enough professional pre requisites and the follow up of the new framework have favored the occurrence of opportunists at various levels of intervention.

2. *More vulnerability*. Less importance has been provided to ensure the sector is protected enough against 'adventurists'. Even though performing as stakeholders in the sector theoretically requires a series of pre requisites, the activity is surrounded and infested by opportunists in search for shortcuts hence bypassing several procedures.

3. *Multi tasks stakeholders*. The segmentation of the sector is no longer clearly established in all the process of transit exchanges. Many stakeholders play several roles at the same time in such a way that, finding a shipper dealing simultaneously with all various steps of the process (freight forwarder, transporter, etc.) is usual. In that context, under the law of demand and supply, transporters say to be the most affected in the sense that they don't have enough bargaining power in other to decide about the price of transportation. In general freight forwarders are those who dictate the rules and play with the prices.

INLAND PROCESSING COSTS

Since 2009, trucks are no longer physically escorted though the corridors in Cameroon. A GPS is attached to trucks departing from Douala to landlocked countries after all documents are provided and transit formalities are complete. Vehicles and cargo are inspected at both sides of the borders by the same type of authorities. At the border in Cameroon, customs take place at Ngaoundéré logistic platform. On the other side, in Chad there is the logistics platform of Nguéli which includes a customs area for cargo clearance. In CAR, customs processes start at PK12, then trucks are escorted to Bangui station where processes are completed. Table 6-11 presents the clearing formality costs at each border and at final destination for the two Douala corridors.

Table 6-11
Clearing Formalities Costs at Borders and Final Destination (FCFA)

	Douala-Bangui	Douala-Ndjamena
BORDER FORMALITY		
Per ton	9,500	5,000
Per 20-ft container	85,100	160,000
Per 40-ft container	165,200	220,000
FORMALITY AT FINAL DESTINATION		
Per ton	7,035	8,000
Per 20-ft container	225,000	200,000
Per 40-ft container	325,000	250,000

SOURCE: *Stakeholder interviews, March to October 2012*

SUMMARY OF FINANCIAL COST OF LOGISTICS SERVICES TO THE SHIPPER

Total financial costs are the sum of financial costs for gateway, inland transport and inland processing costs in Ndjamena or Bangui. The total financial logistics costs for each of the cases studies for road transport to Ndjamena and Bangui and for rail/road transport to these two destinations summarized in Tables 6-12 and 6-13 below.

Table 6-12
Total Financial Logistics Costs on the Douala-Ndjamena Corridor (FCFA)

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Round-trip distance by road and rail-road (km)	3,636 / 3,250			
Cargo type	40-ft container	2x20-ft containers	1,000 metric ton in 50kg bags	2x20-ft stripped containers
Product type	Household appliances	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	16,800	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	8,282,000	59,160,000

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
BY ROAD				
GATEWAY COSTS				
Total port transit costs and clearing fees	1,242,900	1,342,900	754,450	1,342,900
Container stripping charges	-	-	30,000	56,800
Container demurrage charges	132,500	140,000	-	-
Total gateway costs	1,375,400	1,482,900	784,450	1,399,700
INLAND TRANSPORT COSTS				
Road transport price (inbound)	3,200,000	2,900,000	2,700,000	3,000,000
INLAND PROCESSING COSTS				
Border crossing formal costs	220,000	320,000	150,000	320,000
Customs clearance formalities at final destination	250,000	400,000	240,000	400,000
Total inland processing costs	470,000	720,000	390,000	720,000
TOTAL FINANCIAL LOGISTICS COSTS				
Total financial costs of logistics services (FCFA)	5,045,400	5,102,900	3,874,450	5,119,700
Total financial costs of logistics services per ton (FCFA)	173,979	170,097	129,148	146,277
Total financial costs per ton (US$)	352.90	345.02	261.96	296.71
BY RAIL-ROAD				
GATEWAY COSTS				
Total port transit costs and clearing fees	1,342,900	1,442,900	754,450	1,442,900
Container stripping charges	-	-	30,000	56,800
Container demurrage charges	196,100	207,200	-	-
Total gateway costs	1,539,000	1,650,100	784,450	1,499,700
INLAND TRANSPORT COSTS				
Rail/road transport price (inbound)	2,666,340	2,366,340	2,266,340	2,566,340
INLAND PROCESSING COSTS				
Border crossing formal costs	220,000	320,000	150,000	320,000
Customs clearance formalities at final destination	250,000	400,000	240,000	400,000
Total inland processing costs	470,000	720,000	390,000	720,000
TOTAL FINANCIAL LOGISTICS COSTS				
Total financial costs of logistics services (FCFA)	4,675,340	4,736,440	3,440,790	4,786,040
Total financial costs of logistics services per ton (FCFA)	161,219	157,881	114,693	136,744

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Total financial costs per ton (US$)	327.02	320.25	232.64	277.37

NOTE: US$1=FCFA 493
SOURCE: Nathan Associates' calculations.

Table 6-13
Total Financial Logistics Costs on the Douala-Bangui Corridor (FCFA)

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Round-trip distance by road and rail-road (km)	3,140 / 2,544			
Cargo type	40-ft container	2x20-ft containers	1,000 metric ton in 50kg bags	2x20-ft stripped containers
Product type	Household Appliances	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	16,800	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	8,282,000	59,160,000
BY ROAD				
GATEWAY COSTS				
Total port transit costs and clearing fees	1,242,900	1,342,900	754,450	1,342,900
Container stripping charges	-	-	30,000	49,800
Container demurrage charges	116,600	123,200	-	-
Total gateway costs	1,359,500	1,466,100	784,450	1,392,700
INLAND TRANSPORT COSTS				
Road transport price (inbound)	2,800,000	2,400,000	2,500,000	2,700,000
INLAND PROCESSING COSTS				
Border crossing formal costs	165,200	170,200	285,000	170,200
Customs clearance formalities at final destination	325,000	450,000	211,050	450,000
Total inland processing costs	490,200	620,200	496,050	620,200
TOTAL FINANCIAL LOGISTICS COSTS				
Total financial costs of logistics services (FCFA)	4,649,700	4,486,300	3,780,500	4,712,900
Total financial costs of logistics services per ton (FCFA)	166,061	149,543	126,017	168,318
Total financial costs per ton (US$)	336.84	303.33	255.61	341.42
BY RAIL-ROAD				
GATEWAY COSTS				
Total port transit costs and clearing fees	1,342,900	1,442,900	754,450	1,442,900
Container stripping charges	-	-	30,000	38,900
Container demurrage charges	159,000	168,000	-	-

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Total gateway costs	1,501,900	1,610,900	784,450	1,481,800
INLAND TRANSPORT COSTS				
Rail/road transport price (inbound)	1,911,920	1,711,920	1,611,920	2,011,920
INLAND PROCESSING COSTS				
Border crossing formal costs	165,200	170,200	285,000	170,200
Customs clearance formalities at final destination	325,000	450,000	211,050	450,000
Total inland processing costs	490,200	620,200	496,050	620,200
TOTAL FINANCIAL LOGISTICS COSTS				
Total financial costs of logistics services (FCFA)	3,904,020	3,943,020	2,892,420	4,113,920
Total financial costs of logistics services per ton (FCFA)	139,429	131,434	96,414	146,926
Total financial costs per ton (US$)	282.82	266.60	195.57	298.02

NOTE: US$1=FCFA 493.
SOURCE: Nathan Associates' calculations.

The following can be drawn from an analysis of total financial logistics costs within and between studied corridors:

- When comparing along both corridors, total and per ton financial costs are higher in the Douala-Ndjamena corridor.
- Along each corridor, financial costs for the road only option are higher than for the rail-road option.
- Transport price accounts for the highest financial cost (up to 70 percent in the Douala-Ndjamena corridor by road option) while inland processing costs rank between 9 and 17 percent of the total financial costs.

Hidden Costs

As explained in the methodological Chapter 2, hidden costs are the indirect costs incurred by landlocked shippers, in addition to direct payments to operators and truckers along the logistics chain. These hidden costs include transit inventory costs, based on the opportunity cost of capital and the most frequent total transit time from shipment arrival to shipper's warehouse, and hedging of unreliability costs, associated with uncertainty and unpredictability. In both cases, hidden costs include the capital opportunity cost of equivalent days of extra inventory, financial charges, obsolescence, fixed costs of warehousing at destination, and loss of damaged or stolen goods.

PORT DWELL TIME

For the study of the dwell time, we focused on the containerized cargo and consider operational and transactional processes. The assessment of hidden costs for Douala-Ndjamena and Douala-Bangui corridors is based on the port dwell time data and statistical indicators published by the Cameroonian's customs. They are summarized in Table 6-14 below:

Table 6-14

Port of Douala Dwell Time in the Transit of Containerized Cargo in the Port of Douala (days)

Process	Average	Median	Most Frequent	Standard Deviation	Variance
Between the ship's arrival and registration of the manifest (0)	-1.4	-2	-2	3.4	11.3
Recording between the manifest and the registration of the declaration (1)	13.6	10	7	12.5	156.3
Between the registration of the declaration and liquidation (2)	0.6	0	0	1.9	3.6
Between the liquidation of the declaration and payment (3)	2.1	1	0	4.9	23.9
Between payment and delivery of good exit authorization (4)	2.2	1	1	4.1	16.4
Between the good exit authorization and the real exit (5)	1	0	0	5.4	29.6
Overall delay between the recording of the manifest and the real exit (6) = (1) + (2) + (3) + (4) + (5)	19.5	15	13	15.2	229.9

SOURCE: *Douane Camerounaise, 2011. Problématique des délais de passge des marchandises au port e Douala.*

With a more frequent dwell time value (13 days) lower than the arithmetic mean (19.5 days) and a high variance (229.9), the official results confirm the dwell time's distribution asymmetry which we referred to in our methodology (see Chapter 2). The transit inventory cost is based on the most frequent dwell time value, while the unreliability cost is based on the standard deviation value (15.2 days).

TOTAL CORRIDOR TRANSIT TIME

Besides dwell times at the port of Douala, there are additional transit times when travelling along the corridors, crossing the borders and clearing the cargo final destination. The most frequent transit time values as well as their ranges are evaluated according to interviewed operators.

Table 6-15 synthesizes the port dwell time and corridor transit time transported by road and rail-road option and show that from vessel anchorage at Port of Douala to final destinations in either Ndjamena or Bangui the average time spent between 24 to 29 days, where port dwell time accounts for 13 days (around 45 to 55 percent of the total time) and travel time and customs clearance time accounts for the remaining 10-24 percent. The excessive time spent at the port is essentially due mostly to idle time on ship before entering the port.

The total delay times for inland transport on both corridors were determined to be the same but the proportions of components of these times is different as noted below.

Table 6-15

Most Frequent Value and Standard Deviation of Dwell and Transit Times along the Douala Corridors (days)

		Road		Rail-Road	
		Most Frequent	Standard Deviation [a]	Most Frequent	Standard Deviation [a]
DOUALA-NDJAMENA					
Port transit dwell time		13.0	15.2	13.0	15.2
Total land transit time	Dwell time for customs escort departure	0.0	0.0	0.0	0.0
	Travel time on the corridor	7.5	5.0	9.0	8.0
	Borders crossing and formalities	2.5	3.0	5.0	2.0
	Time for customs clearance at final destination	1.0	1.5	1.5	1.0
Total corridor transit time		24.0	-	28.5	-
DOUALA-BANGUI					
Port transit dwell time		13.0	15.2	13.0	15.2
Total land transit time	Dwell time for customs escort departure	1.5	1.0	1.5	1.0
	Travel time on the corridor	4.0	2.0	5.0	4.0
	Borders crossing and formalities	5.0	4.0	7.0	4.0
	Time for customs clearance at final destination	2.5	3.0	2.5	3.0
Total corridor transit time		26.0	-	29.0	-

NOTE: a Total land transit time standard deviation is calculated as the range between maximum and minimum transit time. Land transit time includes inland terminal time.

SOURCE: Douane Camerounaise, 2008 for port transit dwell time. Stakeholder interviews for total land transit time data, March to October 2012

The resulting total hidden costs are presented in Tables 6-16 and 6-17. The main conclusions are:

- In all the Case Studies along both corridors around 50 percent of the hidden costs are due to transit inventory costs and the other 50 percent to unreliability costs.
- Port hidden costs are higher than inland transport hidden costs, especially in Douala-Ndjamena corridor.
- For high value products, such as household appliance and spare parts, hidden costs are higher than for low value products (edible oil and rice).

Table 6-16

Transit Inventory Costs and Costs of Hedging Against Uncertainties for Transport to Ndjamena by Road and by Rail/Road (FCFA)

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Round-trip distance by road and rail-road (km)	3,636 / 3,250			
Cargo type	40-ft container	2x20-ft container	1,000 metric ton in 50kg bags	2x20-ft stripped container
Product type	Household appliances	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	16,800	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	8,282,000	59,160,000
Annual capital opportunity cost	30%			
By Road				
Road transport price (inbound)	3,200,000	2,900,000	2,700,000	3,000,000
Transit Inventory Costs				
Port transit dwell time	368,737	158,030	88,497	632,121
Total land transit time	312,008	133,718	74,882	534,871
Total transit inventory costs	680,745	291,748	163,379	1,166,992
Hedging Unreliability Costs				
Unreliability costs due to port transit delays	431,139	184,774	103,473	739,095
Unreliability costs due to land transit delays	269,462	115,484	64,671	461,934
Total hedging unreliability costs	700,600	300,257	168,144	1,201,029
Total Hidden Costs				
Total hidden costs (FCFA)	1,381,345	592,005	331,523	2,368,021
Total hidden costs per ton (FCFA)	47,633	19,734	11,051	67,658
Total hidden costs per ton (US$)	96.62	40.03	22.42	137.24
By Rail-Road				
Rail/road transport price (inbound)	2,666,340	2,366,340	2,266,340	2,566,340
Transit Inventory Costs				
Port transit dwell time	368,737	158,030	88,497	632,121
Total land transit time	439,648	188,421	105,516	753,682
Total transit inventory costs	808,385	346,451	194,012	1,385,803
Hedging Unreliability Costs				
Unreliability costs due to port transit delays	431,139	184,774	103,473	739,095
Unreliability costs due to land transit delays	312,008	133,718	74,882	534,871
Total hedging unreliability costs	743,147	318,492	178,355	1,273,966

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
TOTAL HIDDEN COSTS				
Total hidden costs (FCFA)	1,551,532	664,942	372,368	2,659,769
Total hidden costs per ton (FCFA)	53,501	22,165	12,412	75,993
Total hidden costs per ton (US$)	108.52	44.96	25.18	154.14

NOTE: US$1=FCFA 493.
SOURCE: Nathan Associates' calculations.

Table 6-17
Transit Inventory Costs and Costs of Hedging Against Uncertainties for Transport to Bangui by Road and by Rail/Road (FCFA)

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Round-trip distance by road and rail-road (km)	3,140 / 2,544			
Cargo type	40-ft container	2x20-ft container	1,000 metric ton in 50kg bags	2x20-ft stripped container
Product type	Household appliances	Edible oil	Rice	Spare parts
Cargo value (CIF) (US$)	70,000	30,000	16,800	120,000
Cargo value (CIF) (FCFA)	34,510,000	14,790,000	8,282,000	59,160,000
Annual capital opportunity cost	30%			
BY ROAD				
Road transport price (inbound)	2,800,000	2,400,000	2,500,000	2,700,000
TRANSIT INVENTORY COSTS				
Port transit dwell time	368,737	158,030	88,497	632,121
Total land transit time	368,737	158,030	88,497	632,121
Total transit inventory costs	737,474	316,060	176,994	1,264,241
HEDGING UNRELIABILITY COSTS				
Unreliability costs due to port transit delays	431,139	184,774	103,473	739,095
Unreliability costs due to land transit delays	283,644	121,562	68,075	486,247
Total hedging unreliability costs	714,782	306,335	171,548	1,225,341
TOTAL HIDDEN COSTS				
Total hidden costs (FCFA)	1,452,256	622,396	348,542	2,489,582
Total hidden costs per ton (FCFA)	51,866	20,747	11,618	88,914
Total hidden costs per ton (US$)	105.21	42.08	23.57	180.35
BY RAIL-ROAD				
Rail/road transport price (inbound)	1,911,920	1,711,920	1,611,920	2,011,920
TRANSIT INVENTORY COSTS				
Port transit dwell time	368,737	158,030	88,497	632,121

	Case Study 1a	Case Study 1b	Case Study 2	Case Study 3
Total land transit time	453,830	194,499	108,919	777,995
Total transit inventory costs	822,567	352,529	197,416	1,410,115
HEDGING UNRELIABILITY COSTS				
Unreliability costs due to port transit delays	431,139	184,774	103,473	739,095
Unreliability costs due to land transit delays	340,373	145,874	81,689	583,496
Total hedging unreliability costs	771,511	330,648	185,163	1,322,591
TOTAL HIDDEN COSTS				
Total hidden costs (FCFA)	1,594,078	683,176	382,579	2,732,706
Total hidden costs per ton (FCFA)	56,931	22,773	12,753	97,597
Total hidden costs per ton (US$)	115.48	46.19	25.87	197.96

NOTE: US$1=FCFA 493.
SOURCE: Nathan Associates' calculations.

Total Logistics Costs

Table 6-18 below summarizes the total logistics costs and their components for each of the case studies that were examined for the Douala-Ndjamena and Douala-Bangui corridors. Figure 6-3 below illustrates the following conclusions about total logistics costs for the corridors:

- The distribution between financial and hidden costs varies widely across case studies in each corridor however it is very similar for same case studies across both corridors.
- Total logistics costs are higher for the road option than the rail-road option in both corridors.
- Hidden costs are low for low value products (Case Studies 1b and 2) and more important values for high value products (Case Studies 1a and 3).
- On the Douala-Ndjamena corridor, total logistics costs are proportionally higher than in the Douala-Bangui.

Table 6-18
Total Logistics Costs for Transport in Both Douala Corridors by Road and by Rail for Each Case Study

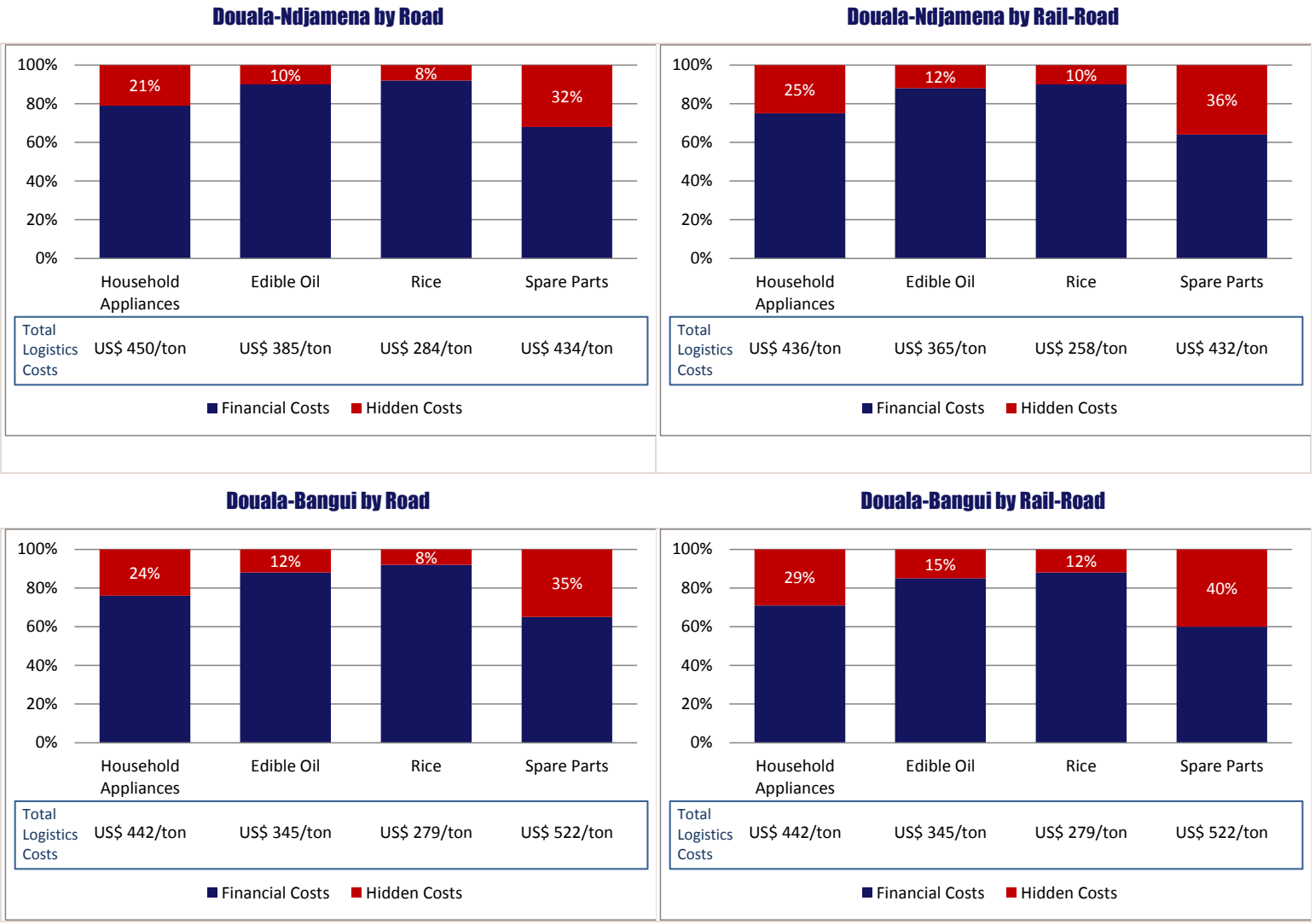
Components	Case Study 1a		Case Study 1b		Case Study 2		Case Study 3	
	FCFA	%	FCFA	%	FCFA	%	FCFA	%
DOUALA-NDJAMENA BY ROAD								
Total financial logistics costs	5,045,400	79%	5,102,900	90%	3,874,450	92%	5,119,700	68%
Hidden costs	1,381,345	21%	592,005	10%	331,523	8%	2,368,021	32%
Total logistics costs	6,426,745	100%	5,694,905	100%	4,205,973	100%	7,487,721	100%
Total logistics costs per ton	221,612		189,830		140,199		213,935	

Components	Case Study 1a		Case Study 1b		Case Study 2		Case Study 3	
	FCFA	%	FCFA	%	FCFA	%	FCFA	%
(FCFA)								
Total logistics costs per ton (US$)	449.52		385.05		284.38		433.94	
DOUALA-NDJAMENA BY RAIL-ROAD								
Total financial logistics costs	4,675,340	75%	4,736,440	88%	3,440,790	90%	4,786,040	64%
Hidden costs	1,551,532	25%	664,942	12%	372,368	10%	2,659,769	36%
Total logistics costs	6,226,872	100%	5,401,382	100%	3,813,158	100%	7,445,809	100%
Total logistics costs per ton (FCFA)	214,720		180,046		127,105		212,737	
Total logistics costs per ton (US$)	435.54		365.21		257.82		431.52	
DOUALA-BANGUI BY ROAD								
Total financial logistics costs	4,649,700	76%	4,486,300	88%	3,780,500	92%	4,712,900	65%
Hidden costs	1,452,256	24%	622,396	12%	348,542	8%	2,489,582	35%
Total logistics costs	6,101,956	100%	5,108,696	100%	4,129,042	100%	7,202,482	100%
Total logistics costs per ton (FCFA)	217,927		170,290		137,635		257,232	
Total logistics costs per ton (US$)	442.04		345.42		279.18		521.77	
DOUALA-BANGUI BY RAIL-ROAD								
Total financial logistics costs	3,904,020	71%	3,943,020	85%	2,892,420	88%	4,113,920	60%
Hidden costs	1,594,078	29%	683,176	15%	382,579	12%	2,732,706	40%
Total logistics costs	5,498,098	100%	4,626,196	100%	3,274,999	100%	6,846,626	100%
Total logistics costs per ton (FCFA)	196,361		154,207		109,167		244,522	
Total logistics costs per ton (US$)	398.30		312.79		221.43		495.99	

NOTE: US$1=FCFA 493
SOURCE: Nathan Associates' calculations.

Figure 6-2

Total Logistics Costs Structure in the Douala-Ndjamena and Douala-Bangui Corridors



Summary of Key Findings

Shippers in Central Africa encounter common regional challenges and specific bottlenecks on the Douala corridors which include the following:

GATEWAY INEFFICIENCIES

- Insufficient equipment for piloting and tug boating
- Lack of space at quays, with too-narrow working and traffic areas
- Lack of coordination between port services
- Lack of adequate equipment for general cargo and bulk handling
- Yards are of limited space, constantly congested with containers and lorries unloading
- Lack of operational ICD where cargo can be transferred for processing
- Low cargo storage costs at port encouraging lengthy dwell times
- Manual interface procedures causing delays and adding costs
- Lack of equipment for the GPS tracking system

TRUCKING INDUSTRY INEFFICIENCIES

- Current incentives are to strip containers
- Trucking freight rates are characterized by fixed costs and very limited variable costs
- Trade imbalance: imports exceed exports, leading to a scarcity of backload cargo
- Seasonal demand: tariff can be influenced by export commodity (cotton and onions) season
- Transport demand exceeds supply in most periods of the year, especially for high-value, strategic products
- Lack of market transparency in business practices
- Old, obsolete fleet operated by poorly qualified truckers (despite efforts to upgrade fleets)
- Low annual mileage per truck due to long wait times at the Port of Douala
- Unfair competition from nonprofessional truckers operating old vehicles leading the entire profession to low freight rates that do not guarantee sufficient income for fleet renewal
- Poor road sections causing frequent breakdowns and high vehicle operating costs

TRANSPORT AND TRADE FACILITATION INEFFICIENCIES

- Quota systems prevent efficient markets in road transport services
- High port handling charges and shipping line charges
- Lack of professionalism of freight forwarders
- Unreliable internet connection going down frequently delaying the clearing processes
- Briberies and non-official fees are required to accomplish transactions
- Too many checkpoints along the corridor
- Informal payments and corruption

In Chapters 9 and 10 we elaborate on these inefficiencies and how they can be remedied.

7.Abidjan–Lagos Corridor

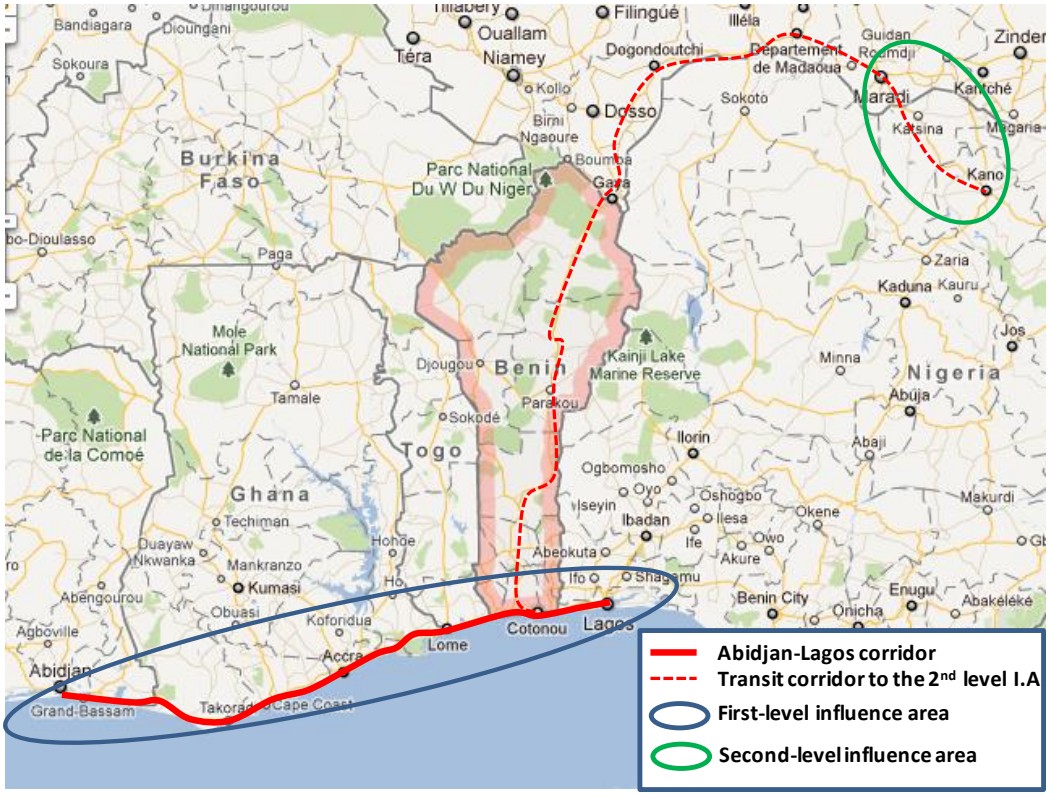
Introduction

Description of Corridor and Infrastructure

The Abidjan-Lagos Corridor (ALC) links five coastal countries in West Africa: Côte d'Ivoire, Ghana, Togo, Benin and Nigeria (See Figure 7-1) with a primary influence area that includes the biggest and most densely populated areas in all five countries and a combined population of 37 million people. Its secondary influence area extends through Benin and Niger to the northern part of Nigeria, as noted in Chapter 3.

Figure 7-1

Influence Areas of the Abidjan-Lagos Corridor (ALC)



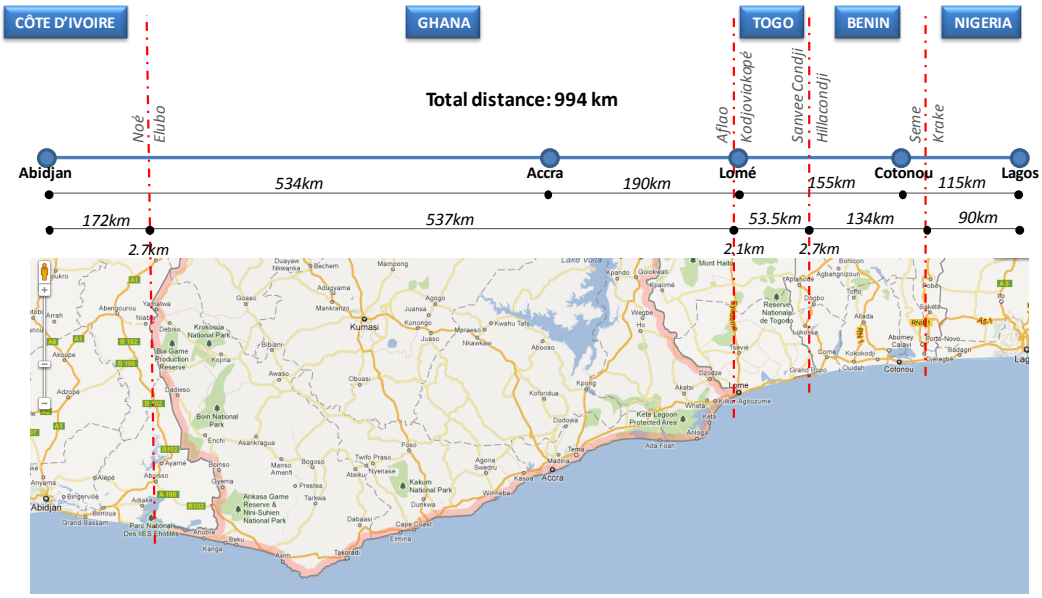
Source: Own elaboration. Base: Google maps

The infrastructure in the corridor includes five major ports and the connecting roads and border posts (there are no rail lines or services along this corridor). The logistics system and flows for this corridor were described in Figures 3-2 and 3-3. Additional details on the infrastructure are in Appendix A.

The ALC has a total length of approximately 994 km from Lagos to Abidjan as shown in Figure 7-2. The longest segment, making up 54 percent of the total distance, is between Accra and Abidjan. The population density in this segment is lower than in the rest of the corridor, but intermediate segments-such as Lomé-Grand Popo in West Cotonou also have low population density and lower traffic volumes.

Figure 7-2

Abidjan-Lagos Corridor Road Infrastructure



Source: Google Maps with distances added.

Field observations carried out between March and May 2012 found the corridor in generally good condition. Segments close to the border posts between Benin and Nigeria and Benin and Togo, and in the bypass road at Takoradi, in Ghana need rehabilitation. Improvement works have begun or are expected to begin shortly on the Togolese-Beninese border, segments in Côte d'Ivoire, the Lomé urban bypass, and border posts and freight stations.

PORT INFRASTRUCTURE AND LOGISTICS

According to field interviews, traders generally use ports in their own countries, although some importers in Benin use Togo to avoid congestion and delay. All ports serve a combination of domestic traffic and transit traffic to other corridor countries and landlocked countries.

Competition between ports aims primarily to capture transit traffic headed to landlocked countries, although some there is some transit traffic between neighboring countries, with the most significant flows occurring between Benin and Nigeria, as discussed in Chapter 3.

The port of Apapa in Nigeria is ISPS[24] compliant, but it suffers from piracy, which obliges ships planning to stay overnight to go to the Port of Lomé. During field visits between 20 and 32 ships were observed waiting at Lomé bay during field visits. These security concerns influence whether ships choose Apapa as entry port.

Another aspect affecting the efficiency of Apapa port is Nigeria's import prohibition list.[25] Changes are so frequent that goods are added to the prohibition list between the time they are ordered and the time they are delivered, and traders find abandoning full containers less expensive than paying penalties and fees for destroying them. The port cannot dispose of these containers for a given period, which creates congestion in the port.[26]

The Port of Cotonou is the main port for Benin. It reached capacity years ago and is very congested. With resources of the Millennium Challenge Account (MCA), the port is investing in works on two new berths, the deepening of the channel to 15 m, and works to enlarge storage. In addition, the government of Benin has a project to build a dry port in Sèmè Kpodji, closer to the border with Nigeria, to keep containers out of the port.

The space available for trucks outside Cotonou port is also limited, and the access road is congested. The government has signed an agreement with STB (Solutions Technologiques pour le Transport au Bénin) to control the flow of trucks in the city of Cotonou (see Appendix A for details).

Cotonou is also affected by pirates operating out of neighboring Nigeria. Cotonou operates as an alternate port for the west of Nigeria, but only for imports, mainly smuggled goods (see Chapter 3 discussion).

A dry port is located in Allada, 56 km at north part of Cotonou and it is aimed to serve mainly Niger. It was built to hold 300 TEU of transit cargo per day, but historically held 100 TEU. One reason for the underutilization is that large maritime shippers such as Maersk have their own facilities. Additionally, Niger importers are passing their goods through the ports of Lomé and Tema, therefore the dry port activities are currently suspended.

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[24] International Ship and Port Facility Code, adopted in 2002 by governments subscribing to SOLAS Convention, and based on self-certification in compliance with security standards for port facilities

[25] In attempting to protect its domestic market Nigeria has created a prohibition list and updates it often.

[26] The study conducted by the World Bank, Nigeria Trade Policy and Port Congestion (Raballand and Mjekiqi 2010), analyzed that there are two patterns to abandon cargo at the port: a) an importer of prohibited goods or other related offences may abandon goods in the port and wait for "their" goods to be auctioned and then bypass the import regulation get his goods at a relatively low price; b) an importer makes false declaration including the undervaluation of declared goods and decides when caught to abandon the consignment to get goods through auction, which is in any case cheaper than full payment of import duties with penalty fees for false declaration and incidental port charges . This makes clearance of imported goods through the normal procedure much more expensive than through auction and unattractive.

The Autonomous Port of Lomé, in Togo, is located in the capital of the country. In addition to domestic port traffic, many ships stay overnight in Lomé bay to avoid being attacked by pirates in Beninese or Nigerian waters.[27] During our field visit, 18 ships were in the bay, but the Port of Lomé indicated that only two or three were actually headed to the port. The port signed on[28] to international conventions on maritime security in November 2011 and has developed access procedures to control ships that enter the port.

Ghana has two ports along the corridor—Tema, the largest port in the country, and Takoradi. Tema has been operating with congestion but has expanded to handle the increase in traffic.

In Côte d'Ivoire, the Autonomous Port of Abidjan, is the country's main port. This port is important for both domestic and transit traffic to landlocked countries. It is well planned and has a program to expand capacity to keep up with demand.

TRAFFIC AND VEHICLE TYPES

Traffic along this corridor is the heaviest in Western and Central Africa, reflecting the intense economic exchange in its influence area; based on ALCO Observatory reports 130,000 people and 1,000 of vehicles cross the borders every day. Traffic is diverse: many passenger vehicles, particularly near the cities, including many motorcycles in Togo and Benin. The overlapping of origins and destinations is evident in the heavy passenger and freight traffic of every type and size of vehicle and cargo. In contrast with the vehicle mix on transit corridors, the average size of cargo vehicles on ALC is heterogeneous (see details in Appendix A).

The following characteristics of traffic flows were observed during field visits:

- Between Lagos and Lomé, volume is low and vehicles are predominantly low-capacity trucks, although large long-distance Nigerian trucks were observed in the border areas.
- Traffic between Lomé and Benin was heavier, probably linked to ports, although not containerized.
- The highest density of high-capacity vehicles was found in Ghana near the border with Togo.
- Between Côte d'Ivoire and Ghana traffic levels were low, and big Nigerian trucks were observed at the border post.

Trucking Industry

Transport in the Abidjan-Lagos Corridor shares similar problems. Even when transport statistics are not available, interviewees throughout the corridor agreed on the following issues:

[27] Pirates use speed boats that are not detectable by radar. Some ships stay far from the coast to avoid the pirates.

[28] The National Assembly ratified the UN Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation.

- ***Age of the fleet.*** The trucking fleet is very old. Some statistics show that the average age of vehicles exceeds 20 years, and some estimate that the average is closer to 25 years. This results in higher operating costs, including fuel and maintenance.
- ***Size of trucking companies.*** Few operators are companies—an estimated 90 percent of the fleet belongs to individuals. This breaks up supply and reduces access to financing. Indeed, one of the main reasons behind the advanced age of the fleet and the lack of specialized equipment is that no credit is available and buyers must pay in cash. In Benin, the Chamber of Commerce is trying to find a solution to this problem. The exception to this pattern is fuel distribution, since multinational companies, not individuals, provide the service.
- ***Type of trucks.*** The types of trucks used in the ALC are usually multipurpose vehicles transporting general, not consolidated, cargo. Field observations and interviews also found that most trucks carry a combination of packages of different sizes and shapes. Interviewees consistently highlighted a lack of special equipment such as refrigerated trucks, cisterns, and container trucks, but specialized equipment needs maintenance and/or is costly. This situation was found in all countries but is slightly better in Ghana. This situation affects the profitable trade in perishable goods along the ALC.
- ***Return cargo.*** Return cargo along the corridor is almost nonexistent. One reason besides the lack of coordination is cultural barriers—a trader from a French-speaking country delivering goods to Nigeria or Ghana will probably not get return cargo because of distrust between countries with different cultural roots and languages. This pattern affects mostly occasional, low-volume exchanges. Freight-exchange solutions that could reduce the impact of return cargo on transport costs have not been adopted in the ALC.
- ***Seasonality.*** During the cotton season there is a lack of available trucks to transport other products. When trucks are scarce, some transport unions decide what goods to transport, especially goods heading for landlocked countries from ports.
- ***Overloading, lack of maintenance and quality of equipment.*** Vehicle maintenance along the corridor is poor, as evidenced by the broken-down vehicles observed during the field trip. Frequent accidents have caused some municipalities to erect obstacles to reduce speed near cities and towns. Overloading is common but is expected to decline with the adoption of the regional agreement on axle weight (see Appendix A). Maximum dimensions are stipulated in the ECOWAS IST Convention A_P2_5_85, article 5 but field observation and interviews highlighted that they are not enforced.
- ***Quotas for transit cargo.*** The quota for cargo in transit to an ALC country is 50/50 for destination/origin country of transporters.[29] IST Convention, Article 20, stipulates that "Inter-State allocation of freight shall be those laid down by the Inter-State freight offices of Member States". Interviewees revealed that this law has not been widely implemented by the police.

[29] CEDEAO No. A/P2/82

- ***In Nigeria,*** fleets of buses and trucks are inadequate, and the transport sector as a whole, according to Nigeria's National Bureau of statistics, accounts for only 3 percent of GDP. This figure is low compared to those of other developing countries (6–7 percent in Latin America) and much lower than those of developed countries (12–15 percent). The private organization dealing with commercial vehicles is the NARTO, or Nigerian Association of Road Transport Owners.

Border Crossings

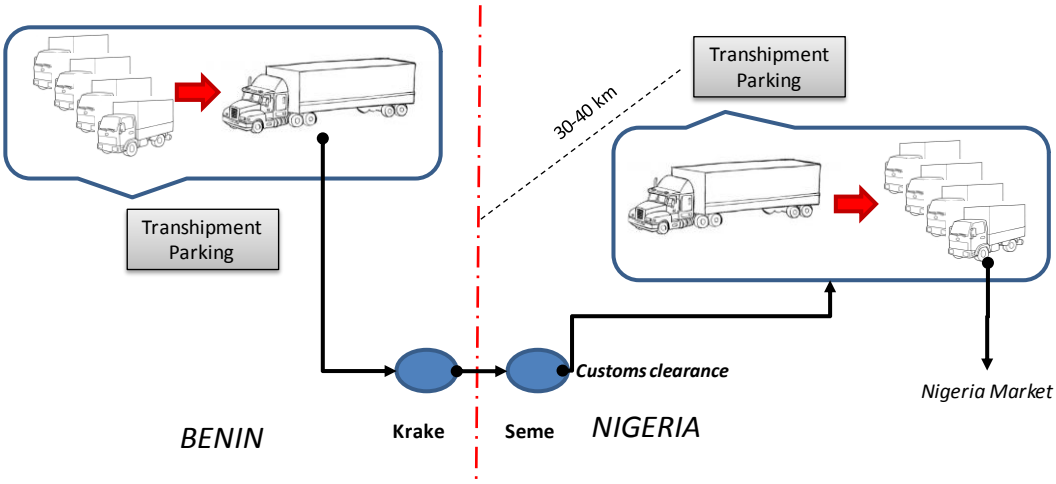
Border crossings are operated as national border posts throughout the corridor, although a joint border post between Nigeria and Benin is under construction at Semé-Kraké. In the medium term all the border posts along the corridor are expected to follow the joint operating model (see Appendix A for more details on border posts). Interviewees in Nigeria highlighted the existence of numerous informal border crossings out of the formal borders along the Abidjan-Lagos Corridor.

In field visits and analysis of secondary information we found:

- ***Semé-Kraké (Nigeria-Benin).*** The Semé-Kraké border crossing area is active commercially, with substantial traffic of passengers carrying "accompanied" goods. The joint border post is under construction and is expected to be operational in two years. In Kraké (Benin) goods arriving in Beninese trucks are offloaded in a parking lot and loaded into much bigger trucks (two to three trucks to one Nigerian truck [*camion bateau*]). The operation takes one day and takes place only because Customs clearance in Nigeria is done by truck or approximate volume, regardless of weight.[30] After the goods have cleared Customs in Nigeria, they are transferred again to smaller trucks because of axle weight limitations in Nigeria. This second transfer takes place 30–40 km from the border (see Figure 7-3).

Figure 7-3

Transshipment Procedure at Semé-Kraké Border Parking Lots after Goods Are Cleared



Source: Nathan Associates' elaboration.

[30] Some of the goods arriving from the ports of Tema, Lomé and Cotonou are transshipped.

- ***Sanvee Condji-Hillacondji (Togo-Benin).*** The national border posts at Sanvee Condji and Hillacondji are very close. Implementation of a joint border post has been decided, and the expropriation of the land is in progress. Commercial activity is much lighter than at the border between Benin and Nigeria. A 5-km waiting line of trucks was observed on the Togolese side of the border during the field visit. The information given by stakeholders is that transporters regularly arrive at the border and wait for importers to come with the money or additional information or documentation required to complete formalities. The day of our field visit, Beninese Customs were on strike against the Société Benin Control (SBC).
- ***Aflao-Kodjoviakopé (Ghana-Togo).*** This border post has heavy traffic because of the proximity of Lomé and the port. As at other border posts, services are scattered throughout the area on the Aflao side of the border, which results in delays as traders go from one building to another to comply with formalities. Even when a scanner is operating on the Ghanaian side (Aflao), overloading often obliges part of the cargo be offloaded so goods can be scanned. The road is being enlarged but progress in expropriation and demolition is slow.

  On both sides of the border are representatives from ALCO and Borderless but they complained about the inefficacity and lack of sustainability of their work because border authorities' behavior changes as soon as they turn their backs.

- ***Elubo-Noé (Ghana-Côte d'Ivoire).*** This border was less congested than other border posts along the corridor. A joint border post is also planned here.

One common problem at almost all borders is the lack of money exchange offices or ATMs, so except for users of Sanvee Condji-Hillacondji, who carry the same currency, users must exchange money through informal brokers if they do not have the right currency to pay formal and informal payments. This adds not only time but also cost and uncertainty, because the exchange rate is decided unilaterally by sellers.

TRADE AND INFRASTRUCTURE PROJECTS

Road

The Abidjan-Lagos Trade and Transport Facilitation Project (ALTTFP) is financed by the World Bank through the International Development Association (IDA). It is aimed at reducing trade and transport barriers at the ports and along the roads—financing rehabilitation works and trade facilitation initiatives. The project is financing the following works in Côte d'Ivoire:

- Improvement of about 130 km of road on the Moossou-Nzikro-Aboisso Noé section of the corridor, including widening of the Noé Bridge
- Construction of two rest stop areas at Noé and Aboisso
- Rehabilitation of about 9 km of access roads to the freight terminal of Vridi

Other multilateral partners are financing works on the corridor as well. The African Development Bank is financing the Transport Facilitation project and the West African Economic and Monetary Union (WAEMU) is the executing agency. The project amount is UAC 86,550,000. More details are given in Appendix C.

Port

Several port projects are being implemented in the corridor, but they have little impact on traffic in the corridor, with the possible exception of goods smuggled into Nigeria and on congestion in port areas along the corridor.

Border Post

The European Union has granted €63.8 million to ECOWAS and UEMOA for the construction of three border posts, including one at the Semé-Kraké Nigeria–Benin border. It will also cofinance with the African Development Bank rehabilitation of buildings and construction of joint border posts between Benin and Togo (Hillakondji-Sanvee Condji), Togo and Ghana (at Noepe 30 km north-west of Lomé), and Ghana-Côte d'Ivoire (Elubo-Noé). EU financing does not include internal furnishings of buildings, training on operating the sites, or the legal and operational framework for operating the joint border posts.[31] However, IDA financing under the ALTTFP has made provision for internal furnishing of the buildings. The Nigeria-Benin and the Noepe border posts are supposed to become effective in 2013.

Interventions aimed at improving transport services are mostly regulatory or infrastructure related, or facilitation of transit traffic. There are almost no projects generating incentives to improve the quality and diversification of services, such as micro financing, subsidies to renovate the fleet or purchase loading equipment, which are closely linked to improving competitiveness.

Trade Flows

Our analysis of demand and the trade patterns presented took into account the following elements:

- UN COMTRADE figures for trade flows between pair of countries
- Shippers associations data on imports, exports and transit flows using maritime transport
- Information from interviews with stakeholders about the reasons for some trade patterns and logistics practices.

INTRAREGIONAL TRADE

Intraregional trade in the ECOWAS region and in the ALC is low, and developing this commerce is critical for ECOWAS. According to the World Bank, "Eliminating oil trade from total exports of member countries and from intraregional trade among member countries

31 ALFP. PAD. Op cited.

would raise the ratio of intra-trade to total exports to 17 percent. … Eliminating oil trade from total imports by member countries and from internal trade among countries would reduce the ratio of intra-trade to total imports to a low 5.7 percent."[32]

UN COMTRADE data on the foreign trade of the countries being analyzed are useful for understanding intraregional trade patterns and for selecting the logistics chains that might be interesting to analyze further. The quality of these data depends on the quality of data provided by each Customs agency; they of course do not include smuggling.

In general terms, African trade experienced growth between 2000 and 2009 of 11.7 percent per year; West African figures are slightly lower than the average—10.7 percent. Tables 7-1 and 7-2 present intraregional and country-pair trade among ALC countries. In 2011 the largest exporter was Ghana (56 percent of total intraregional exports), the next-largest Nigeria (28 percent), then Côte d'Ivoire (12 percent). The main importer was Côte d'Ivoire (56 percent of total intraregional imports), followed by Nigeria (23 percent). Total trade in the region was US$12 million, of which Ghana traded 45 percent.

Table 7-1

Total Intraregional Trade in ALC Countries, Including Petroleum Products, 2011 (US$ million)

Reporting Country	Regional Exports	Regional Imports	Total Trade
Benin	0.22	0.26	0.48
Côte d'Ivoire	1,21	1.61	2.82
Ghana	5.60	0.27	5.87
Nigeria	2.78	0.66	3.44
Togo	0.21	0.09	0.30

Source: UN COMTRADE 2011
Note: Benin data based on 2010 figures – 2011 figures unavailable.

Table 7-2

Value of Trade between ALC Countries, Including Petroleum Products (US$ million)

Reporting Country	Partner Country					Total
	Benin	Côte d'Ivoire	Ghana	Nigeria	Togo	
Benin		0.04	0.01	0.27	0.17	0.49
Côte d'Ivoire	0.11		0.32	2.23	0.15	2.81
Ghana	0.09	0.79		0.25	4.73	5.86
Nigeria	0.09	1.95	1.40		n/a	3.44
Togo	0.09	0.05	0.09	0.06		0.29
TOTAL	0.38	2.83	1.82	2.81	5.05	12.89

Source: UN COMTRADE 2011
Note: n/a – not available.

[32] ALTTFP Project Appraisal Document. Op. cit. World Bank. 2010

In 2010, the ALC region traded approximately 2,200 million tons, of which 41 percent was petroleum products. If petroleum is excluded, the largest trading partners are Ghana and Togo (clinker), followed by Côte d'Ivoire and Ghana, Côte d'Ivoire and Nigeria, and Ghana and Nigeria.

Table 7-3

Estimated Volume of Trade between ALC Countries (000 tons)

Country Pairs	Total Trade Volume	Petroleum Products	Nonpetroleum Products	% of Petroleum Products
Côte d'Ivoire-Ghana	173.19	24.54	148.65	14%
Côte d'Ivoire-Togo	84.26	36.01	48.25	43%
Côte d'Ivoire-Benin	128.48	n/a	n/a	n/a
Côte d'Ivoire-Nigeria	920.60	827.82	92.78	90%
Ghana-Togo	563.71	0	563.71	0%
Ghana-Benin	12.55	n/a	n/a	n/a
Ghana-Nigeria	82.45	1.39	81.06	2%
Togo-Benin	193.73	n/a	n/a	n/a
Togo-Nigeria	27.18	n/a	n/a	n/a
Benin-Nigeria	0.12	n/a	n/a	n/a
TOTAL	2,186.26	889.77	1,296.50	41%

Notes: Reporting country is named first.

Total trade volume figures are based on exports from one country to another, except for Benin, for which data were not available. Instead, for Benin, flows include imports registered in the destination country.

n/a – not available

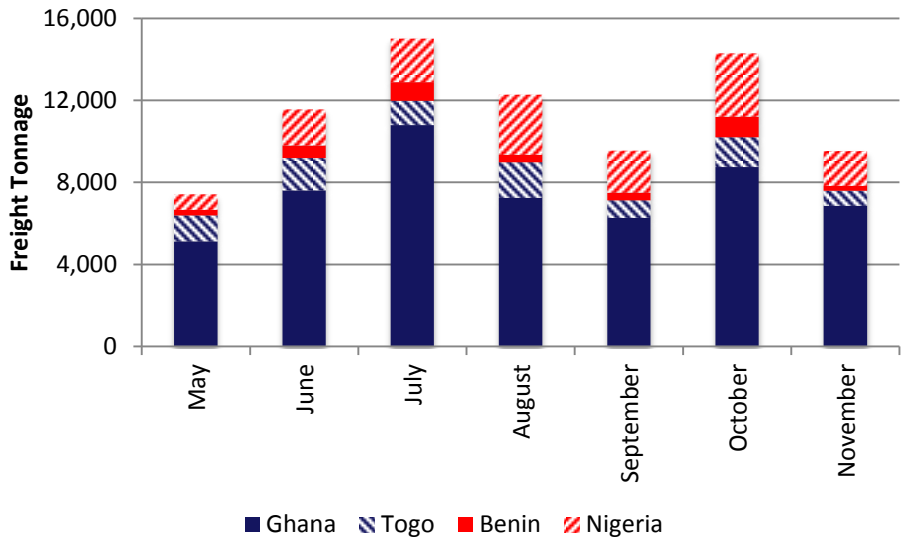
Source: Own calculations based on COMTRADE data.

As a supplement to the COMTRADE data on regional flows in the ALC, Office Ivoirienne de Chargeurs (Ivorian Shippers Office) data on 7 months of truck traffic along the corridor from a new transit traffic information module was analyzed for truck trips originating in Côte d'Ivoire between May and November 2012. This truck transport flow averages 10,000 tons per month as shown in Figure 7-4, or a total of about 120,000 tons per year, representing about 10 percent of the estimated 1.36 million tons of land-based trade in the corridor.[33]

[33] ALCO data for truck tonnage is substantially lower than the estimated tonnages for the same flows in the UN COMTRADE data. We assume that the actual flows are probably between the two numbers.

Figure 7-4

Freight Tonnage per Month Along the ALC Originating in Côte d'Ivoire in 2012



Source: Nathan Associates' elaboration.

SMUGGLING FLOWS

The smuggling of goods is a regular pattern between some ALC countries. The most relevant flows occur between Benin and Nigeria and are usually goods declared in transit from the port of Cotonou. The World Bank estimates that up to US$4 billion of cargo enters Nigeria's market unofficially from Cotonou port alone (2.5 million tons declared in transit to Niger, or 36 percent of total Cotonou traffic), which represent as much as 15 percent of Nigeria's total imports (Raballand and Mjekiqi 2010). Some smuggling seems to take place between Togo and Ghana since Ghana's implementation of import prohibition on used vehicles more than 10 years old. Chapter 3 discusses this aspect in detail.

CONTAINERIZATION PATTERNS

Stripping and overloading trucks is still practiced in ALC when the cargo is in transit to another country. During our field work, shippers gave several reasons for not containerizing cargo:

- ***Reduce the impact of transport price.*** This issue was assessed by West Africa Trade Hub, which found that only 20–25 percent of cargo on transit corridors travels in containers because importers ask transporters to overload trucks.
- ***Minimize the penalties of maritime shipping companies in case of delay.*** Maritime lines impose a price plus a penalty that varies depending on the destination. For example, in Benin and Togo, the price of renting a container is 500,000 FCFA but a penalty of 13,500 FCFA per day is applied once the 10-day period for the delivery of the goods in the hinterland or the 1-day period for delivery in the city have expired without a returned container.

- ***Lack of handling equipment at the destination.*** West Africa has not adopted the culture of the container, so does not have the equipment needed to unload containers; unloading is done manually, which is slower, and increases the risk of incurring penalties.
- ***Bigger trucks serve the hinterland.*** Transit traffic to the hinterland is more profitable than along the coastal corridor because volumes are higher. Transporters owning big trucks are more interested in transporting import cargo to landlocked countries than transporting smaller quantities shorter distances to domestic customers. Cargo along the corridor is hardly containerized, so the demand for containers is almost nonexistent in regional trade.
- ***Importers own trucks.*** Because of the low quality of transport services and the age of the fleet, more formal importers own their own trucks. This encourages the practice of taking advantage of maximum capacity.
- ***Lack of return cargo.*** Ninety-eight percent of containers leaving the port return empty. Even products coming from the hinterland such as cotton are not containerized.
- ***Consolidated containers.*** Information about the proportion of consolidated containers among the total number of containers is not available. Deconsolidation takes place at the port because importers arrange road transport independently.
- ***Size of shipment.*** Trade in ALC varies widely. Volumes are small and distances short, giving no room for consolidation.

Logistics Patterns

A logistics system is a combination of transport and specialized logistics infrastructure, services operating in such infrastructure, and processes managed both by public and public stakeholders to facilitate and monitor the flow of goods.

The logistics system on the ALC is simple, although more complex than the systems of other corridors originating in West Africa and serving the hinterland, because multiple ports compete for transit cargo, which has encouraged the diversification of services, especially ancillary services (see Chapter 3 for a diagram of the ALC logistics system).

Logistics services in the ALC are mostly limited to ancillary services. All ports have bonded warehouses. Because of its deep water, the Port of Lomé is the natural transshipment port for ECOWAS countries, which attracts a limited number of value-added services such as consolidation and cross-docking. The short distance of the ALC in Togo and the proximity of the ports has caused the gradual disappearance of bonded warehouses at the borders, which are common in East Africa. Among the services provided is cold storage offered by a private company called CAJAF-COMON (Comptoir AJAVON et Fils-Comptoir Mondial de Négoce) on the road between Cotonou and Semé, at the border with Nigeria. CAJAF COMON moves estimated 500–700 containers per month. This operation meets the needs of the Nigerian market, and goods arriving by sea usually maintain the cold chain, but trucks coming from

Nigeria are not refrigerated so the cold chain is broken for hours and even days from cold storage to market.

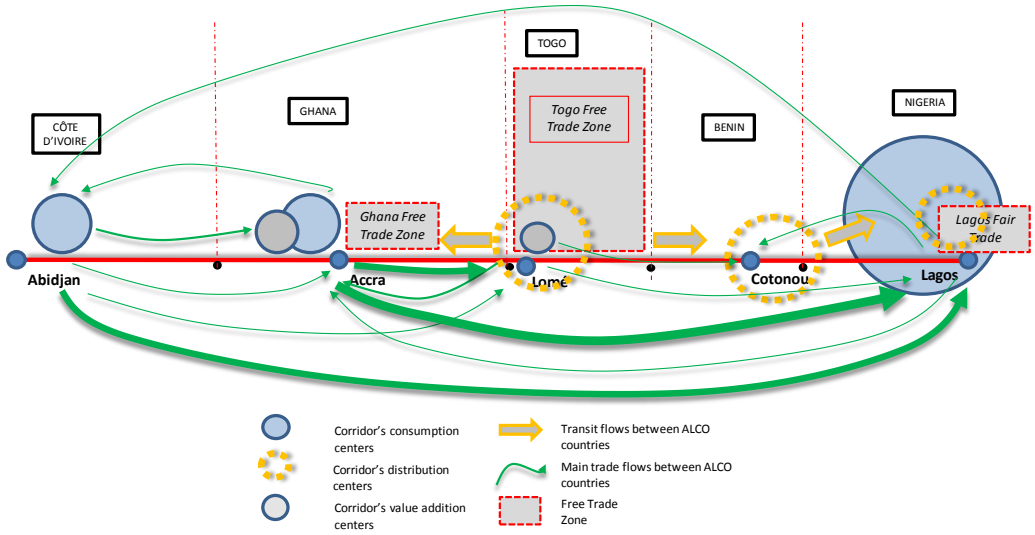
Because of the population density along the coast and economic and financial capabilities, we expected to find productive integration (market enlargement, value addition, market diversification or a combination of these), but this occurs for only a few logistics chains. The petroleum chain is one of these—crude from Nigeria and oil derivate including combustibles from Côte d'Ivoire have a semi dedicated logistics chain that uses specialized equipment not shared with other users, except transport infrastructure and border posts. Another chain is the cement and construction material between Togo and Ghana.

Except for these chains, we found that trade between countries follows mostly a bilateral pattern, and ALC logistics chains have a short structure—a simple commercial exchange of business to business and business to customer, namely manufactures and, curiously, few perishable goods. The main industries are located in Nigeria, Ghana, and Côte d'Ivoire (the biggest countries), but all ALC countries have some strong manufacturing that does not take full advantage of the potential value added at final destination by transferring part of the logistics process to the end of the chain. This phenomenon has some influence on prices depending on the destination because of different value added tax (VAT) along the corridor. One reason for this pattern is the short transport distances and inefficiencies in border crossings, which do not encourage spreading strategies in ALC markets. Consequently, countries are linked by short-term commercial interests rather than long-term productive ones.

Trade in goods other than petroleum is weak, and the largest exchanges take place between neighboring countries. Trade between Benin and West Nigeria is dominated by informal exchanges. We found that the most important border for Benin is with Togo (Hillacondji), for Togo is Ghana and for Côte d'Ivoire is Ghana.

In the ALC, Lomé and Cotonou play the role of distribution centers, as shown in Figure 7-5. Cotonou has developed in this way as a result of smuggling to Nigeria, but Lomé plays a more complex role, because of several factors, including the natural attractiveness of the deep water port, the free-trade area and the free-trade zone attached to the port.

Figure 7-5
Functional Patterns of the Logistics System in ALC



Source: Nathan Associates' elaboration.

The main ALC consumer market is Nigeria, which is a large exporter of raw material since added value goods are for internal consumption. In Lagos is the Trade Fair complex, the biggest wholesale market in the region, which satisfies national and regional demands for manufactured and consumer goods. Most of the goods are imported from primary and secondary markets. Besides the Trade Fair are informal transport centers that do have neither equipment nor infrastructure to support loading and storage operations.

Togo has a concentration of firms producing cosmetics, textiles, clinker and cement, plastics and packaging, and pharmaceutics that benefit from the free-trade regime that covers the whole country (see Exhibit 7-1). Ghana is the biggest provider of industrial inputs for ALC and also has free-trade zones. Côte d'Ivoire provides manufactures and agro-industrial products as well.

Benin is also a distribution center, but on a smaller scale, and its status depends on Nigeria's maintaining its restrictive tariff policy and therefore the flow of smuggled goods. The government of Benin is aware of this risky situation and has taken steps to facilitate transit (electronic tracking, a port system, and outsourcing Customs valuation and control). Although these measures benefit transit traffic to landlocked countries, if they are maintained they can facilitate the development of logistics services, such as the frozen food warehouse near Cotonou for the Nigerian market.

Ghana is a center of added value in ALC, mainly industrial inputs and manufactures. This market generates demand for added-value logistics services: packaging, warehousing and storage, transportation. Destination markets, however, are not demanding in terms of quality, and competition is weak; therefore there are few incentives to develop and outsource added value services. Ghana's flows to Togo are mostly industrial.

Exhibit 7-1
Free Trade Zone in Togo

Togo promulgated the law creating the Free-Trade Zone (FTZ or Zone Franche Togo in French) in 1999 with the aim of reducing unemployment and promoting industrialization. Unlike similar zones around the world, the FTZ was not a restricted area but the whole country but in 2011 a new law introduced adjustments to fiscal and custom incentives, excludes some activities (extractive), and restricts the benefits to certain zones. The World Bank would finance the first zone of approximately 80 ha.

The current regime grants incentives to transformation activities and services with the requirement of exporting at least 60 percent of production. Fifty percent of companies benefiting from the regime are located close to the Port of Lomé (an office of FTZ is located there) and 80 percent of production is made up of exports to ECOWAS.

The main industries are the following:

Industry	No. of Companies	% Total Revenue
Agro-industry	11	15.7
Construction material and wood	10	25.2
Cosmetics	2	7.8
Textiles and garment	6	6.7
Printing material	2	2.6
Mechanic/metallic	7	3.6
Fishing	1	1.0
Plastics	7	14.8
Pharmaceuticals	4	0.9
Services	12	21.8

Companies exporting from Togo and benefiting from the regime are granted expedited procedures at border posts. Togolese Customs are working on the implementation of the authorized economic operator (AEO) for FTZ's exports.

Source: Interview to Mr Aboudoul-Kadri AMADOU, SAZOF and official statistics.

Côte d'Ivoire is also a center for value added and consumption in ALC. Ivoirians provide manufactures and processed food to neighboring countries. Despite the agricultural production in the region, this trade is limited in ALC, at least formally. This is partially the result of the lack of logistics infrastructure that reduces losses from spoilage, according to interviewees.

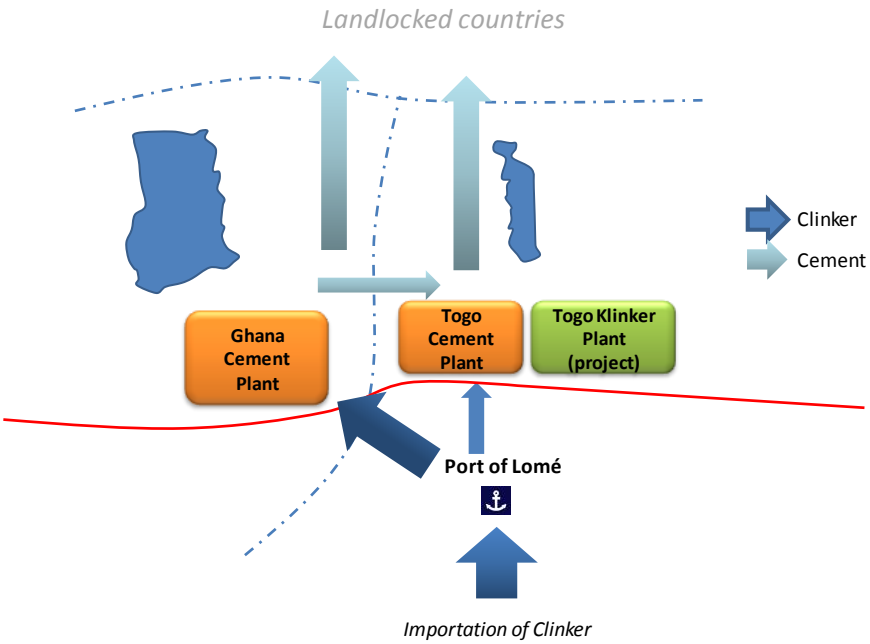
SELECTED LOGISTICS CHAINS

Construction Material

The construction material logistics chain is one of the few cases of productive integration along the ALC. Clinker is imported through the Port of Togo, transformed into cement in Togo's cement plant, and sent to Ghana, where it is used for the production of cement. Togo has also a cement plant that processes clinker imported from extraregional providers, to distribute cement to Benin and landlocked countries. The investor, HeidelbergCement, has announced the construction of a US$250 million clinker plant with an annual capacity of 1.5

metric tons per year in Tabligbo, which will produce the clinker to be processed into cement in Ghana, Benin, and Burkina Faso.[34]

Figure 7-6
Cement Logistics Chain



Source: Nathan Associates' elaboration.

A significant number of distributors of construction material are located in Togo along the corridor. The movement of construction material along the Cotonou-Lomé segment is notorious and reflects heavy traffic of bulk construction material serving many selling points in the corridor, in particular in Togo.

Perishable Goods

All ALC countries produce perishable goods: fruits, legumes, and fish products (e.g., tuna in Côte d'Ivoire). Production sites are located throughout the countryside and transported in small vehicles or on animals to consumption and distribution centers. We found no cold warehouses, and interviews confirmed the absence of them. The deficiency of the means of transport, the quality of tertiary roads, high temperatures, and lack of commercialization and distribution infrastructure and equipment generate high losses from spoilage. We found stakeholders were interested in having such facilities along the corridor, which might be located near the border post as an additional service offered to cargo.

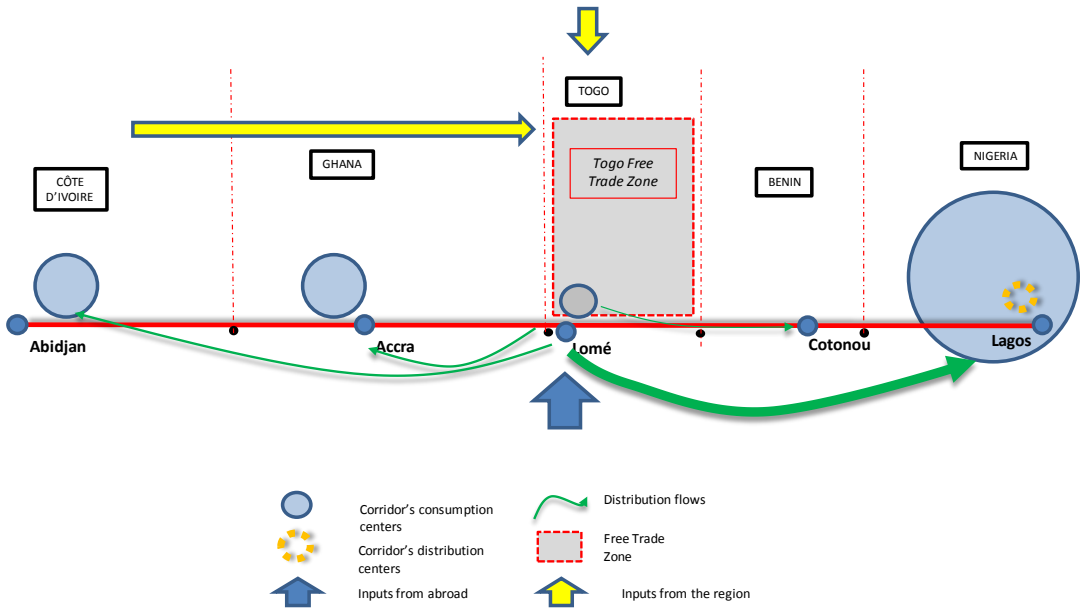
Beauty Products

Cosmetics and beauty products use imported inputs from the region and abroad, and are transformed in Togo and Côte d'Ivoire, but the main producer is Togo because some Ivorian

[34] Clinker plant and cement grinding facility for HeidelbergCement in Togo. Global Cement press release, September 21, 2012.

producers transferred production to Togo during the Ivorian political crisis. The main consumption destination is Nigeria, and to a lesser extent Ghana and Côte d'Ivoire. Cosmetics are transported in general cargo trucks. Figure 7-6 shows the cosmetics logistics chain.

Figure 7-7
Cosmetics Logistics Chain



Source: Nathan Associates' elaboration.

Petroleum and Derivative

The main petroleum producers in the region are Nigeria and Côte d'Ivoire. Crudes are refined there and derivatives distributed by road throughout the region along the ALC. An exception to this pattern, however—heavy/crude oils from Nigeria processed in Côte d'Ivoire—influences foreign trade values between these two countries. Côte d'Ivoire has specialized equipment for processing this type of crude that Nigeria lacks. The logistics chain loops back to Nigeria for distribution. Transport in this logistics chain is mixed. Crudes are transported by sea and derivatives shipped in cisterns. Corporate logistics operators provide transport services under a contract and faster processes are granted at the borders.

INFRASTRUCTURE

Transport Infrastructure

ALC is a single road connecting five countries. The characteristics of this road vary as it approaches urban areas, ports, and border posts, but is essentially a single line. Some roads in the tertiary system are used for informal trade but are not part of our analysis because of their low volume.

Logistics Infrastructure and Services

Logistics infrastructure in ALC is associated with transport infrastructure and is composed mainly of ancillary services: bonded warehouses, container warehouses, empty-container depots, parking areas. Most border posts do not have the complementary logistics facilities found in other African countries. Parking lots are open spaces offering no services; restrooms, hotels, money exchange, telephones are nonexistent.

Added value logistics infrastructure services are also almost nonexistent. Producers therefore develop their own logistics—buying trucks, building or renting warehouse space—and outsourcing is consequently weak, but demand is scarce because of low quality—a result of a lack of competition—and a lack of policies aimed at encouraging agricultural production and exports.

CONCLUSIONS

Little Value Added

In general terms, the productive and logistics systems in ALC are characterized by low added value. Productive sectors and corresponding logistics chains are either short (agro-industry, clothing), follow a bilateral commercial pattern, or are vertically integrated (petroleum derivate, cement), which implies a short logistics chain. There are several reasons for this:

- ***Short distances*** reinforce a commercial pattern rather than stimulating productive specialization. Short distances along with low volumes do not encourage producers to delocalize part of the production in a neighbor country since delocalizing would increase the logistics costs whereas the benefits of up streaming the logistics chains (less VAT when shipping unfinished goods) would not be sufficient. It's easier for a firm to finish the goods and ship them to the destination in a neighbor country. This would need to be further analyzed in selected logistics chains with potential for productive integration.
- ***Import patterns and low demand of added value goods.*** ALC and the region as a whole continue to perform as an import region for added-value goods, and demand is low. (Nigerian and Ivoirian exports are influenced by cocoa and petroleum derivatives going to extra regional markets, not ALC) (see Table 7-4).

Table 7-4

Total Import and Export Merchandise Values in ALC, 2010 (million US$)

Country	Merchandise Imports (CIF Value)	Merchandise Exports (FOB Value)
Benin	2,200	1,200
Côte d'Ivoire	7,830	10,320
Ghana	10,703	7,896
Nigeria	44,235	82,000
Togo	1,550	800

Source: WTO Database.

- ***Culture.*** West Africa's history and commercial and even familiar links among communities are so strong that formalizing the economy is difficult. During our visit to Nigeria, the main ALC consumption market, freight forwarders remarked on the existence of a vast trade network that crosses formal borders. This informal trade is based on goods that can easily be released in the market (namely consumer goods) and in some cases these goods are carried as accompanying goods in small vehicles. According to the Manufacturers Association of Nigeria (MAN) as much as 50 percent of goods manufactured in Nigeria are sold in the regional market by informal networks, in part because of import duties, since ECOWAS's scheme is not fully respected and in part because of the high margin added by the VAT, in particular in French-speaking countries, which lies behind a great deal of the undervaluation of goods.

Another factor influencing trade is language. English-speaking nationals do not trust French-speaking nationals. A Nigerian prefers to do business with a Ghanaian and a Beninese a Togolese or Ivoirian. Except for neighboring French-speaking Togo and Benin, the other countries' borders are shared with a country that does not share the same language.

Spoilage of Perishable Goods

Some perishable goods are imported from the hinterland and sold in regional distribution centers. Accra is distribution center for some goods (onions, beans, cattle), but the lack of cold storage and other logistics infrastructure suitable for this type of goods causes spoilage. ALCO could consolidate its role of distribution area and develop its supply of added value logistics services not only to the direct influence area of the corridor but for the hinterland as well.

Traffic Patterns and Transport System

Traffic patterns in the corridor are a result of trade patterns. Apart from the flows between Ghana, Côte d'Ivoire, and Nigeria, the predominance of trade of each country with its immediate neighbor determines low-volume movements. Cargo is usually consolidated in a single shipment but using small packages rather than pallets or any other unitization standard.

The lack of substantial volume means that transport service providers prefer a general-purpose vehicle adaptable to most kinds of cargo. In any case, the lack of logistics infrastructure and loading equipment prevent the use of more specialized vehicles.

Logistics Price and Cost Analysis

INTRODUCTION

The objective of the cost analysis presented in this chapter is to illustrate the order of magnitude of prices along the corridor, rather than providing a detailed analysis of costs. The reason for this is that the Abidjan-Lagos Corridor is more complex than transit corridors

linking a port with a landlocked country, in which origin-destination flows can be isolated and analyzed easily.

The ALC serves (i) shipments of almost any size, from full load to partial load, (ii) variable distances, (iii) a mix of domestic, corridor, regional and transit flows, and (iv) non containerized shipments.

TRANSPORT PRICING PRACTICES

Factors Influencing Tariffs

Tariffs in the corridor are set by supply and demand and therefore are highly variable. Transporters take the following factors into consideration to determine prices:

- ***Season.*** Usually after the harvest the availability of vehicles is low and prices rise.
- ***Size of shipment.*** The unit price for smaller shipments is higher than for big shipments. When the truck transports goods from different shippers to the same destination prices are negotiated the shipper receives a better price.
- ***Lack of return cargo.*** Return cargo is unusual and therefore the driver charges a compensation fee.
- ***Distance.*** **D**istance to the final destination is one of the main elements influencing tariffs.
- ***Borders to be crossed.*** Some borders have a better reputation than others in terms of bribes, but this is also variable and subject to the personal experience of the driver. For instance, Ghana Customs has a reputation as less susceptible to corruption, with stringent requirements for entering the country. The perception of this is reflected in the bribe values: better perception lower informal fees.
- ***Value of goods.*** If the goods are of high value, the transporter charges more.
- ***Type of client.*** A corporate client receives a quote that depends on the size and reputation of the company. Bigger companies with larger consignments have leverage to negotiate better prices. In some cases transporters choose the cargo they want to transport.

EXAMPLES OF COSTS AND APPLIED TARIFFS

Transport Prices

- In Benin, prices tend to rise during cotton season. The transport price from Cotonou to the border with Nigeria (32 km) varies between 400,000 and 500,000 FCFA per 40-ft container; if the trip is from Cotonou to Lagos (136 km) the price doubles. In the low season, the price is stable at 400,000 FCFA.
- From Cotonou to Lomé (155 km) the price is 500,000 FCFA for a 40-ft container and up to 15,000 FCFA per ton for general cargo.

- From Lomé to the border with Nigeria (186 km) the price of a 40-ft container is 800,000 FCFA and to Ghana 600,000 FCFA.
- From Cotonou to Accra the price ranges between 900,000 FCFA and 1,000,000 FCFA for a 40-ft container.
- The driver is paid between 50,000 FCFA and 200,000 FCFA, depending on the itinerary. This price is net and does not include charges along roads.
- Charges on the road between Cotonou and the border with Nigeria are 20,000 FCFA per truck.
- From Lagos to Accra, the average price is 2,500,000 FCFA per 40-ft container.
- The tariff for the transport of cement is 10,000 FCFA per ton.

Consignment and Penalties for Delayed Containers

Containers are allowed different times depending on the destination. The user pays a consignment price but also penalties if the transport time exceeds this allowance. If the container is destined for the hinterland, the time allowance is usually 21 days, but the time decreases by 1 to 15 days depending on the destination. The container must be returned in 1 day if the destination is the city in which the port is located. From Lomé to other countries along the ALC the period ranges from 10 days to 15 days.

The cost of consigning a container ranges from 300,000 FCFA to 500,000 FCFA for a 20-ft container and 600,000 FCFA to 1,000,000 FCFA for a 40-ft container. The penalties are 6,500 FCFA for a 20-ft container and between 12,000 FCFA and 13,000 FCFA per day for a 40-ft.

Transit Fees

Interviewees complained mostly about official transit fees when goods come from the port. There is a generalized feeling (mainly among small logistics providers and shippers) that these transit fees are an "empty" service and that they are paying something that reduces their margin. These fees vary from one country to another. The following figures were reported by the interviewees: In Benin transit fees are 600,000 FCFA for a 20-ft container and 300,000 FCFA per vehicle; in Lomé, transit fees are 500,000 FCFA per vehicle. Between Benin and Nigeria, transit fees are 2,800 NGN to 3,000 NGN (US$20) in Nigeria and 250 FCFA to 300 FCFA in Benin. From Ghana to Côte d'Ivoire, the fee is 250 FCFA

Informal Fees

Informal payments are still common in ALC. The average payment at each barrier is US$30 to US$50.

Logistics Performance and Maturity of the Corridor

MONETARY COSTS TO STAKEHOLDERS

Table 7-5 summarizes some examples of costs to shippers and transporters on the ALC. This table was prepared only for illustrative purposes to compare some ALC segments. The segment from Cotonou to the border town of Sémé is notoriously more expensive than other points along the corridor (US$25 per km). In fact, any segment involving Lagos is much more expensive than others along the ALC, reflecting the higher number of delays transporters experience when travelling to Nigeria. No other reason seems to justify this difference given that the corridor is in relatively good condition.

Table 7-5
Logistics Costs along the ALC (US$)

Origin–Destination	Trans-port Price	Distance (km)	Transit Fees per Km	Fees at Borders	Fees at Checkpoints		Total Cost	Total Cost per Ton
					No. of Checkpoints	Total Fees		
Lagos–Accra	5,000	460	20	23	21	423.9	5,467	11.9
Cotonou–Sémé	800	32	0.6	0.6	7	4.2	805	25.2
Cotonou–Lagos	1,600	104	0.6	21	11	6.6	1,628	15.7
Lomé–Sémé	1,600	186	0.6	2	20	12.0	1,615	8.7
Lomé–Accra	1,200	190	0.6	1	5	3.0	1,205	6.3

Source: Own estimates based on interviews.

TRANSIT AND BORDER CROSSING TIMES

Regional Agreements on the Free Movement of People, Transport and Goods

The ALC benefits from regional trade agreements, including the ECOWAS Trade Liberalization Scheme (ETLS) concerning the free movement of people, transport units and goods among member states, enacted over 20 years ago. Although all the countries on the ALC have signed the agreement, the rules and regulations affecting free movement of goods have not been fully implemented.

In 2011, the West Africa Trade Hub conducted a gap analysis to identify which aspects of the ETLS were being implemented in Member States. They conducted a legal and regulatory review, visits to all five borders, and over 200 public and private sector stakeholder interviews and reached the following conclusions:

- Duty free treatment for unprocessed goods has not been implemented along the studies countries.
- Documentary requirements for trade within ECOWAS have not been harmonized across the region, leading to higher administrative costs and delays at borders.

- Nontariff barriers still exist in the form of quantity, quota, or seasonal restrictions, in addition to checkpoints and road barriers.

Despite these problems, all five countries have improved the movement of persons, and to a lesser extent, the movement of goods. Benin has reached the highest level of implementation in the movement of goods, followed by Togo, Côte d'Ivoire, Nigeria, and finally Ghana. Implementation of rules affecting movement of transport units is led by Ghana, followed by Benin, Togo, Côte d'Ivoire, and Nigeria.

Customs Declarations and Border Procedures

Border procedures along the ALC are often slow and complicated. At some border posts, such as the Nigerian-Beninese border, the existence of informal networks adds complexity to the problem. In this particular case, Customs activities are hindered by *klebes*, individuals present at border posts acting in coordination with Customs officials to identify Customs fraud while simultaneously conducting illegal business on the side. *Klebes* add delays to an already cumbersome journey from Nigeria to Benin.

Customs clearance for any final destination along the ALC is done at the border (with the exception of Côte d'Ivoire), which differs from standard Customs practices in landlocked countries, which normally is performed at the landlocked capital city. Clearance procedures vary greatly among countries (different declaration forms, valuation and inspection systems, use of electronic declaration). We observed a 5-km waiting line of trucks at the border between Benin and Togo on the Togolese side due to Customs officers' lack of knowledge of procedures, leading to missing forms, or drivers and forwarders waiting for importers to pay.

In Nigeria, Customs declaration is based on the volume calculated subjectively by Customs officials.

In Benin, most goods travelling along the corridor are general cargo. Goods originating in Benin and destined for other countries along the corridor are not kept in containers, but Beninese Customs puts a seal on the protective cover of the truck.

In 2011, the government of Benin (through the Ministries of Finance and Maritime Economy) put in place the SBC verification system. The SBC's main function is to determine the valuation of goods, which is submitted to Customs officials. SBC scans 100 percent of goods coming into and leaving Benin. For goods in transit, another company, STBB attaches a transmitter to each truck, which is supposed to substitute for the escort system. Shortly after this system was put into place, however, drivers began to intentionally damage transmitters, and an army officer now accompanies each truck. Since May 2012 the SCB has stopped operating.

To avoid smuggling to Nigeria, Benin cleared 100 percent of goods whether they were in transit or not. This was a clear violation of ECOWAS rules, but the country was losing transit cargo, one of its main sources of revenue. SBC is also present at the border between Benin and

Togo, where the company is supposed to install scanners, but smuggling at this border is uncommon, except for combustibles in small quantities.

In Côte d'Ivoire, procedures are also slow and goods cannot be cleared at the border but in Abidjan. During interviews, some stakeholders reported that Customs is still applying a policy that prohibits imports from overseas coming from a port other than an Ivorian port, and that goods were subject to destruction and the shipper subjected to fines. Apparently this policy is no longer valid, but it was not possible to confirm this during our visit.

DELAYS AT BORDERS AND PORTS

Indicators of Trade Facilitation

ALCO is the executing agency for components 1, 2, 3, and 5 of the ALTTFP. In August 2011 ALCO generated the first report of indicators for trade facilitation, which measure trade and transport improvements along the corridor (compared with 2009 baseline indicators). The trade facilitation indicators and current situation are given in Table 7-6.

Table 7-6
Main Conclusions of the Preliminary Report Y-2 ALCO

Indicator	Results
Dwell time of cargo and containers at the five corridor's ports	The situation in Cotonou and Lomé has remained unchanged. **Dwell times by port:** • Lagos (Apapa): 33 days, an increase of 13 days from Y-1 • Cotonou: 27 days, an increase of 8 days from Y-1 • Lomé: 15 days, a reduction of 3 days from Y-1 • Abidjan: 13 days, a reduction of 8 days from Y-1
Degree of implementation of single windows systems	Ghana was the first country to implement the project. In Togo the authorities are assessing the recommendation of adopting a GUCE Model (Guichet Unique de Commerce Exterieur). In Benin the single window project was entrusted to SOGET- BIVAC in November 2010 and started in March 2011. It became effective in September 2011 with the Import phase. In Côte d'Ivoire, the Government has decided to install the foreign trade single window (GUCE) with the addition of other interfaces (road, rail and air.) In Nigeria. the contract with the service provider was put on hold and will expire in December 2012.
Processing time at border posts	Changes are highly variable. At some border posts the time has increased with regards to the baseline, whereas in others it has decreased. Significant differences have been detected at the same border depending on the direction of trade (import vs. export). Efforts made to date towards harmonizing procedures are not yet visible. Average time per border: (baseline 2009) • Noé to Elubo: 36 hrs (baseline 24 hrs) • Elubo to Noé: 25 hrs (baseline 24 hrs) • Aflao to Kodjoviakopé: 33 hrs (baseline 24 hrs) • Kodjoviakopé to Aflao: 36 hrs (baseline 24 hrs) • Sanvee Condji to Hillacondji: 75 hrs (baseline 24 hrs) • Hillacondji to Sanvee Condji: 22 hrs (baseline 24 hrs) • Kraké to Seme: 61 hrs (baseline 48 hrs) • Seme to Kraké: 86 hrs (baseline 48 hrs)
Number of road barriers	The number of road barriers has reduced in Nigeria, Ghana and Côte d'Ivoire, increased in Benin and remained stable in Togo (the only country that has reached the target of 3/100 km) Average number of barriers • Ghana: 25, a reduction of 2 from Y-1 or 5 per 100 km

Indicator	Results
	• Togo: 3, the same figure than in Y-1, or 3 per 100 km • Benin: 17, an increase of 6 check points , or 13 per 100 km • Côte d'Ivoire: 9, a reduction of 22 from Y-1, or 5 per 100 km • Nigeria: 16, a reduction of 12 from Y-1, or 15 per 100 km

Source: ALCO (2011).

The report does not discuss in detail why indicators have increased or decreased with respect to the baseline. Some information is available for the indicator "Processing time at border posts," which explains the more complex procedures put in place along Ghana's borders and delays due to frequent electricity failures. Unusual delays were observed along the border between Benin and Nigeria but they were not included in the report because of underlying causes (import bans).

The second ALTTFP report highlights the following:

- An increase in dwell time at the port of Lagos is caused by container terminal operators. In Cotonou, an increase in dwell time is due to the implementation of the Import Verification Program, which scanned and tracked imports, causing some importers to abandon their containers at the terminal. In Lomé, a reduction in dwell time is the result of actions on behalf of the port authority and Customs to clear the port when Customs processing is complete. In Abidjan, simplification of Customs procedures is the cause of a reduction in dwell time.
- At border posts, the results vary depending on the type of procedure (import or export). Longer times between Benin and Nigeria are due to new control procedures implemented by Beninese authorities and works for the joint border post. Between Togo and Ghana simplification of procedures and implementation of a truck tracking system have contributed to improvement. Between Côte d'Ivoire and Ghana, Customs formalities are more complex on the Ghanaian side and also the lack of regular IT connection.
- As for road checkpoints, in Ghana and Benin, the numbers increased slightly over the number in the first year of the project, while they declined considerably in Côte d'Ivoire (by one-third) and Nigeria (by half). In Togo, the numbers remained the same.

Since ALTPF began in 2009, efforts have been made to harmonize Customs and border procedures, but have not taken effect; significant delays still exist at ports and border crossings. Nevertheless, since the ALC countries (except Nigeria) have committed to implementing single window systems, in the medium-term these delays can be expected to decline.

Observatory of Abnormal Practices

The Observatory of Abnormal Practices initiative, led by Borderless[35] and the USAID West Africa Trade Hub, monitors road governance to address the problem of bribes and delays that occur at hundreds of checkpoints along primary trade corridors. Borderless generates guides and manuals to facilitate Customs clearance and transit procedures in the region.[36] In particular, the Observatory of Abnormal Practices generates quarterly reports on checkpoint trends, including the amount charged as well as the delays caused. The corridors studied include Tema-Ouagadougou, Ouagadougou-Bamako, Lomé-Ouagadougou, Bamako-Dakar, Abidjan-Ouagadougou, and Abidjan-Bamako. The Abidjan-Lagos corridor is monitored by ALCO.

Delays at Border Posts and Barriers to Trade

The main reasons for delays observed during the field visit include the following:

- Lack of a regular supply of electricity and IT network service, which can be interrupted for two days.
- Lengthy procedures at scanners, due to electricity outages or to oversized vehicles that must be partially unloaded, as observed at the border between Ghana and Togo. In Benin, scanning takes 50 minutes without counting waiting time for scanning to begin. Some stakeholders indicated that 100 percent of their cargo is scanned, even though the port or border post declares that only 10 percent of cargo is scanned and the procedure lasts 10 minutes.
- Informal payments and negotiations, even with the presence of ALCO and Borderless representatives.
- Lack of space and inefficient distribution of administrative offices.
- Lack of knowledge of procedures. Transporters sometimes arrive without the money required finishing the clearance process at the border and must wait for the shipper to arrive with the payment. In Ghana, many transporters are unaware of the requirement to have an international driver's license. Crossing the border with an empty truck usually takes 1 day but occasionally takes 3 days.
- Transshipment at the border: On average, the transshipment process at Semé Kraké takes 48 hours per border, and approximately 96 hours total.
- The checkpoints also cause delays, but regular users are able to anticipate bottlenecks and have the money available to overcome them. The worst case observed was between Cotonou and Lagos, a segment of 155 km with so many checkpoints that travel time can take 4 hours. Some interviewees reported 38 checkpoints between the two cities.

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[35] Borderless is a partnership between ECOWAS, the World Bank, USAID, USAID's West Africa Trade Hub, West African Economic and Monetary Union (WAEMU), ALCO, and USAID's Agribusiness and Trade Promotion project, and private stakeholders.

[36] In addition to the reports of the observatory, Borderless has produced operational user guidelines of border procedures for different borders of the corridor.

Trade Facilitation Initiatives

Most reform efforts along the corridor focuses on Customs. Nigeria Customs awarded a contract to develop an electronic single window with Single Window Systems and Technology Limited but after criticism of the bidding process, revoked the contract.[37]

In Benin, the Customs and Indirect Fees Agency (D.G. des Douanes et des Droits Indirects) no longer monitors transit traffic with escorts. Through the Ministry of Finance and Ministry of Maritime Economy, the government has granted several contracts to speed up implementation of trade facilitation measures. Benin Customs has created a special section for coordinating operations for second-hand vehicles. With the financial support of the MCA, Customs will migrate to ASYCUDA World and computerize its revenue collection offices (port and airport in Cotonou, and border-posts of Kraké and Hillacondji).

Ghana already has an electronic single window. Moreover, since 2006 the country has advanced in the implementation of a transit module with the aim of substituting the use of escorts for transit cargo. Customs has replaced checkpoints along the Tema-Paga road with a transponder system to track transit vehicles between Tema and Paga, the border with Burkina Faso, in real time. The fee is equivalent to the transit escort fee. The transit system has been complemented by reforms to Customs regulations. Previously, the 0.5 percent guarantee fee for transit cargo was based on the value of the cargo; now the 0.5 percent fee applies on the taxes and duties.[38]

Togo, with Benin and Côte d'Ivoire, is among the ALC countries that will benefit most from the ALTTFP's electronic single window implementation program. Togolese Customs migrated to ASYCUDA++ on January 1, 2008. Togo has also agreed to implement its own electronic single window. The Ministry of Commerce is evaluating whether the system will be developed or acquired.

Between 2005 and 2007, Côte d'Ivoire Customs implemented ASYCUDA World (UNCTAD). This system has all the functionality needed for declaration and clearance of goods and also manages transit by road to other countries. The Ivorian Shippers Office (Office Ivoirien de Chargeurs-OIC) provides a GPS tracking service as well as an internet service that allows shippers to create and manage their bordereau de suivi de cargaison (BSC) or truck tracking slip and to validate their transactions more quickly and efficiently. The Ivorian GPS tracking service offers the following services visualization of the location of a group of trucks in a convoy, real-time tracking of trucks, historic data, creation of landmarks along the route, creation of geographic zones and itineraries for geo-fencing and protected corridors, configuration of automatic alerts of events by e-mail or mobile text messages, generation of periodic reports (driving time, stops, average speed, areas under coverage) and variable cartographic layouts.

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[37] FG Revokes Single Window Systems N 4.5 trillion contract. February 1, 2012. www. http://businessnews.com.ng

[38] Financial Intelligence (www.fighana.com) Justice Adobe

Regional Solutions

ECOWAS has proposed the creation of a regional electronic transit system (ALISA). This system would allow for implementation of a regional bond guarantee paid to the private sector, as well as the harmonization of Customs tariffs, and transit fees in particular, with goods tracked from origin to destination. The aim is to promote containerization and shift the transport of general cargo to the transport of special goods. The full implementation of this solution would require logistics parks for consolidating goods in containers, cross-docking services, and centralization of some control procedures such as axle load control and inspection.

ECONOMIC IMPACT OF DELAYS AND UNCERTAINTY

Most economic agents look for commercial, short-term benefits, instead of growth and business development. Except for the cement logistics chain, in which some investors at the origin of the chain actually look for some degree of productive integration, simple commercial, short-term deals dominate.

Operational constraints on businesses dominate the trade facilitation debate among private and public sector stakeholders. Logistics is seen as a cost factor that must be reduced rather than differentiated. This can, of course, be a consequence of weak demand for value-added logistics services that increase operating costs.

The following negative effects impacts of delays and uncertainty were identified:

- ***High logistics costs reduce benefits.*** Shippers, focusing on the weakest part of the chain, the transporter, try to reduce this cost because it is the only element the shipper can control.
- ***Costs are high because of high rates, numerous extra costs, and inefficiencies.*** Many intermediaries add no value to the logistics chain but charge fees to act as simple intermediaries or brokers to "facilitate" business.
- ***Economic actors do not seem aware of surplus inventory*** that could be the result of an irregular supply of inputs. In our interviews we found that economic actors are more willing to accept regular disruption of stock than transport and Customs delays.
- In the long term, the most important consequence of high logistics costs is the ***inhibitor effect on business development***. A cost-saving approach added to an irregular supply does not allow producers to make long-term production plans or sign long-term contracts with service providers. Contracts are usually spot contracts, which are riskier, rather than future contracts, except for the transport of combustibles.

Given the production structure, distortions generated by import bans in the main consumption market (Nigeria), and the lack of long-term strategies (other than the creation of some free trade zones) to support productive development and integration, efforts to facilitate transport along the corridor will have limited effects.

Corridor Inefficiencies

TRADE AND LOGISTICS SYSTEM INEFFICIENCIES

The logistics system along the ALC is poorly developed despite a significant industrial base. The supply of logistics services is limited to transport and ancillary services, with the exception of cold storage warehouses in Benin, and no third-party logistics providers for added-value services were identified.

The lack of high-quality logistics services reinforces the import patterns that characterize the region as a whole. High production costs caused by electricity shortages combined with losses from spoilage of perishable goods and the spoilage of dry goods due to the absence of loading equipment in loading points as in the Trade Fair in Lagos.

For the supply of logistics services to develop, the intervention of national and regional bodies is necessary to enable the integration of needed services into reform initiatives. A sustainable system must integrate the development of infrastructure, generate incentives for the diversification of services, and continue the process of logistics process modernization in both the public and private sectors.

The continued existence of checkpoints and delays at the borders, however, does not encourage the emergence of more sophisticated logistics systems or service providers, which require investment and depend on well-functioning systems.

TRUCKING AND LOGISTICS SYSTEM INEFFICIENCIES

Informality affects the potential for growth and for improving the quality of logistics services. The vicious circle of low quality–low price is a severe constraint on the development of trade and transport services. Additionally, the extensive network of informality does not encourage specialization and development in the trucking sector. A study on informality in Benin (Chamber of Commerce et d'Industrie du Benin, 2008) found that distribution is the second-most dominant sector among informal activities, and that 31 percent of the population participates in this type of exchange. The country has developed a dense transport services network that operates from Dantokpa Market in Cotonou aimed at serving national and regional flows. Although informality presents a significant challenge throughout West Africa, it seems to be most problematic in Nigeria.

8. Summary of Corridor Performance

This chapter summarizes information on logistics system costs and delays by corridor and case study and compares performance measures to benchmarks from other regions. This analysis underpins the identification of the inefficiencies that are analyzed in Chapter 9.

Corridor Logistics Costs and Delays

Corridor logistics costs are summarized by location along each corridor in Tables 8-1 to 8-4 for containerized household appliances, containerized edible oil, rice in 50kg bags, and spare parts stripped from containers (case studies 1 through 3). Only corridors that were subject to detailed field analysis are shown. The key findings are as follows:

- Logistics costs per ton are highest in the Douala–Ndjamena and Douala–Bangui corridors, a reflection of the corridors' lengths and unit costs.
- Logistics costs per ton in the Abidjan and Cotonou corridors amount to only 50 percent–80 percent of costs in the highest–cost corridors (Douala corridors).
- Gateway financial costs per ton are usually significantly higher in the Douala–Ndjamena and Douala–Bangui corridors than in other corridors.
- Inland transport makes up 40–60 percent of costs for lower value commodities (rice and edible oil) and 30 percent–50 percent for higher value commodities.
- Inland terminal costs are always the lowest proportion of total logistics costs, but they are the highest percentage of total logistics costs for corridors serving Burkina Faso at Ouagadougou (10 percent–20 percent) and CAR at Bangui (8 percent–15 percent).

Table 8-1

Summary of Logistics Costs by Location for Selected Corridors for Case Study 1a- Containerized Household Appliances (FCFA/ton)

Cost Component	Abidjan–Bamako		Abidjan–Ouagadougou				Cotonou-Niamey		Douala–Ndjamena				Douala–Bangui			
			Road		Rail				Road		Rail-Road		Road		Rail-Road	
	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total
FINANCIAL LOGISTICS COSTS																
Gateway	54,912	38	51,890	35	44,487	35	26,655	33	47,428	27	53,069	30	48,554	29	53,639	38
Inland transport	70,833	49	68,750	47	52,083	41	45,455	57	110,345	63	110,345	61	100,000	60	68,283	49
Inland processing	17,918	12	26,618	18	29,572	23	8,121	10	16,207	9	16,207	9	17,507	11	17,507	13
Total	143,663	100	147,258	100	126,142	100	80,231	100	173,979	100	179,621	100	166,061	100	139,429	100
HIDDEN COSTS																
Transit inventory	22,928	60	19,402	56	22,948	50	24,282	40	23,474	49	27,875	52	26,338	51	29,377	52
Hedging unreliability	15,374	40	15,364	44	23,145	50	36,960	60	24,159	51	25,626	48	25,528	49	27,554	48
Total	38,302	100	34,766	100	46,092	100	61,241	100	47,633	100	53,501	100	51,866	100	56,931	100
TOTAL LOGISTICS COSTS																
Total	181,965	100	182,024	100	172,234	100	141,472	100	221,612	100	233,122	100	217,927	100	196,361	100
Total in US$/ton	369		369		349		287		450		473		442		398	

NOTE: US$1=FCFA493.

Table 8-2

Summary of Logistics Costs by Location for Selected Corridors for Case Study 1b- Containerized Edible Oil (FCFA/ton)

Cost Component	Abidjan-Bamako		Abidjan-Ouagadougou				Cotonou-Niamey		Douala-Ndjamena				Douala-Bangui			
			Road		Rail				Road		Rail-Road		Road		Rail-Road	
	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total
FINANCIAL LOGISTICS COSTS																
Gateway	26,522	29	24,009	25	22,032	27	23,678	39	49,430	29	55,003	35	48,870	33	53,697	41
Inland transport	53,750	60	53,750	57	40,000	49	31,250	52	96,667	57	78,878	50	80,000	53	57,064	43
Inland processing	9,765	11	16,440	17	18,883	23	5,750	9	24,000	14	24,000	15	20,673	14	20,673	16
Total	90,036	100	94,198	100	80,914	100	60,678	100	170,097	100	157,881	100	149,543	100	131,434	100
HIDDEN COSTS																
Transit inventory	5,896	60	4,989	56	5,901	50	4,006	40	9,725	49	11,548	52	10,535	51	11,751	52
Hedging unreliability	3,953	40	3,951	44	5,951	50	6,098	60	10,009	51	10,616	48	10,211	49	11,022	48
Total	9,849	100	8,940	100	11,852	100	10,105	100	19,734	100	22,165	100	20,747	100	22,773	100
TOTAL LOGISTICS COSTS																
Total	99,885	100	103,138	100	92,767	100	70,783	100	189,830	100	180,046	100	170,290	100	154,207	100
Total in US$/ton	203		209		188		144		385		365		345		313	

NOTE: US$1=FCFA493.

Table 8-3

Summary of Logistics Costs by Location for Selected Corridors for Case Study 2- Rice in 50kg Bags (FCFA/ton)

Cost Component	Abidjan-Bamako		Abidjan-Ouagadougou				Cotonou-Niamey		Douala-Ndjamena				Douala-Bangui			
			Road		Rail				Road		Rail-Road		Road		Rail-Road	
	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total
FINANCIAL LOGISTICS COSTS																
Gateway	19,620	30	18,847	29	18,079	27	21,604	36	26,148	20	26,148	23	26,148	21	26,148	27
Inland transport	40,000	61	40,000	60	38,500	58	34,091	57	90,000	70	75,545	66	83,333	66	53,731	56
Inland processing	6,308	10	7,281	11	9,690	15	4,582	8	13,000	10	13,000	11	16,535	13	16,535	17
Total	65,928	100	66,128	100	66,269	100	60,277	100	129,148	100	114,693	100	126,017	100	96,414	100
HIDDEN COSTS																
Transit inventory	3,156	58	2,695	54	3,023	50	7,805	40	5,446	49	6,467	52	5,900	51	6,581	52
Hedging unreliability	2,245	42	2,256	46	3,030	50	11,880	60	5,605	51	5,945	48	5,718	49	6,172	48
Total	5,401	100	4,951	100	6,053	100	19,685	100	11,051	100	12,412	100	11,618	100	12,753	100
TOTAL LOGISTICS COSTS																
Total	71,329	100	71,079	100	72,322	100	79,962	100	140,199	100	127,105	100	137,635	100	109,167	100
Total in US$/ton	145		144		147		162		284		258		279		221	

NOTE:US$1=FCFA493.

Table 8-4

Summary of Logistics Costs by Location for Selected Corridors for Case Study 3 – Spare Parts Stripped from Containers (FCFA/ton)

Cost Component	Abidjan–Bamako		Abidjan–Ouagadougou				Cotonou-Niamey		Douala–Ndjamena				Douala–Bangui			
			Road		Rail				Road		Rail-Road		Road		Rail-Road	
	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total
FINANCIAL LOGISTICS COSTS																
Gateway	36,811	41	39,080	41	27,987	30	17,352	18	39,991	27	42,849	31	49,739	30	52,921	36
Inland transport	43,000	48	43,000	45	50,837	54	77,143	78	85,714	59	73,324	54	96,429	57	71,854	49
Inland processing	10,222	11	12,970	14	14,755	16	4,200	4	20,571	14	20,571	15	22,150	13	22,150	15
Total	90,033	100	95,050	100	93,579	100	98,695	100	146,277	100	136,744	100	168,318	10	146,926	100
HIDDEN COSTS																
Transit inventory	23,618	58	20,164	54	22,624	50	39,247	40	33,343	49	39,594	52	45,151	51	50,361	52
Hedging unreliability	16,797	42	16,884	46	22,672	50	59,739	60	34,315	51	36,399	48	43,762	49	47,235	48
Total	40,414	100	37,047	100	45,296	100	98,986	100	67,658	100	75,993	100	88,914	100	97,597	100
TOTAL LOGISTICS COSTS																
Total	130,447	100	132,097	100	138,875	100	197,680	100	213,935	100	212,737	100	257,232	100	244,522	100
Total in US$/ton	265		268		282		401		434		432		522		496	

NOTE: US$1=FCFA493.

- Hidden costs make up the highest proportion of total logistics costs for the Cotonou-Niamey corridor (14 percent–50 percent)
- Hidden costs are the lowest percentage of total costs (7 percent to 12 percent, excluding Cotonou–Niamey) for rice transport and highest (19 percent to 50 percent) for high value commodities.

Transport Prices per ton-km

Land transport costs per ton-km vary significantly by corridor and case (Table 8-5). Three patterns stand out: (1) road transport prices on the Douala corridors are generally higher than in other corridors (with the exception of case study 1a); (2) rail transport (or combined road and rail) is generally priced lower than road transport (with some exceptions); and (3) prices for transporting rice (case study 2) are usually 35 percent to 65 percent lower than for other, higher-value commodities.

Table 8-5
Summary of Land Transport Prices for Selected Corridors (ton)

Case Study	Cost Type	Abidjan–Bamako	Abidjan–Ouagadougou		Cotonou-Niamey	Douala–Ndjamena		Douala–Bangui	
			Road	Rail		Road	Rail-Road	Road	Rail-Road
1a	FCFA/ton.km	73.61	78.26	74.05	67.37	60.95	64.11	69.40	62.54
	US$/ton.km	0.15	0.16	0.15	0.14	0.12	0.13	0.14	0.13
1b	FCFA/ton.km	40.41	44.34	39.88	33.71	52.21	49.52	54.23	49.11
	US$/ton.km	0.08	0.09	0.08	0.07	0.11	0.10	0.11	0.10
2	FCFA/ton.km	28.85	30.56	31.09	38.08	38.56	34.96	43.83	34.77
	US$/ton.km	0.06	0.06	0.06	0.08	0.08	0.07	0.09	0.07
3	FCFA/ton.km	52.77	56.79	59.71	94.13	58.84	58.51	81.92	77.87
	US$/ton.km	0.11	0.12	0.12	0.19	0.12	0.12	0.17	0.16

Note: US$1=FCFA493. Case study 1a is containerized household appliances; case study 1b is containerized edible oil; case study 2 is rice in 50kg bags; and case study 3 is spare parts stripped from containers.

Delays by Corridor

Total corridor transit times, including port dwell times, range from 18 to 29 days, depending on corridor and mode (see Table 8-6). Because of lower dwell times in the Port of Abidjan, the shortest times are in the Abidjan-Ouagadougou and Abidjan-Bamako corridors. The gateway times in Cotonou and Douala dominate the total transit times for those corridors. Inland transit times are the highest for the Abidjan corridors, but this may be a temporary result of the civil unrest of 2011.

Table 8-6

Summary of Corridor Transit and Delay Times by Location for Corridors with Detailed Analysis (days)

Time Component	Abidjan-Bamako		Abidjan-Ouagadougou				Cotonou-Niamey		Douala-Ndjamena				Douala-Bangui			
			Road		Rail				Road		Rail-Road		Road		Rail-Road	
	Days	% of Total	Days	% of Total	Days	% of Total	Days	% of Total	Days	% of Total	Days	% of Total	Days	% of Total	Days	% of Total
Gateway transit	7.5	42	7.5	42	10.5	54	18	64	13	54	13	46	13	50	13	45
Inland transport transit	9	50	9	50	6	31	5.5	19	7.5	31	9	32	5.5	21	6.5	22
Inland processing	1.5	8	1.5	8	3	15	4.75	17	3.5	15	6.5	23	7.5	29	9.5	33
Total transit time	18	100	18	100	19.5	100	28.25	100	24	100	28.5	100	26	100	29	100
Total delay time	10	-	10	-	18.6	-	11.75	-	24.7	-	26.2	-	25.2	-	27.2	-

Comparable Performance Data from Other Corridors

To ensure inclusive analysis, we used data and conclusions from other studies to examine four other West African corridors or sets of corridors:

- Dakar-Bamako corridor
- Conakry-Bamako corridor
- Tema-Ouagadougou corridor
- Lome-Ouagadougou/Niamey corridors.

Below, we discuss similarities and differences in these corridors and the corridors studied in detail above, and present conclusions on performance factors related to logistics costs.

DAKAR-BAMAKO CORRIDOR

The Dakar-Bamako corridor is a road and a rail corridor of 1,240 km starting from the Port of Dakar. The port has improved its functioning but still suffers from long dwell times, although recent investment by Dubai Ports World has shortened times for ship handling, wait at anchorage, and truck turnaround.

Road transport suffers from the same problems as in the Abidjan corridors as well as an aging and unreliable trucking fleet (the Malian fleet was upgraded to some extent in 2009). There are checkpoints en route and the ISRT (or TRIE) was not implemented as of 2009 (Booz Allen Hamilton 2010). Road infrastructure is in good to fair condition and road segments in Mali were recently rehabilitated (SOFRECO 2012).

The rail corridor (Dakar-Tambacounda-Kayes-Kita-Bamako, 1,240 km) is functioning fairly well and is the only regional rail connection to Bamako. It has a connection to the new logistics platform, but only direct Dakar-Bamako transportation is operational (i.e., rail is not used for domestic freight transport). A shortage of rail wagons limits the total tonnage that can be carried. There are no customs and police inspections en route in the corridor. Customs procedures are based on a single transit document, the Transit International Ferroviaire (TIF), which accompanies goods from Dakar to Bamako and replaces Senegalese and Malian national customs documents and procedures. This simplifies customs and administrative formalities and reduces cost and delays (Booz Allen Hamilton 2010).

There is an ongoing initiative to improve customs at the border crossings between Senegal and Mali by automating links to customs at the Port of Dakar. This is expected to reduce border transit times.

CONAKRY-BAMAKO CORRIDOR

Little is known about this road corridor, which handles less traffic than the other corridors. The road transport industry has the same problems as other corridors.

TEMA-OUAGADOUGOU CORRIDOR

WATH (2010) and Nathan Associates (2010) reported fair to poor port performance in this corridor. Dwell time for inbound cargo is 17 days and container ships wait more than 2 days to berth. Port congestion is cited as one cause. There are no quotas or cargo allocation schemes so cargo is assigned to transport carriers according to free market principles, and this leads to lower transport prices.

Road transport performance is fair to poor, with some road links in poor condition. Older trucks are common in this corridor and a high percentage of containers are stripped in the gateway near the port. There has been substantial progress in controlling overloaded trucks in the corridor and larger trucks are more common in transit trade than in other corridors.

Border post performance is fair to poor for Paga because transit goods entering Ghana must have a customs escort to Tema. Otherwise performance is good; border crossing time is 1-2 hours. Inland clearance can take up to 6 days and bribes are significant (US$200/TEU) as is reported for the Abidjan-Ouagadougou corridor.

LOME-OUAGADOUGOU/NIAMEY CORRIDORS

Recent analysis of the Port of Lomé shows that it is only somewhat more efficient as a gateway than Cotonou (Nathan Associates 2012a). The port is less congested but dwell times are still long and customs operations are inefficient. Road transport has the same problems as in the Cotonou-Niamey corridor. As in the other corridors, a high percentage of containers are stripped in or near the port.

Comparisons with Benchmarks from East Africa

Table 8-7 compares the total logistics costs of three corridors with those of the Mombasa-Kampala corridor, part of East Africa's Northern Corridor studied in 2010 (CPCS 2010a, 2010b). Our Case Study 1a commodity, containerized household appliances, is closest to the commodity examined in the Northern Corridor study (batteries), and we converted all data to US$ cost/ton to provide the best basis for comparison.

The comparison shows that hidden costs in the Northern Corridor are generally much larger in value than in any of the corridors studied in West Africa, but close to Cotonou-Niamey as a percentage of costs (59 percent in Eastern Africa versus 43 percent along the Cotonou corridor). This reflects the fact that delay times for transit cargo in the ports of Cotonou and Mombasa are very long; transit time for Cotonou-Niamey is less than in the Northern Corridor, which indicates major inefficiencies in the port compared to the benchmark. The other corridors are more efficient, but still have significant hidden costs.

A comparison was made between the study results and results from a study of the Mombasa-Kampala Corridor in East Africa (CPCS, 2010a and 2010b) using the same methodology.

Adjusting the East Africa study for comparison,[39] the inland transport cost percentage on the Mombasa-Kampala corridor (36 percent) is similar to the cost observed in West and Central Africa and the hidden costs percentage (59 percent) is approximately double, with the exception of the Cotonou-Niamey corridor which is within the same range (43 percent). These results reflect a more competitive trucking market and more active truckers in East Africa, with high congestion at the Mombasa and Cotonou ports.

Table 8-7

Comparison of Total Logistics Costs by Road for Selected Corridors and Cargos (US$/ton)

	Abidjan-Ouagadougou		Cotonou-Niamey		Douala-Ndjamena		Mombasa-Kampala	
Round-trip distance (km)	2,326		2,100		3,636		3,760	
Cargo type	40-ft container		40-ft container		40-ft container		20-ft container	
Product type	Household appliances		Household appliances		Household appliances		Batteries	
Cargo value (CIF) in US$	70,000		70,000		70,000		50,000	
Costs	**US$/ton**	**%**	**US$/ton**	**%**	**US$/ton**	**%**	**US$/ton**	**%**
Gateway	105.3	29	54.1	19	96.2	21	56.9	5
Inland transport	139.5	38	92.2	32	223.8	50	391.1	36
Inland terminal	54.0	15	16.5	6	32.9	7	n.a.	n.a.
Hidden	70.5	19	124.2	43	96.6	21	648.2	59
Total logistics costs	369.2	100	287.0	100	449.5	100	1,096.2	100

Notes:

Costs for Mombasa-Kampala do not include shipping line charges (13 percent), sea freight shipping charge from Singapore which were included in the total logistics cost calculations for the Northern Corridor study.

Gateway costs include demurrage.

Costs for the Northern Corridor are slightly understated because data on inland terminal costs are not available.

SOURCE: Table 8-1, converted to US$ at FCFA493=USD1, and Northern Corridor data from CPCS 2010 converted to cost/ton using 17 tons of net cargo weight in the 20-ft container.

The gateway financial costs per ton are similar in all the West African corridors but differ significantly from those for East Africa. When transport costs are corrected for total distance to get a comparable cost per ton-km (see Table 8-8), costs in the Northern Corridor are twice as high as in Abidjan-Ouagadougou and 30 percent higher than in Douala-Ndjamena. This reflects that a smaller 20-ft container truck was used in the Northern Corridor and larger, more efficient trucks in the other corridors (with a 40-ft container load), as well as other efficiency factors.

[39] By excluding sea freight charges which are not considered in the present study.

Table 8-8

Comparison of Inland Transport Cost for Selected Corridors and Cargos (US$/ton-km)

	Abidjan-Ouagadougou	Cotonou-Niamey	Douala-Ndjamena	Mombasa-Kampala
One-way distance (km)	1,163	1,050	1,818	1,680
Inland transport cost per ton-km (US$)	0.1199	0.0878	0.168	0.233

Note: Empty returns are assumed in all cases for the cost per ton-km calculation.

In summary, the benchmark comparison shows as much variation between corridors as in comparison to East Africa. The Cotonou-Niamey corridor has the highest hidden cost percentage, but it has relatively low transport costs per ton-km. Abidjan has the most efficient gateway transit times, while the other three corridors are significantly less efficient. Douala-Ndjamena has the highest gateway financial costs and relatively costly road transport, which is mitigated to some extent by the lower-cost rail/road transport in that corridor. The inefficiencies behind these logistics costs are analyzed in the next chapter.

9. Analysis of Corridor Inefficiencies

Introduction

ORGANIZATION OF THE CHAPTER

This chapter identifies inefficiencies by location in the corridor of and groups them by type for more detailed analysis. These analyses are designed to highlight the structures and relationships causing the inefficiencies which are then related to policy issues and possible solutions in Chapter 10.

TYPES OF INEFFICIENCIES

Many of the inefficiencies and factors which raise the total logistics costs are common across all the corridors in West and Central Africa. The corridor inefficiencies cited in Chapters 4-7 can be grouped by location along each corridor as follows:

- Gateway inefficiencies
- Inland transport inefficiencies
- Border post inefficiencies
- Inland terminal and clearance inefficiencies

Gateway Inefficiencies

Gateways account for a large percentage of total logistics overheads (depending on corridor and case study), and are the main cause of delays and hidden logistics costs. Comparing across corridors it is clear that there are large gateway inefficiencies in Cotonou and Douala, while Abidjan is relatively efficient.

There are five categories of inefficiencies for gateways:

- Port congestion
- Organization of port operations

- Allocation of cargo for inland transport
- Customs organization
- Container stripping

PORT CONGESTION

Most West African corridor ports have some symptoms of port congestion, but the one with the most impact on transit traffic is the Port of Cotonou, followed by the Port of Lomé. This congestion is due to several factors, including lack of traffic planning around port access gates, inefficient port organization and the inclusion of activities such as container stripping (see more discussion below) and cargo consolidation in the port area. This leads to long cargo dwell times and high logistics costs. The larger ports such as Abidjan, Tema and Douala have been more organized in planning and implementation of port expansion and organization and in the use of inland container depots (ICDs) outside of the port areas.

In the case of Cotonou, with a 2.5 million ton nominal capacity and an effective traffic rate of 6.8 million tons in 2011, the port reached its capacity years ago. This is the first cause of the high logistics costs in this corridor according to all interviewed stakeholders. The case studies describe long dwell times at the port (18 days on average) and high gateway costs (US$ 958 and US$ 1,422 per 20-ft and 40-ft container respectively). The overcrowding of the port can only be addressed by moving some port activities off-port (e.g., establishing transport of containers by train and moving cargo to an extra-port storage facility - ICD or CFS - where deconsolidation, stuffing and stripping of containers and truck loading and unloading can take place) freeing up the port and the quays for port operations. To address some of those issues, the port created a Consultative and Guidance Committee to oversee the quality of service and identify the issues and challenges to be brought up to the board.

In the case of the Port of Douala shippers are given a maximum of 11 days to complete all administrative procedures upon arrival of freight at the port. Beyond this period, shipper is subject to extra charges including for demurrage and packing. For containerized cargoes the daily amount to be paid depends on the type of container[40]. It has been observed that due to the relatively high number of permitted days, shippers do not hurry when dealing with the clearing process. According to shippers interviewed, they are comfortable with this allotted length of time, and given the low penalty fares applied when the deadline is not respected, they tend to take their time and are willing to pay extra charges. Consequently, this tends to increase time losses, as well as costs, and given the lengthy times spent at the port, the congestion at the port is increased; reducing the storage capacity of the port and increasing the logistic cost of the system.

In some ports, such as Lomé, containers are allowed different times from 1 to 21 days depending on the destination. If the container is destined to the hinterland, the allowance is usually 21 days, but the time varies. The container must be returned in 1 day if the destination

[40] The amount to pay doesn't exceed 5,200 FCFA for a 40-ft container and 3,800 FCFA for a 20-ft one.

is the city in which the port is located. From Lomé to other countries along the Abidjan-Lagos Corridor (ALC) the period ranges between 10 and 15 days. The cost of consigning a container ranges between 300,000-500,000 FCFA for a 20-ft container and 600,000-1,000,000 FCFA for a 40-ft one. The penalties are 12,000 to 13,000 FCFA per day for a 40-ft container and 6,500 FCFA for a 20-ft one.

INEFFICIENT ORGANIZATION OF PORT OPERATIONS

Inefficient port operations include truck congestion due to waiting vehicles in the port (due to lack of parking areas outside the port and lack of an organized truck admittance system at the gates) and inefficient container management systems at the container terminals. This applies primarily to the ports of Cotonou and Lomé.

INEFFICIENT ALLOCATION OF CARGO FOR INLAND TRANSPORT

Gateway inefficiency in corridors is affected by both cargo allocation rules (e.g., tour de rôle) and quota systems for transit traffic, where they are still in place, since these interfere with efficient market operations, cause downtimes for truckers and eliminate incentives for acquiring a modern truck fleet. These inefficient systems vary substantially from port to port and they have been eliminated or reduced in most corridor ports (e.g., Abidjan and Tema). However, they still have an impact, particularly in Cotonou and Douala where freight allocation/quota organizations still exist and the free market for shippers in hiring a transporter is somewhat restricted.

Although the "tour de rôle" system is not effective anymore in Cotonou Port, the quota system is still effective, at least in theory, although in practice Nigerien shippers have been free to choose truckers at their convenience since 2007, and many of Benin's transit vehicles are registered in Niger and operated by Nigerien drivers.

In the Douala corridors, all goods in transit leaving or in destination to any of the three countries is subjected to a distribution among existing transport vehicles, depending on the country of origin of the vehicle. These ratios are fixed at 65 percent and 35 percent respectively for Chadian and Cameroonian operators on the Douala-Ndjamena Corridor and, 60 percent and 40 percent for CAR and Cameroon vehicles on the Douala-Bangui Corridor.

This cargo allocation system, taken as a bilateral agreement between countries, was originally set up as an incentive for the development of national freight transportation systems. However, according to the staff of the freight management bureaus of Chad and CAR (BNF and BARC), the targeted ratios have never been respected on the ground, due to many reasons (see paragraph on transport pricing). In 2009 for example, Cameroonian transporters obtained the largest share of cargo with 67 percent and 71 percent on the Douala-Ndjamena and Douala-Bangui Corridors respectively. According to the CAR and Chadian freight management bureaus, these figures have not changed despite the observed tendency of the renewal of Chadian fleet.

INEFFICIENT ORGANIZATION OF CUSTOMS AND CARGO INFORMATION SYSTEMS

Implementation of better customs and cargo information systems will have an important impact along the corridor in terms of time, cost and reliability. Customs information systems and corridor performance information are crucial to improving corridor efficiency. Some West African corridor countries have implemented Single Window systems (Côte d'Ivoire and Ghana) as well as other customs streamlining techniques.

Togo has also agreed to implement an electronic single window. For the time being, the Togolese Ministry of Commerce is evaluating whether the system will be developed or acquired.

Since the launching of the Abidjan- Lagos Trade and Transport Facilitation Program (ALFTTP) in 2009, efforts have been made to harmonize customs and border procedures as a whole, but such efforts are not visible yet and significant delays are still present both at ports and border crossings. Nevertheless, since all countries-excepting Nigeria-have committed to implementing single windows systems, it is expected that in the medium term these delays will be reduced.

CONTAINER STRIPPING

Approximately 80 percent of containers for transit traffic are stripped in or near the ports of the transit corridors in West and Central Africa and this is also the case for the coastal corridor between Abidjan and Lagos.

Stripping and overloading trucks is a common practice in all corridors when the cargo is in transit to another country. Several reasons were identified from interviews with shippers and transporters:

- **To reduce the impact of transport price**. This was previously assessed by the West Africa Trade hub (WATH), which identified that in the region only 20-25 percent of cargo travels in container along transit corridors because importers ask the transporters to overload the truck.
- **To minimize the penalties of maritime lines in case of delay**. Maritime lines impose a price plus a penalty that varies depending on the destination. In Benin and Togo, the bond imposed by many shipping lines for container is often above 500,000 FCFA and the penalty of 13,500 FCFA/day is applied once the 10-day period for the delivery of the goods in the hinterland and the 1-day period for the delivery in the city have expired and the container has not been returned.
- **The lack of handling equipment at destination**. West and Central Africa has not adopted the culture of the container, so the equipment needed to offload the cargo does not exist and the procedure is manual, which increases the time of offloading and thus the risk of incurring penalties.

- **Bigger trucks serve the hinterland**. Transit traffic to the hinterland in Lomé and Cotonou is more profitable than along the Abidjan-Lagos Corridor, given that volumes are higher (this is not the case for Côte d'Ivoire and Ghana). Transporters owning big trucks are more interested in using their equipment to bring import cargo to landlocked countries rather than offering services to national customers transporting smaller quantities over shorter distances. On the other hand, cargo along the corridor is scarcely unitized so the demand for containers is almost nonexistent in regional trade.
- **Importers own the truck**. Given the low quality of transport services and the age of existing fleets, more formal importers own their own trucks. This encourages the practice of taking advantage of the maximum capacity.
- **Lack of return cargo**. Ninety-eight percent of the containers that leave the ports return empty. Even the products coming from the hinterland such as cotton are not containerized at their origin. The sorting of the product by quality is done in Lomé.
- **Consolidated containers**. There is no information about the proportion of consolidated containers that arrive to a given port over the total number of containers. Deconsolidation takes place at the port level given that importers have arranged the road transport independently.
- **The size of the shipping**. Trade along the ALC is highly variable and relatively small compared to other corridors. Short distances and low volumes give no room for consolidation.

Inland Transport and Trucking Industry

Inland transport account for 30 to 63 percent of financial logistics costs (depending on corridor and case study) and 19 to 50 percent of hidden logistics costs. Transport costs per ton-km vary from $0.06 to $0.19. Rail costs are equal or slightly lower than road in most cases.

INEFFICIENT TRUCKING INDUSTRY ORGANIZATION AND PRACTICES

The road transport industry in West and Central Africa is composed of three general types of truckers:

- Informal sector common carriers
- Formal sector common carriers
- Own-account carriers

Common carriers are truckers who offer transport services for hire to the public. Informal sector operators are traditional small truckers with limited education and training who operate older vehicles using traditional practices of management that rely on extended family workers with a minimum of written records and vehicle overloading, and bribes for officials who condone these operations. Formal sector operators are generally more professional and use more modern management techniques and newer vehicles. Own-account operators work

for large firms engaged in other economic activities such as import/export, manufacturing, and freight forwarding and support these with transport of their own products (Nathan Associates, Inc. 2012).

Informal sector truckers make up an estimated 90 percent of the international trucking industry in West Africa (Zerelli and Cook 2010), and the industry is dominated by small owner-operators, particularly in the informal sector. This creates inefficiencies where the smaller, informal truckers with older and less reliable vehicles are dominant and have no incentive to modernize their fleets, as in the case for most landlocked countries, such as Niger and Burkina Faso (less so in the case of Mali).

In the Cotonou-Niamey corridor most truckers are informally managed, operating a very small fleet of very old vehicles (15-25 years old on average) with low fixed costs. This is due to a combination of lack of incentives to modernize and lack of training in modern management techniques, as well as issues in obtaining credit for the purchase of new vehicles and the high costs of new vehicles (as opposed to the lower costs of second-hand vehicles from Nigeria.)

Overloading trucks has been a wide-spread practice in most corridors prior to the recent partial introduction of the UEMOA Decision N° 01 4/2005 (May/June 2009) for region-wide controls on axle-weights in order to limit the damage to roads and the unfair competiveness induced by this practice. These controls have been introduced in some corridors (e.g., in the Ghanaian part of the Tema-Ouagadougou corridor) but are not implemented in others. This is also a problem in Central Africa for the Douala corridors.

In the Cotonou-Niamey corridor many trucks have been heavily reinforced in order to carry excessive loads. This is due to the perception by truckers that overloading is the only way to make a profit with the prevailing tariff rates. In many cases informal payments are used to by-pass enforcement of overloading.

Informality impacts the potential for growth and for improving the quality of logistics services. The vicious circle of "low quality-low prices" is a severe constraint to development of trade and services.

The extensive network of informality also does not encourage the further specialization of the sector. A study of informal sectors in Benin[41] found that distribution and trucking represents the second largest subsector among informal activities and that 31 percent of the population participates in this type of exchange. Informality, even though generalized in all West African countries, seems to be more pronounced in trade with Nigeria.

In the Douala corridors, the overall poor condition of vehicles coupled with bad road conditions of some branches along the corridors contributes to a fragile and weak logistic system, in the sense that they raise vehicle operating costs as a result of frequent and high maintenance costs and/or accidents occurring.

[41] Le secteur informel au Benin. Chambre de Commerce et d'Industrie du Benin. August 2008

In Central Africa and the CEMAC zone, admissible axle load is fixed at 13, 21 and 27 tons respectively for single, double and triple-axle vehicles[42]. According to national freight management bureaus, this target is exceeded by 40 percent of the vehicles serving these corridors, resulting in rapid damage of road infrastructure. Operators often complain about the bad physical condition of some weigh stations along corridors where, according to them, the loading capacity is given in a very arbitrary manner. The bad physical condition in some corridor sections results in extra expenses due to regular and expensive maintenance works, not including all losses encountered by shippers due to travel delays on corridors.

The axle load limits in the CEMAC region are greater than those fixed by other regional economic communities (10 tons and 11.5 tons for COMESA and ECOWAS respectively). This fixed limit is not favorable to cross regional trade.

TRANSPORT PRICING AND INEFFICIENT MARKET STRUCTURE

In more competitive transport markets, transport prices are more directly related to logistics costs and result from market supply and demand equilibrium. In West and Central Africa, however, and particularly on the Cotonou-Niamey corridor, transport prices are not directly related to logistics cost. This is due to several reasons, including the powerful transporters unions, excessive market regulation, and lack of market transparency due to business practices characterized by middlemen and verbal contracts. In addition, transport prices are also heavily influenced by the trade imbalance and return cargo, cargo type, commercial practices/discounts, seasonal demand, load factor, physical state of road infrastructure, market distribution, informal payments and bribes (see Chapter 2).

Regarding the sensitive issue of trucking industry profitability, most interviewees consider that despite high transport prices, only the transport of high-value, strategic products such as manufactured products, mining equipment and spare parts, sulfur, and petroleum is reasonably profitable, but not the transport of lower-value products such as food products and cement.

One of the most important determinants of transport price is transport market regulation. Many interviewees are of the opinion that transport prices are no longer set by truckers associations, but by direct negotiation between shippers or their representatives and truckers, with the prices set by the truckers' unions serving only as reference in the negotiation. Importer and exporter association representatives do not share this view. In Cotonou, however, they consider that the Conseil National des Utilisateurs des Transports (CNUT), i.e., Nigerien shippers' council, still has a major influence on setting transport prices and traders can be sanctioned if they do not pay them.

[42] The maximum load is 50 tons, the length is 18 m, the width is 2.5 m and the height is 4m

CHECKPOINTS AND BRIBERY

The transport observatory in West Africa, supported by the WATH, tracks bribery and delays at checkpoints throughout West African corridors. Despite this attention and some improvements, the existence of illegal checkpoints and practices are still widespread.

In general, informal-sector transporters often pay more bribes than do formal-sector transporters, due to their lower negotiating power. Profit margins for truckers suffer because of commissions paid to freight brokers in the port to find freight quickly and/or to carry a southbound load into a coastal country, as well as informal payments made to by-pass enforcement of overloading control. The numerous roadblocks are causing delays and increasing costs due to formal and informal payments. Although these costs and delays are a relatively small percentage of total transport costs and times, they significantly reduce the truckers' profit margins, and in turn, increase transport prices to recover those informal payments. Strong political commitment at the highest state levels (Presidential) with strong involvement and support from Regional Economic Communities (UEMOA and ECOWAS) as well as from donors, can reduce the corruption and numerous roadblocks along the entire Cotonou-Niamey corridor.

In the Douala corridors, bilateral agreements "pre define" the control points, called "Check points."[43] The aim of establishing these authorized check points should be the reduction of the number of control points and hence the travel time along each corridor. Each of these unique control points is supposed to have authorities present in charge of transit freight control between the two countries, including police, gendarmes, customs, and representatives of national freight management bureaus.

However, the reality on the ground is very different in the sense that apart from these check points, tens of control points[44] are found along each corridor, and according to vehicle operators, their number grows continuously, often reaching more than 120 controls during some points in the year. The worst case was recorded between Cotonou and Lagos, a segment of 155 km with so many barriers that travel time increases by up to 4 hours. Some interviewees reported 38 barriers between the two cities. Regular users anticipate and have the money available to cross each check point. The presence of these multiple control points is a serious matter, as it is a source of extra expenses on the road which contributes to increased transportation costs not only through the money paid at these control points, but also the time spent/wasted by the transporter in dealing with these controls. Operators say they spend between 200,000 FCFA to 300,000 FCFA on a single journey. Nevertheless, these delays and expenditures amount to about 5-10 percent of their respective totals for inland transport.

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[43] A total of 8 check points exist on the Douala – Ndjamena corridors (seven on the Cameroonian territory and 1 on Chad) passing through Kousseri. Six of them are located on the Douala – Bangui corridor (one on construction) among which three are in Cameroon and three in CAR.

[44] On average, there are two control points (at the entrance and exist) at every locality crossed by the corridors including different bodies. In some cases, they reach up to four different bodies.

Border Post Operations

The "Borderless" program has been monitoring border performance and promoting efficient border crossings in West Africa. However, the continued presence of border crossing inefficiencies indicates that this is not sufficient action.

INEFFICIENT ORGANIZATION OF BORDER POST OPERATIONS

Along the ALC, border procedures are slow and complicated. At some border posts, such as the Nigerian-Beninese border, unofficial fees, other non-trade barriers and the existence of informal networks adds complexity to the problem. In this case, Customs activities are hindered by Klebes, or individuals acting independently, who are present at the border and are responsible for the multiple barriers seen on the Beninese side. In theory, Klebes are useful for identifying Customs frauds but they identify "business opportunities" as well, and act in coordination with Customs officials.

The general practice in the ALC countries for customs clearance means final destination inspections and clearance are done at the border, which differs from the practices of the landlocked countries in the "hinterland". The procedures vary from one country to another (formats, valuation and inspection systems, the use of electronic declarations, etc.). During the field visit a 5 km long waiting line of trucks at the border between Benin and Togo was observed on the Togolese side. The causes given by interviewees included truckers' lack of knowledge of proper procedures and therefore missing papers, forcing drivers and forwarders to wait longer for importer to pay.

One of the most curious cases is that of Nigeria, in which the Customs declaration is done based on the volume calculated subjectively by the Customs official. Nigeria's Customs at the border take the bill of lading only as a reference for the type of goods. Since the assumption is that goods are undervalued, an "adjustment" is made based on observation. Since this seems to be a regular practice, transporters use the biggest trucks they can find, betting that this "perceptive" valuation will be less precise.

In fact, as explained in the section concerning border crossings, some goods are transshipped to a bigger truck only for declaration purposes; the actual weight declared is not taken into account. This practice was confirmed by Beninese customs. The decision for transshipped goods is taken by the owner of the cargo.

The government in Benin through the Ministries of Finance and Maritime Economy decided to put in place a verification system, SBC, or Société Benin Control, in late 2011. This company is in charge of the valuation of goods, which is submitted to customs officials that take this information as an input. For this process, SBC scans 100 percent of the goods. For goods in transit, another company, STBB puts a transmitter on the truck which in principle substitutes the former escort system. Nevertheless, since transmitters were being damaged by drivers, an army officer now accompanies each truck.

In order to avoid smuggling to Nigeria, Benin adopted the clearance of 100 percent of all goods. This was a clear violation of ECOWAS rules, but what seems to have motivated the rapid elimination of the measure was that the country began to lose transit cargo.

SBC also has a presence at the border between Benin and Togo (Hillacondji- Sanvee Condji), where it expects to install scanners. Smuggling at this border is very minimal, excepting combustibles in small quantities. However, the contract with SBC was cancelled before mid-2012.

In Côte d'Ivoire, procedures are also slow and there is the additional fact that goods cannot be cleared at the border. During interviews, some stakeholders highlighted that customs is still applying a decree that prohibits imports from overseas coming from a port other than an Ivorian, and subjects all goods to destruction and all shippers to fines. In theory this decree is no longer valid, but it was not possible to confirm whether or not it is invalid in practice.

Information is available from various WATH reports regarding "processing time at border posts" and the more complex procedures at Ghana's borders as well as delays due to frequent electricity failures. Exceptional delays have been detected at the border between Benin and Nigeria but they have not been included because of the underlying causes (import bans).

The main reasons for border delays observed in the field include the following:

- **Lack of regular supply of electricity and IT networks.** Service is sometimes interrupted for up to 2 days.
- **Lengthy procedures at scanners.** Due to lack of electricity or oversized vehicles that must be partially offloaded, as observed at the border between Ghana and Togo. In Benin the scanner lasts 50 minutes without counting waiting time. Some stakeholders indicated that 100 percent of the cargo is scanned while the port says that only 10 percent is scanned and that the procedure lasts 10 minutes.
- **Informal payments and negotiations**. The practice still exists even with the presence of focal points, as observed by the consultant.
- **Lack of space and inefficient distribution of administrative offices**.
- **Users' lack of information about procedures.** The user sometimes arrives without the money required to finish the clearance process at the border and must wait for the shipper to arrive with the money. In Ghana, users frequently have no information about the requirements for an international driver's license. It was reported that lack of information accounted for up to 3 additional days to cross the border with an empty truck, with 1 day being the norm.
- **Transshipment at the border**. In Semé-Kraké transshipment lasts 48 hours per border on average, or approximately 96 hours total.

CUSTOMS CONNECTIVITY AND CARGO TRACKING SYSTEMS

On the Douala corridors, the national customs services of the three countries are not yet interconnected, despite ongoing efforts carried out to link them together. A well-functioning interconnectivity between these countries should contribute to better management of information and statistics, serving as an important tool for decision making and sustainable management of these corridors. It should also be an advantage for users who would be kept informed about ongoing processes for their freight. In the context of competition and improved performance targets, quality and timely information should be made available for the benefit of all stakeholders. This is an indispensable requirement for increasing the efficiency of the logistics system.

For the Douala corridors, introduction of systems for GPS tracking vehicles and freight en route to landlocked countries was initiated by Cameroonian customs in 2009. The main objective[45] of this system included sustainable management of transit freight at destinations outside of Cameroon's borders. According to the National Customs Service of Cameroon, the system has been successful in reaching many targeted goals. Despite this, other stakeholders (operators, freight forwarders and shippers) still complain about the fact that this additional step in the transit freight clearing process also creates an extra expense. Moreover, with the insufficient number of GPS units, there is an overall tendency to use an auction process leading to requests for illegal payments by those in charge of managing the system. According to stakeholders interviewed, they pay more (up to five times) than what is supposed to be paid (45,000 FCFA) if they want to be served on time.

According to some shippers, the GPS fixation process on vehicles can take several days because of the frequent shortage of GPS cells. Both time and money spent at this stage of the clearing process is extra and contributes towards greater inefficiency in the transit logistic chain by increasing the final cost. The lack of interconnection between customs stations/bureaus (check points, border posts, etc.) is a great hindrance to information sharing and decision-making regarding management of the GPS system. Additionally, continuity of service is not guaranteed at terminals located in landlocked countries.

Inland Terminals and Customs Clearance

Inland terminals and customs clearance account for 9 to 23 percent of financial logistics costs, and 16 to 29 percent of hidden logistics costs. The costs along the Douala corridors are by far the highest, while Niger is lower perhaps due to the fact that not all cargo has to be cleared at the inland terminal. The delays in Burkina Faso (Ouagarinter and Boborinter) are twice as long as for other countries' inland clearance. Burkina Faso and Mali's inland terminal operations are working towards becoming very efficient. Along these corridors, time spent at border crossings should be less than a day, although this number is sometimes higher.

[45] The system aimed at: (i) avoid the doping of transit freight in national boundaries; (ii) reduce transport delays and costs; (iii) lighten road controls; (iv) prompt release of custom guarantee; (v) improve custom incomes; (vi) reduce conflicts with customs, etc.

The business environment in West and Central Africa

Logistics systems in the West and Central African corridors for transit trade are affected by several factors: cultural differences between countries, low trade volumes, short term orientation of business managers, the weakness of informal sector transporters, the lack of appreciation of the hidden costs related to unreliability, distortions in the market and a shortage of professional logistics service suppliers all undermine the development of the logistics system in these corridors.

Culture. West African history as well as commercial-and even familiar-links between communities are so strong that it is difficult to formalize the economy. During the visit to Nigeria, the main consumption market, freight forwarders remarked on the existence of a vast network that crosses informal borders, with goods easily released in the market (see Chapter 3), that in some cases are transported as own consumption merchandise.

According to the Manufacturers Association of Nigeria (MAN), as much as 50 percent of goods manufactured in Nigeria are sold in the regional market through informal networks. In MAN's opinion, one of the causes is import duties, given that the ECOWAS duty scheme is not fully respected, while a second cause stems from the high margin added by Value Added Taxes, particularly in French speaking countries, where goods are often undervalued.

Another factor influencing trade is the language difference. It was repeatedly noted by interviewees that English-speaking countries tend not to trust traders from French-speaking countries. When it comes to doing business, a Nigerian would rather look for Ghanaian trade partners, and a Beninese trader for a Togolese or Ivoirian trader. With the exception of Togo and Benin, the rest of the borders are shared with a country that does not share the same language.

Low trade volumes. The lack of substantial volumes along the ALC determines that transport service providers prefer to have a general purpose vehicle adaptable to most of the cargo. The lack of logistics infrastructure and loading equipment prevents the utilization of more specialized vehicles.

Short-term orientation of business managers. In general terms, most of the economic agents in the ALC look for commercial, short term benefits, instead of growth and business development. As noted in the analysis of the supply chains in the ALC, except for the case of the cement logistics chain in which some investors at the origin of the chain are looking for some degree of productive integration, simple, short-term commercial deals seem to dominate.

The focus by managers on operational constraints and ways to reduce their impacts on businesses clearly affects the behavior of private and public agents. Logistics is seen as a cost factor that needs to be reduced rather than as a differentiating strategy. This is of course a

consequence of weak demand from customers that perhaps are unwilling to pay for value added services.

Weakness of informal sector transporters. Shippers will try to reduce the transport costs they pay because the informal transporter is usually the weakest part of the chain and the only element a shipper can control.

Lack of appreciation of the hidden costs related to unreliability. Economic actors do not seem aware of the extra inventories that could be a result of an irregular supply of inputs. During the interviews it was very evident that many actors are willing to accept a regular disruption of stocks. A cost-saving approach added to an irregular supply does not allow for making long-term production plans or signing long-term contract with service providers. The contracts are usually spot contracts, not future contracts, with the transport of combustibles as perhaps the only exception.

Distortions in the Nigerian market. Given the country's productive structure, the distortions generated by import bans in the main consumption market-Nigeria-and the lack of long term strategies (other than the creation of some free trade zones) to support productive development and integration, it seems that efforts to facilitate transport along the corridor will have limited effects.

Shortage of professional logistics suppliers. The logistics system in the ALC is poorly developed despite the existence of an industrial base. The supply of logistics services is limited to transport and ancillary services, with some exceptions such as cold warehouses in Benin. No third-party logistics providers for value-added services were identified.

The lack of supply of high-quality logistics services reinforces the import patterns that characterize the region as a whole. Added to the high production costs derived from poor supply of electricity are the losses derived from spoilage of perishable goods, and spoilage of dry goods from the absence of loading equipment at loading points.

However, the existence of barriers and delays at the borders does little to encourage the emergence of more sophisticated systems. More sophistication implies investment, which depends on the ability to obtain profits from these systems and services.

10. Policy Issues and Possible Solutions

Introduction

As noted above, trade potential in West and Central Africa is hampered by inefficiencies of several types along the principal transport corridors, including port congestion, lengthy cargo processing delays, and the poor performance of overland transit systems. Adverse factors come from uncompetitive transportation services, inefficient business practices, unnecessary transport and customs procedures, governance issues, and infrastructure congestion.

The concept of a corridor is a powerful tool for addressing most of the major issues confronting freight transportation, especially for landlocked countries. This concept includes not only a collection of routes, but also a portfolio of transport services and transit processes. It provides a mechanism for focusing public and private sector efforts on a common objective: moving goods efficiently throughout the corridor. It creates a framework in which initiatives to improve cross-border freight movements can be defined, appraised, and evaluated. This framework can accommodate intermodal transport and integrated logistics.

In view of the importance of logistics costs in determining the level of competitiveness of business in the West and Central Africa regions, policy, regulatory, and operational changes must be made to facilitate transport services.

Improving corridor performance requires a cooperative effort by the public and private sectors. Although some initiatives can be undertaken exclusively by the public sector, most require private sector involvement to ensure that the quality of services offered improves. The private sector should take the lead when there is sufficient infrastructure and an appropriate regulatory environment. The public sector should take the lead when significant improvement to infrastructure or major regulatory reform is needed.

Types of Policy Issues

The policy issues stemming from corridor inefficiencies that must be addressed by public and private sector actors can be grouped as follows:

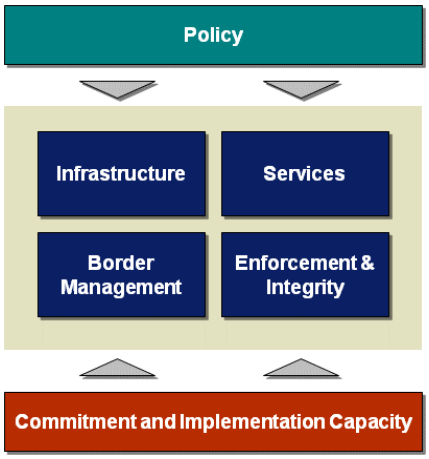
- Long cargo dwell time at the maritime gateway, at borders and at destination, partly attributable to inefficient and transit processes, and resulting into port congestion, and immobilization of trucks at borders and destination
- Inefficient logistics operations, contributing to delays at the interface between maritime gateway and land transport, and the lack of through container services (caused by container demurrage rules and insurance issues), contributing to truck overloading
- Poor regulation of the logistics services, contributing to the lack of professionalism, and manifesting itself through monopolistic practices, lack of transparency in pricing, multiplication of intermediaries and brokers, and multiplication of fees of various nature
- Inefficient trucking market structure (related to transport pricing , access to freight and lack of incentives for more formal sector trucking and obstacles to fleet modernization)
- Predatory practices by enforcement agencies (creating roadblocks and checkpoints, bribes, smuggling, etc.) that can be linked to lack of professionalism of the trucking industry and the lack of a proper governance framework for corridor management

These issues are identified below for each set of corridors, along with potential improvement actions for each.

Framework for Identifying Improvement Opportunities

Figure 10-1 shows a framework that can be used as a guide for identifying improvements in the transport and logistics industry. We applied this framework to identify potential improvements in policy related to inefficiencies in each West and Central African corridor. This framework notes the need to consider commitment and implementation capacity in prioritizing opportunities which are presented below.

Figure 10-1
Improvement Opportunities Framework



Potential Priority Improvements for West and Central African Corridors

A detailed analysis of each corridor identified the factors causing inefficiencies and linked them to high-priority actions for improvement. The main recommended policy measures that must be addressed by public and private sector stakeholders can be summarized as follows:

- ***Increase efficiency of the Transit and Clearance processes:***
  - Ensure total automation of customs cargo releases for rail and road transit goods
  - Build single windows for ports where they don't exist already
  - Fully automate the Customs declaration process
  - Improve customs interconnection systems
  - Ensure that the regional guarantee bond system is in place and is respected by the other regional national guarantors
  - Develop logistics centers and harmonized border crossing procedures along the Abidjan-Lagos Corridor
- ***Improve efficiency of logistics operations:***
  - Change the incentive system to promote containerization to the hinterland and eliminate or reduce unjustifiable shipping line charges on containers
  - Review the way inland container terminals are operating to ensure a quicker rotation of trucks
  - Build regulated zone parking for trucks inside and outside the ports
  - Build storage facilities (ICD and CFS) outside the ports and move container stripping activities off-port
  - Engage railway company for wagon fleet expansion
- Ensure higher performance of private stevedoring companies. ***Poor regulation of the Logistics services***
  - Introduce regulations to professionalize trucking and freight forwarders' activities
  - Introduce more competition in container handling or establish a public regulatory authority to prevent monopolistic practices
  - Improve freight forwarders' professionalism and management capacity
  - Improve truckers' professionalism and management capacity by organizing training sessions for truckers and drivers (by transport associations and/or professional organizations)
- ***Inefficient trucking market structure:***

- — Create freight exchanges based on supply and demand to remove unnecessary intermediaries and brokers
- — Regulate access to the profession of trucking operator
- — Liberalize the transport sector which will include all trade within the region (local and transit) and discuss the issue of cabotage
- — Create incentives for fleet renewal by increasing access to credit for small, informal transporters
- — Encourage financial institutions to offer favorable credit to transporters to invest in new vehicles
- — Contribute to the reduction of vehicle operating costs though development and maintenance of infrastructure, and possibly reducing tax burdens on fuel/ lubricant and spare parts

- Prevent predatory practices by enforcement agencies*:*
  - — Provide political commitment at the highest level to reduce corruption and checkpoints
  - — Strictly enforce UEMOA axle load Decision N° 01 4/2005
  - — Establish observatories on abnormal practices where they don't exist
  - — Reinforce the operational power of the CNF (Conseil National de Facilitation)
  - — Establish a proper Corridor management institution that has operational power to work on transport facilitation along the corridor
  - — Develop a corridors database for trade and performance with SSATP support
  - — Change the incentive system of banned goods for Nigeria to reduce smuggling and other distortions in the Abidjan-Lagos Corridor

Regional Logistics Strategy

An important problem in policy formulation is how to define the policy beneficiaries—the difference between intended and unintended beneficiaries must be articulated. A policy impact assessment is needed to complement the policy measures proposed in the actions listed above.

West and Central African governments need to develop, under the relevant REC, a comprehensive transport and logistics regional strategy and a related strategic plan that is holistic and integrated. Such a strategy must be region wide, take all modes of transport into consideration, and be integrated with other sector strategies (e.g., trade, customs, agriculture). A strategic approach should be broad and forward-looking, encompassing all stakeholders and subsectors (e.g., transport providers, logistics/service providers, and infrastructure

owners), recognizing future trends, forecasting demand and supply, and planning capacity accordingly. A sector strategy should recognize that benefits from improvements in one area may not be possible without improvements in other areas. This suggests the need to adopt a prioritization approach in sector-strategy formulation. For the strategic planning process to yield the most benefits, however, firm commitment at the highest levels of governments is required, as is the ability to shape related policies, laws and regulations. RECs such as CEMAC, UEMOA, and ECOWAS should be the owners and champions of the strategy, exert influence over government agencies involved and assign (and enforce) responsibility and accountability for results. Donors and NGOs could assist governments and RECs in West and Central Africa in developing this sector-wide transport and logistics strategy by providing technical assistance and capacity building support.

TRANSPORT AND LOGISTICS SERVICES

An important component of the strategy should be to increase the competitiveness of the transport and logistics sector, particularly road transportation. Trucking fleets are old, intermodal exchanges are needed, and the industry as a whole needs to raise its level of professionalism. Donors and other NGOs can assist governments[46] with the professionalization and competitiveness of the transport and logistics sector by providing technical assistance in the following areas:

- Improving business formation and operations by creating a small business center for the transport and logistics sector
  - Education and best practices dissemination
  - Industry outreach and liaison
- Evaluating options to encourage trucking industry operators to update trucking fleets
  - Financial incentives such as tax breaks, lower interest rates, rebates, leases (i.e., lease-to-buy), or assistance with upfront capital expenses, such as providing seed funding
  - Services at the small business center to assist smaller operators with business planning and procurement planning (e.g., cost-benefit analysis, pricing, loan applications)
- Promoting information and communication technologies (ICT), specifically electronic data exchange
- Promoting through container services
  - Move toward full implementation of ALISA
  - Facilitate bonding of containers and reduced container demurrage fees, with a regional guarantee system

[46] A list of current and ongoing donor-funded projects in the transport and logistics sectors can be found in Appendix C

- Creating legislation that promotes logistics parks for consolidating goods in containers, cross-docking services, and centralization of control procedures such as axle load control and inspection

BORDER MANAGEMENT

Since Customs modernization is already underway in several countries, most recommendations in this area are related to efforts to ensure that the initiatives achieve desired results and conform to international best practices:

- Advise on and ensure conformance with international standards on automation, trade facilitation, and security
- Assist with the implementation of customs modernization programs at all border posts, including the implementation of joint border controls and processes
- Develop an appropriate transit regime for the ECOWAS region (which was intended by the ISRT Convention)
- Conduct an independent evaluation of the GPS project, assessing its costs, benefits, and actual performance

ENFORCEMENT AND INTEGRITY

Governments should strengthen their enforcement and corruption-fighting capacities, recognizing that transparency, integrity, and effective enforcement require steady leadership, an ability to monitor and evaluate progress, and the capacity to take corrective action. This recommendation rests on three pillars: prevention ("informed compliance"), enforcement, and accountability. Informed compliance recognizes that many industry operators are in contravention of regulations through a lack of understanding of the regulations. The enforcement pillar takes into consideration all the components necessary to ensure that both public and private sector entities are compliant with regulations, and in particular ensuring that the proper fines and penalties are in place and are applied to discourage future noncompliance. Transparent monitoring, oversight, and accountability practices must be put in place to ensure proper enforcement and deter lapses in integrity.

COMMITMENT AND IMPLEMENTATION CAPACITY

The above-mentioned regional transport and logistics sector-wide strategy will not be successful or have any impact if it is not complemented by strong commitment to results, a solid capacity for implementation, and a robust governance structure. To provide these capabilities, CEMAC and UEMOA/ECOWAS should develop a mechanism to oversee implementation of the transport and logistics sector strategy. A well-established implementation mechanism would provide the governance and planning necessary to manage a portfolio of regional projects related to implementing the transport and logistics sector regional strategy serving many important functions:

- Provide oversight and accountability and therefore drive the achievement of results
- Implement monitoring and control of projects
- Provide coordination and integration among dependent projects
- Ensure effective executive cross-project communication
- Identify gaps in meeting strategic objectives and thus identify the need for new projects
- Provide education and certification that promotes professionalization of logistics services and awareness of their role in improving corridor efficiencies

MONITORING AND PERFORMANCE INDICATORS

Policy formulation process can be said to be successful only when the policies are implemented, to achieve the desired results. Policy implementation imposes serious demands on data, information and reporting systems to determine the extent to which established targets and objectives are being met and whether the aspirations of the people in terms of their welfare are being adequately addressed. Therefore a monitoring and evaluation system must be established in a responsible institution that is capable of identifying policy performance targets and monitoring indicators and modalities. Implementing electronic monitoring, as in Côte d'Ivoire, rather than customs escorts, will also increase efficiency. These can be linked to other monitoring indicators.

Defining and tracking indicators measuring the performance of the West and Central Africa corridors plays a critical role in implementing and monitoring the regional strategy for the logistics sector:

- Helps identify areas for improvement in relation to targets (or benchmarks)
- Provides tools for diagnosing problems and bottlenecks
- Measures changes in the situation and leads, ultimately, to measurement of the effectiveness of programs designed to address problems identified during the diagnostic phase

Performance indicators must address all three factors that determine corridor performance:

- Quality and competitiveness of transport and logistics services
- Capacity and condition of public infrastructure used by these services
- Domestic, bilateral, and sometimes multilateral regulation of these services and the trade that they serve

In addition, trade statistics need to be improved in order to help pinpoint the logistics inefficiencies in the corridors.

Matrix of Recommended Corridor Actions

A matrix of action was developed in response to the challenges faced on the corridors covered by the study listing the factors that negatively impact the logistics chain, policy measures and the physical investments required to reduce their impacts and the main private and public stakeholders involved. This matrix is presented below and gives common recommended measures for each factor in the West and Central African corridors.

Specific recommendations for individual sets of corridors can then be defined in consultation with the stakeholders on the basis of the general matrix. It should be noted that policy measures generally have much lower costs than physical investments and may have as much or larger impact on inefficiencies as physical investments and would therefore be more cost-effective.

Policies which promote better coordination of information between shippers, logistics service providers, customs, port operations managers and transporters (e.g. advance use of information to eliminate delays for all corridor bottlenecks) should be given high priority along with those that can reduce the number of the overall transit processing steps both in the ports and at the borders. This can be linked with better corridor efficiency monitoring to make the issues more visible.

Interaction of policies should also be considered in setting priorities so that policies that encourage more modern trucking fleets are linked to policies that deregulate the trucking industry and create conditions for more market-oriented trucking firms and more competition in freight pricing. Regional coordination is important for success.

Table 10-1

Cost-raising Factors and Recommended Actions and Policy Measures for West and Central African Corridors

Factor	Causes	Policy Measures	Physical Investments	Actors and Stakeholders
Inefficiencies in the Transit and Clearance processes	• Low costs for cargo storage at the port encouraging lengthy dwell times • Long free time granted for transit cargo, especially bulk cargo • Manual procedures causing delays and adding costs • Lack of professionalism for some clearing agents, unauthorized customs brokers and transport companies • Lack of information sharing between shipping lines / forwarder and receiver at destination • Unreliable Internet	• Ensure total automation of customs cargo releases for rail and road transit goods • Build single windows for ports where they don't exist already • Fully automate the Customs declaration process • Improve customs interconnection systems • Ensure that the regional guarantee	• Enabling IT infrastructure	• Port authorities • Transport ministries • Shippers councils • Customs and other border management agencies • National guarantee funds

Factor	Causes	Policy Measures	Physical Investments	Actors and Stakeholders
	connections delaying clearance	bond system is in place and is respected by the other regional national guarantors • Develop logistics centers and harmonized border crossing procedures along the Abidjan-Lagos Corridor		
Inefficient logistics operations	• Incentives that encourage stripping of containers and overloading of trucks • Lack of organization of the truck traffic outside and within the port • Insufficient railway equipment	• Change the incentive system to promote containerization to the hinterland and eliminate or reduce unjustifiable shipping line charges on containers • Review the way inland container terminals are operating to ensure a quicker rotation of trucks • Build regulated zone parking for trucks inside and outside the ports • Build storage facilities (ICD and CFS) outside the ports and move container stripping activities off-port • Engage railway company for wagon fleet expansion • Ensure higher performance of private stevedoring companies.	• Parking areas for trucks outside of the port • ICDs and CFS facilities at the port and at destination (preferably developed by private logistics service providers) • Purchase of additional equipment by rail operators	• Transport ministries • Shipping lines • Shippers councils • Railway companies • Logistics operators
Poor regulation of logistics services	• High port handling charges and shipping line charges • Lack of professionalism of freight forwarders and trucking companies	• Introduce regulations to professionalize trucking and freight forwarders' activities • Introduce more competition in container handling or establish a public regulatory authority to prevent monopolistic practices		• Port authorities • Ministries of Transport • Freight forwarding associations • Trucking companies associations

Factor	Causes	Policy Measures	Physical Investments	Actors and Stakeholders
		• Improve freight forwarders' professionalism and management capacity • Improve truckers' professionalism and management capacity by organizing training sessions for truckers and drivers (by transport associations and/or professional organizations)		
Trucking market structure	• "Black box" trucking freight rates of fixed costs and limited variable costs • Trade imbalance—imports greatly exceed exports, leading to scarcity of backload cargo • Seasonal demand—tariffs are influenced by season of export commodities (e.g., cotton and onions) • Quota systems inducing excessive market regulation, limiting competition and causing gateway delays • Lack of transparency in business practices • Difficulties for freight access for informal or small truck companies • Old, obsolete fleet operated by poorly qualified truckers • Low annual mileage per truck due to long wait times to obtain freight and for border crossing • Unfair competition from nonprofessional truckers operating old vehicles leading the entire industry to low freight rates that do not guarantee sufficient income for fleet renewal • Bad road infrastructure causing frequent vehicle breakdown and high vehicle operating costs	• Liberalize the transport sector which will include all trade within the region (local and transit) and discuss the issue of cabotage • Regulate access to the profession of trucking operator • Create incentives for fleet renewal by increasing access to credit for small, informal transporters • Encourage financial institutions to offer favorable credit to transporters to invest in new vehicles • Contribute to the reduction of vehicle operating costs though development and maintenance of infrastructure, and possibly reducing tax burdens on fuel/ lubricant and spare parts • Create freight exchanges based on supply and demand to remove unnecessary intermediaries and brokers	• Truck fleet • Road network expansion and maintenance	• Finance ministries • Trucking companies & associations • Financial institutions • Donors • Shippers councils • Truckers unions • Transport ministries
Predatory practices and unclear governance	• Truck overloading increases load factors and reduces rates • Excessive checkpoints	• Strictly enforce UEMOA axle load Decision N° 01 4/2005	• Put in place weight and axle load bridges in the port and along	• RECs • Shippers councils • Transport ministries

Factor	Causes	Policy Measures	Physical Investments	Actors and Stakeholders
	• Informal payments and corruption • Non-compliant operators	• Enforce reduced number of checkpoints • Establish observatories on abnormal practices • Provide political commitment at the highest level to reduce corruption and checkpoints • Establish a proper Corridor management that has operational power to work on transport facilitation along the corridor • Strengthen National Facilitation Committees	the corridor.	• Customs

SOURCE: Nathan Associates.

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Appendix A. Information on Transport Corridors

This appendix presents information on corridor characteristics in support of the analysis in the main text of the report.

Abidjan Corridors

The Abidjan-Ouagadougou corridor is both a road and a rail corridor that is 1,232 km long. The Abidjan-Bamako corridor follows the same road from Abidjan to Ouangolodougou and then branches off to Bamako (a distance of 1,236 km), while the road/rail route takes the railway from Abidjan to Ferkéssédougou and then continues by road to Bamako. The Ouagadougou route passes through the border posts of Ouangolodougou (Côte d'Ivoire) and Niangoloko (Burkina Faso) on the way to Niamey, although both of these posts are some 30 km from the border town of La Léraba. The Bamako route passes through the border posts of Pogo (Côte d'Ivoire) and Zegoua (Mali). The current infrastructure is described below by mode.

- **ABIDJAN PORT**

The Port Autonome d'Abidjan has the largest capacity of the ports in West and Central Africa: 6 km of berth, 800 hectares (ha) of land, and a natural lagoon basin of 1,000 acres and depths of 10 to 15 meters. It is linked to the sea by the Vridi Canal. The port has a large range of piers dedicated to various types of cargo. The North Quay handles dry bulk and general cargo, the West Quay handles only general cargo, and the South Quay has a roll on-roll off (ro-ro) terminal and a container terminal. The container terminal has 5 berths, 3 heavy cranes with a capacity of 40 tons each, 25 ha of fully paved yard and an external container terminal of 7 ha. The port also has a bonded warehouse of 134,614 square meters and a general cargo storage area of 250,000 square meters Table A-1 presents details on the cargo handled by each quay or berth. The five berths assigned to container handling facilities and storage areas are nearing capacity. The port also has separate areas devoted to the import and export of crude oil and petroleum products and adequate storage for break bulk cargo, and specialized bulk terminals.

Table A-2
Port of Abidjan Quays Description

Quay/Berth	Cargo	Draught (m)
North quay	Bulk wheat and general cargo	775 m /quay
West quay	General cargo	1,525 m/quay
	Clinker and manganese	
South quay	General cargo, oil and ro-ro, containers	1,785 m/quay
Fishing berth	Fish	
Banana quay	Bananas	310 m
Siveng	Bulk fertilizer	Max 155 m
CNR/PHILIPS	Private berth	Max 120 m
SOCOPAO	Private berth	
PETROCI Soutes	Tankers	Max 145 m
PETROCI	Tankers	Max 200 m
SIAP	Tankers	Max 180 m
PUMA	Tankers	Max 240 m
SIR	Tanker (CBM)	Min 170 m / max 270 m
SIR II	Tanker (SPM)	Min 200 m

SOURCE: *www.afritramp.eu*

The Port, operated by an autonomous port authority, is on the outskirts of the city, and access bridges are often congested. The port is building a new container terminal with separate access to the city.

Customs is using the UNCTAD ASYCUDA World System or SYDONIA for its acronym in French. Cote d'Ivoire Customs has recently (May 2012) open the transit module that facilitates follow up of transit cargo and allows to electronically replace the Customs bounds TRIE books with road transport transit declaration forms, and replace physical escorts with satellite tracking devices attached to transit trucks.. The Chamber of Commerce, as the national guarantor, is in charge of organizing the satellite trucks follow up and also implements the ECOWAS IRST customs guarantee bond system (*Fond de Garantie Routier*), with a one-time customs bound payment of 0.5 percent of the cargo customs value at the firsts point of entrance of the Regional Economic Region.. As is common in West Africa, a lot of transit containers are stripped in the port and transferred to trucks as break bulk cargo for inbound travel.

- **ROAD INFRASTRUCTURE**

There are two main road arteries that run along the corridors beginning in Côte d'Ivoire including:

The 717 km Abidjan–Yamoussokro–Bouake–Katiola–Ferkessedougou–Ouangolodougou–La Léraba route (Côte d'Ivoire customs border), and

The 515 km La Léraba–Niangoloko (Burkina Customs border)–Banfora–Bobo Dioulasso–Ouagadougou route in Burkina Faso.

The road network in Côte d'Ivoire for the majority of the segments assessed along the two corridors is in fair to poor condition. The road from Ouangolodougou to Ferkessedougou (45 km) is in extremely bad condition because roads have not been maintained for more than 10 years (mainly because of a lack of rehabilitation during the political unrest that ended in the mid-2000s). In Côte d'Ivoire, the Road Maintenance Fund mobilizes resources for the national road maintenance program and the Agence de Gestion des Routes evaluates and controls maintenance work. On the Abidjan-Ouagadougou corridor, according to a field inventory and interviews with truckers, 70 percent of road sections are in good or fair condition and 30 percent (307 km) are in poor condition (where the average truck speed does not exceed 20 to 30 kph, as summarized in Table A-2). In Burkina Faso, road maintenance is managed by a government agency, Fond d'Entretien Routier du Burkina.

On the Abidjan-Bamako corridor, roads are in good condition (except for the Boromo–Sabou segment), and rehabilitation of some sections is ongoing. Roads in Mali are maintained by Authorité Routiere–Fond d'Entretien Routier (AR-FER), a government agency. See Table A-3.

Table A-3
Abidjan-Ouagadougou Road Route

Road Link	Length (km)	Terrain	Surface		Lanes	Congestion	Speed (km/hr)
			Type	Condition			
CÔTE D'IVOIRE							
Port of Abidjan-Yamoussoukro	245	Flat-Hilly	Paved	Fair	2 x 2	Heavy	40-50
Yamoussoukro-Bouake	110	Flat-Hilly	Paved	Fair	2 x 1	Light	40-50
Bouake-Ferkessedougou	262	Flat-Hilly	Paved	Poor	2 x 1	Heavy	35-45
Ferkessedougou-Ouangolodougou	45	Flat-Hilly	Paved	Poor	2 x 1	Heavy	25-35
Ouangolodougou-Niangoloko	55	Flat	Paved	Good	2 x 1	Light	20-30
Total	717						
BURKINA FASO							
Niangoloko-Banfora	45	Flat	Paved	Fair	2 x 1	Light	30-40
Banfora-Bobo Dioulasso	90	Flat-Hilly	Paved	Fair	2 x 1	Heavy	30-40
Bobo Dioulasso-Ouagadougou	380	Flat-Hilly	Paved	Fair	2 x 1	Heavy	40-50
Total	515						
Total Corridor	1,232						

— *Source: Consultant's inventory- December-October 2012.*

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Table A-4
Abidjan-Bamako Road Route

Road Link	Length (km)	Terrain	Surface		Lanes	Congestion	Speed (km/hr)
			Type	Condition			
CÔTE D' IVOIRE							
Port of Abidjan-Yamoussoukro	245	Flat-Hilly	Paved	Fair	2 x 2	Heavy	40-50
Yamoussoukro-Bouake	110	Flat-Hilly	Paved	Fair	2 x 1	Light	40-50
Bouake-Ferkessedougou	262	Flat-Hilly	Paved	Poor	2 x 1	Heavy	35-45
Ferkessedougou-Ouangolodougou	45	Flat-Hilly	Paved	Poor	2 x 1	Light	20-30
Ouangolodougou-Pogo	86	Flat	Paved	Fair	2 x 1	Light	15-25
Pogo-Zegoua	7	Flat	Paved	Poor	2 x 1	Light	20-30
Total	775						
MALI							
Zegoua-Sikasso	96	Hilly	Paved	Good	2 x 1	Light	30-40
Sikasso-Bougouni	220	Flat-Hilly	Paved	Fair	2 x 1	Light	40-50
Bougouni-Bamako	165	Flat	Paved	Good	2 x 1	Heavy	30-40
Total	481						
Total Corridor	1,236						

— *Source: Consultant's inventory- December-October 2012.*

Control Points

The number and location of checkpoints along the corridor varies by the time of day and year, weather conditions, etc. Since the first quarter of 2012, the Improved Road Transport Governance Initiative (IRTG) has reported a decrease in the number of checkpoints, bribes, and delays along the Abidjan-Ouagadougou corridor. Côte d'Ivoire, however, is no longer the best-in-class country in regard to delays. The average number of checkpoints and the loss of time associated with each are summarized in Table A-4.

Table A-5
Abidjan-Ouagadougou Road Performance Indicators, April to June 2012

Corridor/ Country	Controls per Trip	Bribes per Trip (US$)		Delays per Trip (min)	
		On the Road	At the Border	On the Road	At the Border
Abidjan-Ouagadougou (Import)	32	63	18	104	59
Burkina Faso	10	12	14	26	45
Côte d'Ivoire	22	51	4	78	14

Corridor/ Country	Controls per Trip	Bribes per Trip (US$)		Delays per Trip (min)	
		On the Road	At the Border	On the Road	At the Border
Ouagadougou-Abidjan (Export)	7	29	15	21	11
Burkina Faso	2	3	11	1	8
Côte d'Ivoire	5	26	3	20	3

— *Source: WATH 20th Road Governance Report (Q2- 2012).*

Road Transport Performance

Since the first quarter of 2012, the Improved Road Transport Governance Initiative (IRTG) has reported a decrease in the number of checkpoints, bribes, and delays in the Abidjan-Ouagadougou corridor. Côte d'Ivoire, however, is no longer the best-in-class country in regard to delays, having been overtaken by Togo. See Table A-5.

The number of bribes has decreased overall, but Mali is still collecting the highest amount of informal fees in the region, and imposes the most controls and delays (Table A-6).

Table A-6

Abidjan-Ouagadougou Road Performance Indicators, April to June 2012

Corridor/ Country	Controls per Trip	Bribes per Trip (US$)		Delays per Trip (min)	
		On the Road	At the Border	On the Road	At the Border
Abidjan-Ouagadougou	32	63	18	104	59
Burkina Faso	10	12	14	26	45
Côte d'Ivoire	22	51	4	78	14
Ouagadougou-Abidjan	7	29	15	21	11
Burkina Faso	2	3	11	1	8
Côte d'Ivoire	5	26	3	20	3

— *SOURCE: WATH 20th Road Governance Report (Q2- 2012).*

Table A-7

Abidjan-Bamako Road Performance Indicators, April to June 2012

Corridor/ Country	Controls per Trip	Bribes per Trip (US$)		Delays per Trip (minutes)	
		On the Road	At the Border	On the Road	At the Border
Abidjan-Bamako	39	71	27	201	111
Côte d'Ivoire	19	33	8	74	53
Mali	20	38	19	127	58
Bamako-Abidjan	7	15	18	36	8
Côte d'Ivoire	2	2	16	11	2
Mali	5	13	2	25	6

— *SOURCE: WATH 20th Road Governance Report (Q2- 2012).*

Ouagadougou–Niamey Spur

Because Nigerien shippers trade most of the cargo from the Ports of Cotonou and Lomé, there is little traffic between Ouagadougou and Niamey. The 534 km of road linking the two capitals is in good condition and can eventually transport shipments from the Port of Abidjan. See Table A-7.

Table A-8
Ouagadougou–Niamey Road Route

Road Link	Length (km)	Terrain	Surface		Lanes	Congestion	Speed (km/hr)
			Type	Condition			
BURKINA FASO							
Ouagadougou–Koupéla	142	Flat	Paved	Good	2 x 1	Light	30-40
Koupéla–Fada N'grourma	81	Flat	Paved	Good	2 x 1	Light	35-45
Fada N'grourma–Kantchari	171	Flat	Paved	Good	2 x 1	Light	40-50
Total	394						
NIGER							
Kantchari -Burkina Faso/Niger Border	20	Flat	Paved	Good	2 x 1	Light	35-45
Burkina Faso/Niger Border–Torodi–Niamey	120	Flat	Paved	Good	2 x 1	Heavy	35-45
Total	140						
Total Corridor	**534**						

— *Source: Consultant's inventory- December-October 2012.*

Although Abidjan–Ouagadougou–Niamey is not an official UEMOA corridor, the Port of Abidjan, the Société Internationale de Transport Africain par rail (Sitarail), the Burkina Chamber of Commerce, and Burkinabe Customs have made plans to regain 30 percent of the Niger traffic lost during years of political crisis and to support its ambitious growth goal of 30 million tons by 2015. In 2009 they conducted a year of trial shipments of mainly rice, flour and fertilizer; in 2010 they implemented a new multimodal system that is more secure, cost-effective, and reliable. It includes (i) rail transportation from Abidjan to Ouagadougou, (ii) a container logistics platform in the Ouagadougou rail terminal, and (iii) 508 km of road transportation that links Ouagadougou and Niamey. Political unrest in 2011 in Côte d'Ivoire constrained this ambitious logistics project, which may be revived by the Port of Abidjan sometime in the future.

BORDER POSTS

Ivorian-Burkinabe Border

Trucks with transit cargo destined to Burkina Faso stop at Ouangolodougou, Côte d'Ivoire, to have their declarations processed by Customs. The Chamber of Commerce, the national

guarantor in charge of customs bonds and truck tracking, installs a tracking device at the port so the truck travels to the border without escort. A Customs office also operates at Ouangolodougou railway's station for cargo traveling by rail. The Ivoirian border post is at Ouangolodougou, 30 km from the border city of La Léraba.

The Burkinabe border post is at Niangoloko, 30 km from La Léraba border. At the Burkinabe border, the Customs office at Niangoloko partially processes the customs transit declaration and cargo must proceed to inland facilities for final clearance. Customs escorts for trucks not carrying containers are organized twice a day (11h–15h) to Bobo Dioulasso or Ouagadougou inland terminals. A customs' office is also located at Niangoloko's rail station for cargo entering by train to Burkina Faso.

Ivorian-Malian Border

The Côte d'Ivoire customs border post is in Pogo, 2.5 km from the actual border with Mali. It processes the customs clearance and organizes two escorts daily (11 a.m. and 3 p.m.) to the border for non-containerized transit cargo. Mali's customs border post is at Zegoua, 3.4 km from the border with Côte d'Ivoire. It organizes escorts to Sikasso, where all trucks that are not empty are scanned.

DRY PORTS AND INLAND TERMINALS

Burkina Faso

There are two dry ports in Burkina Faso, at Bobo Dioulasso , and an inland rail clearance and transit terminal for international traffic arriving to Ouagadougou by rail.

Boborinter

Started in January 2010, the Gare Routiere Internationale de Bobo Dioulasso—or Boborinter—is an international road terminal and dry port built on 120 hectares connected to the Abidjan–Ouagadougou railway. It is managed by Chambre de Commerce d'Industrie et d'Artisanat du Burkina Faso (CCIA BF) and includes warehouses, a container terminal run by Terminaux Routiers à Conteneurs du Burkina Faso (TRCB), [47] customs offices, and service providers from government agencies and the private sector.

Ouagarinter

Ouagarinter is the road clearance and transit terminal for international traffic in Ouagadougou and is managed by CCIA BF. The terminal covers 26 hectares and includes a container terminal run by TRCB and managed by Bolloré Africa Logistics; 15,000 square meters of warehouses, including 5,000 square meters of customs bonded warehouse space; customs offices and other government agency services; and 15,000 square meters for

[47] TRCB is a handling company owned by CCBF (40 percent), Bolloré Africa Logistics (35 percent), and three shipping lines (Maersk, MSC, and GETMA—15 percent). TRCB manages two terminals, one at Ouagarinter and the other at Bobo Dioulasso road terminal.

maneuvering and parking. All containers not in transit to other inland landlocked destinations (Niger or Malicoming from Lome) must be offloaded at TRCB.

Ouagagare

Ouagagare, managed by the Chambre de Commerce et d'Industrie du Burkina Faso (CCIA BF), is an inland rail clearance and transit terminal for international traffic arriving to Ouagadougou by rail. The terminal includes a container terminal run by SETO (Société d'Exploitation du Terminal de Ouagadougou), owned by Bolloré, CCIA BF, Maersk and the Burkina Shipper's Council. SETO is managed by Bolloré Africa Logistics.

Mali

The international road terminal in the Bamako District is named Faladie terminal. This is the main Customs office in Bamako and is in charge of inspection and clearance of all bonded foreign cargo. The Customs office in Faladie is being renovated and modernized under the Facilitation of Transport and Transit in West Africa project.

• INLAND CARGO PROCESSING

Burkina Faso

The inland transit trip along these two corridors utilizes a GPS device to keep track of the transit cargo destined to Burkina Faso or Mali, while it is in Ivorian territory. After customs formalities are completed at the Port of Abidjan, the Chamber of Commerce of Burkina Faso, the national guarantor in charge of Customs bonds (FGR) and truck tracking, installs a tracking device at the port so the truck can travel to the actual border without Customs escort. The tracking device is collected back at the border in Ouangolodougou or Pogo respectively. Once cargo is processed at the Ivorian border, trucks proceed to the landlocked country border.

Cargo destined to Burkina Faso proceeds to Niangoloko where the clearance process begins and cargo information is entered into Customs system. Customs convoy escorts for trucks which are not carrying containers are organized twice a day (11h00 and 15h00) to continue their trip to Boborinter or Ouagarinter, where all cargo entering the country is finally cleared and cargo is released to continue the trip final inland destination. Cargo traveling by rail is partially processed by the customs office located in the Niangoloko rail station and final clearance is performed at Ouagagare.

Mali

The international road terminal in the Bamako District is Faladie terminal. The main customs office in Bamako, it inspects and clears all bounded foreign cargo. The office is being renovated and modernized under the Facilitation of Transport and Transit in West Africa project. Cargo destined to Mali, is processed at Pogo and the Customs office organizes two convoy escorts daily (11h00 and 15h00) to the actual border of Zegoua for non-containerized

transit cargo. From there, Customs convoy escorts are organized to Sikasso where all non–empty trucks are scanned.

- **RAILWAY OPERATIONS ALONG THE CORRIDOR**

The railway is operated by Sitarail, a logistics company which manages the container terminal in the Port of Abidjan. Sitarail is a consortium owned by the governments of Côte d'Ivoire and Burkina Faso (15 percent each), the French group Bolloré (67 percent), and Sitarail staff (3 percent). It manages railway operations from Abidjan to Ouagadougou. In mid-1995, it was granted a 15–year concession to operate the national railways of Côte d'Ivoire and Burkina Faso, and in 2001 secured a 15-year extension. Activities are regulated according to established, legally enforceable contracts between Sitarail and the governments of Côte d'Ivoire and Burkina Faso, which own the infrastructure and rolling stocks. The operation of the railway is part of an arrangement with the concessionaire of the container terminal in the Port of Abidjan. This arrangement and the operator's logistics interests have resulted in a railway that contributes to well–integrated logistics service throughout the region.

In Burkina Faso, the inland container terminal that performs physical operations at the rail terminal is run by Societe d'Exploitation du Terminal de Ouagadougou (SETO), a company owned by Bolloré group and Maersk.

The railway network is in relatively good condition and is comprised of 1,263 km of mainline linking the Port of Abidjan to the capital of Burkina Faso, Ouagadougou, via Bobo Dioulasso with the final stop at Kaya, 100 km northeast of Ouagadougou. The gauge is metric (1,000 mm) and there are 622 km of railways in Burkina Faso. Sitarail organizes three daily departures from Abidjan and 95 percent of shipments are loaded at SETV terminal in the port (container and bulk), where there is a side rack. Waiting time for loading at the port can be up to 10 days and the trains reach Ouagadougou 48 to 55 hours after departure, providing reliable service during normal operations.

In 2001 Sitarail transported over a million of tons of cargo which at that time represented more than 70 percent of the total volume transported to Burkina-Faso. Nine years later, in 2010, Sitarail transported 934,000 tons which represented more than 80 percent of the total volume to Burkina-Faso during that year.

Sitarail is planning to invest in rolling stock and infrastructure to support growth. By the end of 2012, 97 new wagons equivalent to a transport capacity of 105,000 tons will be added to the current 23 locomotives and 900 wagons. Sitarail also created two container terminals in Ouagadougou and Ferkessedougou, and cotton platforms in Abidjan and Bobo Dioulasso.

The success of rail transport in the Corridor comes from the time reliability (48h to 55h) between Abidjan and Ouagadougou, the security and the relatively lower fixed tariff offered by Sitarail (see transport prices below).

Table A-9
Abidjan-Ouagadougou Rail Route

Rail Link	Length (km)	Terrain	Surface Condition	No. of Tracks	Speed (km/hr)
Port of Abidjan-Bobo Dioulasso	814	Flat	Flat	2	35-45
Bobo Dioulasso-Ouagadougou	349	Flat	Flat	2	35-45

— SOURCE: *PIDA Study road inventory, 2011. Interviews 2012.*

Mali

For goods destined to Mali, the railway system is the same as in the Abidjan-Ouagadougou corridor, but there is an alternative to the road route to Abidjan. Transit cargo inbound to Mali can use the railway to Ferkéssédougou, Côte d'Ivoire (about half the distance to Bamako from Abidjan), and then be loaded onto trucks for the final destination. Because of a lack of rolling stock, however, Sitarail is not accepting goods for unloading at Ferkéssédougou en route to Mali. Therefore, all Malian shipments from Abidjan travel by road.

SYSTEMS FOR TRANSIT CARGO TRANSPORTED BY ROAD

Burkina Faso

Ivorian Customs has upgraded its declaration system from ASYCUDA to ASYCUDA World, replaced paper TRIE books with road transit transport declaration forms, and replaced escorts with satellite tracking devices attached to each transit truck. This system is managed by the Chamber of Commerce, which also implements the ECOWAS IRST customs guarantee bond system (Fond de Garantie Routier), with a one-time payment of 0.5 percent of the cargo customs value.

In general, road transport is no longer subject to the cargo freight sharing rule (1/3–2/3) and shippers are free to find a suitable Ivorian or Burkinabe truck to transport transit cargo. Shippers who cannot find a truck or who do not have a direct contract with a trucking company are assisted by the Burkinabe shipper council and truckers associations which will apply the cargo sharing system between Côte d'Ivoire and Burkina.

Mali

Road transport from the Port of Abidjan to Mali involves Ivorian and Malian customs, both of which have offices inside Abidjan Port, and the Malian shipper's council. Côte d'Ivoire Chamber of Commerce collects a single customs guarantee bond (FGR) covering Côte d'Ivoire and Mali. They also attach a satellite tracking device on each transit truck to monitor the cargo's departure from Ivorian territory. The national quota system for trucks carrying transit cargo is no longer being implemented for cargo going to Mali, so shippers are free to use any West African truck to transport transit cargo.

Cotonou-Niamey Corridor

The Cotonou-Niamey corridor is primarily a 1,070 km long road corridor which starts from the Port of Cotonou and passes through the border posts of Malanville in Benin and Gaya in Niger on the way to Niamey. This transit corridor once included rail service from Cotonou to Parakou (in Benin), but service was stopped in 2000. Below we describe infrastructure by mode.

- **COTONOU PORT**

Commissioned in 1965, the Port of Cotonou is Benin's main port and is the main port serving Niger, carrying two-thirds of the commercial traffic to and from Niger. It is managed by the Port Authority of Cotonou, a public corporation conducting industrial and commercial public activities as a legal entity with financial autonomy.

The Port of Cotonou consists of two commercial terminals. The north terminal has five berths for general cargo (including one for heavy cargo), two berths for container handling, and one berth for ro-ro cars, trailers, all types of vehicles, and rolling stock. Most berths have a draft of 9 meters to 10 meters, which limits the size of ships that can be handled there compared with other ports in West Africa. Managed by Bolloré, the south terminal has three berths and handles hydrocarbon and liquefied petroleum gas.

The port's container terminal has handling facilities and storage areas, as well as storage for break bulk cargo, gas, gasoline, and used vehicles. Surrounded by the city, the port is congested and reached nominal capacity years ago. There is little space outside the port and trucks cause heavy congestion. With resources from the Millennium Challenge Account, the port is investing in two new berths, deepening the channel and optimizing space on the landward side to relieve this congestion.

In August 2009, the Bolloré Group won a 25-year concession for the construction of a new container terminal (the "Benin Terminal") at the south quay next to the hydrocarbon terminal. The terminal has been allocated 16 ha and the depth (water draft) will be 14 meters (with maximum draft capacity of 15 meters). Bolloré will add two berths as well, and will.

The Government has just signed an agreement with Solutions Technologiques pour le Transport au Bénin (STTB) to help control the flow of trucks in the city of Cotonou.[48] Benin has also implemented an electronic single window system (System Electronique du Guichet Unique Béninois (SEGUB)) and hired Société Bénin Control (SBC) to value goods before customs declaration. The perception is that processes are slower now than before, but that in the medium term, cost and time to clear customs will be lower. The SEGUB remains in place but the services of BENIN CONTROL have been suspended.

[48] At the time of this study STTB system is not operational.

The port is also affected by pirates from Nigeria, who take advantage of their proximity to act in the neighboring country. This is why ships that have to anchor while waiting for a berthing window instead go to the Lomé Port Harbor.

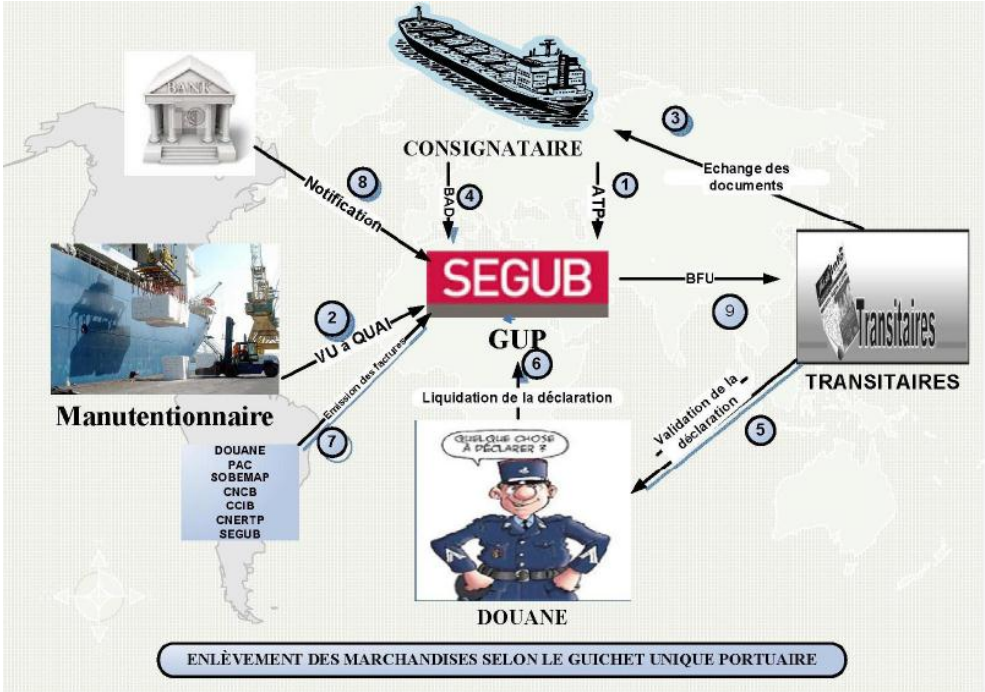
- ## CARGO PROCESSING IN THE PORT

Most commercial activities at the Port of Cotonou are handled by public institutions, such as the Port Authority. Concessions have been granted to private operators for stevedoring at the container terminal including ship handling and yard operations, cargo storage and transfers to privately run yards and container depots, or transport to the domestic market or the hinterland.

When a cargo-bearing ship arrives at the port it is met by the Harbor Master's pilot at the anchorage area. From there it is piloted to berthing under the control and with the help of tug boats. Once the ship is docked and legal controls have been carried out, import cargo is offloaded and export cargo loaded. Cargo is stored in the yard or in special warehouses while the importer's customs clearing agent or freight forwarder initiates customs clearance. After clearance, the freight forwarder and the transporter remove cargo from the port. Cargo dwell time at the port is measured in days, from the day cargo is offloaded from the ship to the day it leaves the port.

To appreciate the time and the cost of getting cargo through the port of Cotonou, we trace below all transit steps, official and otherwise, and the complications arising therefrom. Clearing phases vary with cargo destination and type (import or export). We note first that the Port of Cotonou makes good use of its new electronic single window, System Electronique du Guichet Unique Béninois (SEGUB), in clearing cargo (see Figure A-1).

Figure A-2
Single Window SEGUB in Port of Cotonou



— *Source: SEGUB.*

Clearance of cargo destined for hinterland countries includes the following steps:

Provide customs declaration with transit documentation
Pay dues and deposits
Obtain the Bon à Délivrer (BAD)
Consolidate loads onto trucks if necessary
Obtain exit pass for the truck to remove the cargo
Head for the country of destination.

Unofficial fees are usually collected whenever a cargo-handling tool, such as a reach stacker, is in short supply, during time-critical processes, and whenever a signature or a release authorization is required. Most charges are negotiable. The clearing agent, for example, offers a low amount while the authority holds out for a higher amount. Negotiations end when the amount is averaged; the authority is happy when pocketing half of the difference. Exhibit A-1 details bribe points in customs and stevedoring processes.

Exhibit A-2
Bribery Points and Amounts in Customs and Stevedoring Processes at the Port of Cotonou

CUSTOMS CLEARANCE

Positioning container for breaking of seals for customs control: 10,000 to 15,000 FCFA.

Value of declared goods not respected, negotiation with the Customs General Cashier: 50 percent of difference between agent's declaration and customs' assessment.

Exit of cargo to be validated by customs: 1,380 FCFA.

Correction of "errors" on customs declaration: 50 percent of difference of value.

Integral inspection when required; if differences are encountered: 50 percent of difference of value.

STEVEDORING

To get containers or cargo ready for inspection at the designated zones, the clearing agent often bribes schedulers, equipment handlers, and drivers.

Paying for "priority and special care" service so cargo is positioned in the control area when handling resources are scarce.

Received a report of the payment of 60,000 FCFA to get 18 containers readied for customs inspection at one of the stevedores. When only half of that number has been made available by the required time, and yet, the accountability is no longer in question … to "position" the rest may yet take another bribe to accomplish.

Repositioning of containers after inspection can cost anywhere from 10,600 FCFA to 31,600 FCFA when negotiated among three stevedoring companies.

Exit pass (bon de sortie) after container stripping: 10,000 FCFA.

Storage of cargo in the terminal is always negotiated despite the tariffs applied.

CITY CONTAINER DEPOT

In August 2007, Maersk established a container depot near the port through its APMT arm (COMAN). This city container depot (CCD) operates as an extension of the port yard, such that containers and cargo are still under customs' control. Containers are transferred from the port by train and undergo customs clearance at the CCD. Oftentimes, however, containers are stripped at the port, worsening congestion, and multi-axle trucks are then loaded with cargo consolidation. At the time of this study, the CCD had been operational for three months.

ROAD NETWORK

Since 1999, Niger's roads have been maintained by Caisse Autonome de Financement de l'Entretien Routier (CAFER), whose funding comes from road tolls and the 30 FCFA per liter tax on fuel. A control system for road conditions and a toll-scale based on axle-load have been introduced under Regulation No. 014-2005/CM/UEMOA. Conditions on the road from Niamey to Cotonou are summarized in Table A-9. On the basis of our field inventory, we

conclude that a bare majority of the corridor's road sections (57 percent) are in good or fair condition while 43 percent are in bad or very bad condition, where the average truck speed does not exceed 20 to 30 kph.

Table A-10
Cotonou-Niamey Road Route

Road Link	Length (km)	Terrain	Surface		Lanes	Congestion	Speed (km/hr)
			Type	Condition			
BENIN							
Port of Cotonou-Allada	60	Flat	Paved	Fair	2 x 2	Heavy	25-35
Allada-Bohicon	80	Flat	Paved	Very Poor	2 x 1	Heavy	10-20
Bohicon-Parakou	320	Flat	Paved	Good	2 x 1	Light	50-60
Parakou-Bembereke	100	Flat	Paved	Good	2 x 1	Light	50-60
Bembereke-Kandi	100	Flat	Paved	Good	2 x 1	Light	50-60
Kandi-Malanville	100	Flat	Paved	Good	2 x 1	Light	50-60
Malanville-Gaya	5	Flat	Paved	Good	2 x 1	Heavy	5-15
Total	765						
NIGER							
Gaya-Dosso	180	Flat	Paved	Very Poor	2 x 1	Light	25-35
Dosso-Niamey	125	Flat	Paved	Good	2 x 1	Light	50-60
Total	305						
Total Corridor	1,070						

— *Source: Consultant's inventory- December-October 2012.*

Control Points

The number and location of checkpoints along the corridor varies by the time of day and year, weather conditions, etc. The average number of checkpoints and the loss of time associated with each are summarized in Table A-10.

Table A-11
Informal Payments and Idle Time at Checkpoints

Indicators	Minimum	Average	Maximum	Range
ROAD CHECKPOINTS				
Number of road checkpoints in the corridor	4	6	9	5
Hours consumed at checkpoints (total)	5	8	10	5
AXLE LOAD CONTROLS				
Number of axle load controls	1	1	1	0
Hours consumed at control points	2	3	4	2

— *Source: Nathan Associate's estimates, March 2012.*

SYSTEM FOR TRANSIT CARGO TRANSPORTED BY ROAD

Customs clearance is handled only by licensed agents with access to SYDONIA++. The clearance process is as follows:

The clearance agent obtains the bill of lading (BL) from the shipping agency, which delivers the bon a délivrer (BAD).

The shipping agency electronically transmits the information to all parties:

Système de Guichet Unique du Bénin (SEGUB)
Port Customs
Port Authority
Société Béninoise des Manutentions Portuaires (SOBEMAP)

On the basis of cargo data, SEGUB calculates invoices that the clearance agent will pay to one of two banks (BOA, ECOBANK) and the agent receives a bordereau de fichier unique (BFU EMIS).

Once the payment is made, SEGUB gives the agent a BFU OK, which means clearance, may proceed.

Trucks enter the port, give the truck manager a bon a charger (BAC), and load cargo. Loading must be done in six hours or the truck is penalized.

A military agent follows each loaded truck to Malanville. The clearance agent is charged 99,946 FCFA per truck (about US$190) for each escort.

If a military escort is not available, trucks are parked outside the port to GLO parking (10 km from the port) and within two days maximum a military escort will be available. It is expected that an electronic system will soon eliminate the escort system.

In general, shipper and transporters appreciate the current system. Once you have a military agent on your truck, you are safe from fraud and incidentals.

Because the one-third/two-thirds quota system is still enforced, Nigerien importers may not choose their transporter, Nigerien or not.[49] In addition, "strategic cargo" is supposed to be allocated entirely to Nigerien truckers. But a large volume of all cargo and strategic cargo is transported by Beninese trucks registered in Niger and employing Nigerien drivers.

RAILWAYS

Formed to handle cargo going to Niger, the Benin_Niger Common Railway Organization is a joint venture between Benin and Niger. Original activities and infrastructure developed for this purpose date from 1900. The rail infrastructure included a line from Cotonou to a terminal in Parakou, about 438 km from the port and 650 km from Niamey. Cargo was transferred from rail to trucks in Parakou to continue the trip to Niger. Currently, rail services are not operational for transit cargo, and little domestic cargo is handled by rail. All transit

[49] Benin no longer enforces the "tour de role" system.

cargo is carried by trucks. There are discussions about reviving the rail service and extending the rail all the way to Dosso in Niger.

BORDER POSTS AT BENINESE-NIGERIEN BORDER

The first border post between Benin and Niger is Malanville, 760 km from Cotonou and the last city in Benin. Goods are escorted from the port by customs under cover of a customs document to Malanville. While formalities are carried out in Malanville, trucks stay in a 10 ha privately managed parking area (usually one day).[50] They then travel 15 km to the Nigerien border at Gaya and park in a controlled lot while freight forwarders retrieve documents for clearance by customs. The trucks are then released under Customs escort to Niamey. The truck fee for the escort is US$50. All cargo is finally cleared at the customs office in the capital, Bureau des Douanes Niamey Rive Gauche. There is a substantial amount of smuggling in this corridor for goods transiting to Nigeria without transit documentation (See Chapters 3 and 7).

- ### INLAND CARGO PROCESSING

The inland cargo processing in this corridor is simpler than for other corridors, since there are currently no dry ports and no special inland terminals, although there are Customs escorts required in both Benin and Niger. Once cargo leaves the port where most container stripping and cargo consolidation onto trucks takes place, the main activity occurs at the border posts and for customs clearance at the main office in Niamey. A dry port is currently being constructed at Dosso, 125 km from Niamey.[51]

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[50] Two-thirds of a joint customs area at Malanville has been constructed.

[51] The wall is finished and Niger is expecting a private international operator to handle activities.

Douala-Ndjamena and Douala-Bangui Corridors

The two Douala corridors are multimodal in the sense that there is both a road and a rail/road option for transport along each corridor, as shown below. The Douala-Ndjamena corridor follows the road from Douala to Ngaoundéré and then to the Chad border post at Kousseri and on for a short distance to Ndjamena (a distance of 1,822 km). The rail/road route takes the railway from Douala to Ngaoundéré and then continues by road to Ndjamena. The Bangui route branches off at Yaoundé and passes through the border posts of Garoua Boulai (Chad/Cameroon) and Bekay (Chad)/Bedayo (CAR). It is 1,410 km long. The current infrastructure is described below by mode.

DOUALA PORT

The Port of Douala is very well located in Central Africa with strong competitive advantage to serve as the gateway of choice serving a natural hinterland including, in addition to its domestic market, the markets in the Central African Republic (CAR), Chad, the Republic of Congo, the Democratic Republic of Congo, Gabon, Equatorial Guinea and Nigeria.

The Port of Douala is one of the largest ports in West and Central Africa and is Cameroon's main maritime outlet for landlocked Chad and Central African Republic (CAR). It handles more than 95 percent of imports and most exports. Due to the relatively large size of Cameroon's economy, the port handles predominately domestic traffic - transit traffic only represents 11 to 14 percent of the total traffic as shown in Table 3-1 of Chapter 3.

The port was commissioned in 1999, and is managed by the Port Authority of Douala, a state-owned enterprise responsible for the container terminal, assisting with ship reception, multimodal logistics, and port promotion. Since 1998 the government has invested more than US$195 million in port facilities and handling equipment. The port has partnership programs and agreements with international ports (e.g., Marseille, Genova, Philadelphia, Rouen, Le Havre, Abidjan, San Pedro, Nouakchott, and ODEP of Morocco) and is a member of several associations, such as the Port Management Association for West and Central Africa, the Pan-African Association for Port Cooperation, and the International Association of Ports.

The port has 19 berths and a relatively shallow draft of 10 meters due to its location at the mouth of the Wouri River. It contains a container terminal with 3 berths which has container handling facilities and storage areas nearing capacity as well as a substantial terminal devoted to the import and export of crude oil and petroleum products and adequate storage for break bulk cargos, and specialized bulk terminals.

A special berth at the "BOSCAM" quay has been especially dedicated to receive traffic destined to the countries of West and Central Africa. The BOSCAM quay is the center of high international coastal trade activity. The transit traffic to Chad and the CAR is the most important for inland transport.

The Port of Douala has a functional reserve of 1,000 hectares, of which only 60 percent is being used. The port includes the following:

13 multipurpose warehouses (equivalent to 66,000 m2), a reception capacity of 7.5 million tons, and yards with up to 11 million tons of cargo storage capacity and specialized facilities

10 km of linear quay with several berths having infrastructure with reception capacity of 7.5 million tons

20 km of asphalted roads linking the port to the natural hinterland

20 km of railway linking the port to the national Trans-Cameroon rail road system, which connects Douala to North Cameroon with road extensions to Chad and CAR

9 berths for general purpose cargo and 3 for handling container ships

Several warehouses for longer dwell time cargo

2 logistics zones for petroleum products

Several terminals dedicated to traffic of special products and activities

An industrial zone on the right bank of the Wouri River.

Despite this considerable spatial capacity, the port of Douala suffers from an exiguity along the quays for working and maneuvering spaces for as the city expansion confines the port to a narrow stretch of land along the left bank of the Wouri River. Now, most transit containers are stripped in the port and the contents transferred to trucks as break-bulk cargo.

- **CARGO PROCESSING IN THE PORT**

Upon arrival of the ship in the Port of Douala carrying the cargo, it is met by the Harbor Master's pilot at the anchorage area from where it is piloted to berthing under the control and with the help of the tag boats. Once the boat is docked and the controls have been carried out on board, the operations of offloading the import cargo and loading the export cargo start.

The cargo is stored in the yard or in specialized warehouses while the process of Customs clearing is being carried out by the importer's Customs clearing agent or freight forwarder.

Once the Customs clearing agent or freight forwarding agent is done with the clearing process, the freight forwarder and the transporter proceeds to remove the cargo from the port after a certain dwell time measured in number of days the cargo stays in the port between the day when it is offloaded from the ship and the day when it leaves the port.

To measure and analyze the time and the cost it takes to transit cargo through the port, one has to follow the different phases involved in the cargo transit process through the port and focus on the phases and steps involving time, costs whether legitimate or unofficial, and the complications. The phases are different according to the destination of the cargo, for imports or for exports.

Imports

Ship at anchorage with the import cargo on board

Ship being ushered to the berthing with import cargo on board

Domiciliation and pre-shipment inspection and controls being conducted on board

Ship berthing at quay and import cargo being unloaded

Import cargo being transferred under Customs regimes to the yard, to the terminal or the warehouses for temporary storage, pending Customs clearing procedures

Start the process of declaration and clearing the cargo out of the port

Here, a distinction should be made between the domestic and the transit to hinterland destination. For the cargo destined for local domestic consumption the process of Customs clearing continues.

Transit to Hinterland Markets

Introducing a pre-clearance of the cargo with the Hinterland Country's authorities, if any,

Payment of the different taxes and duties

Obtaining the BAD (Bon à Délivrer)

Obtaining the transit documentation and the cargo tracking tags (GPS)

Obtaining the exit pass and the transit pass for the truck carrying the cargo

Head for the borders

Exports

Negotiation with the Shipping Line or its representative to book a slot for the cargo,

The ship calling the Port of Douala is confirmed

Introduction of Customs declaration for export

Payment of the different taxes and duties,

Obtaining the MAQ (Mise à Quai) for the cargo

Obtaining the entrance pass for the truck carrying the cargo

Head for the temporary storage at the quay, on the yard, or at the warehouses for unloading

Once the ship is ready to receive the cargo, it is loaded onto the ship by the stevedore

The ship is ushered by the harbor masters services out of the port

In this case, from the perspective of customs procedures, there is no fundamental distinction between the domestic and the transit to hinterland destination cargo. The only difference resides in the amount of costs being paid to the different institutions and organizations.

SINGLE WINDOW, ONE-STOP SHOP SYSTEM

The Port of Douala introduced the use of a one-stop shop information technology system to facilitate the foreign trade transactions. The system is called GUCE (Guichet Unique du Commerce Extérieur), a process designed for cutting down costs and time wasted on

import/export transactions at the Port of Douala through a quicker and fluid circulation of documents and forms used by the stakeholders involved at the port.

The objectives of the GUCE System are:

Guarantee continuity in business transactions

Minimize the risks and time loss by bringing together all parties involved in foreign trade

Speed-up the exchange and processing of files related to the cargo clearing

Optimize the benefits of electronic data interchange in the port environment

Keep operators and the authorities well informed on the nature and extent of procedures.

The single window system used for foreign transactions brings together most of the parties involved in foreign trade each running its own interface and subsystem of the overall GUCE System.

CARGO ALLOCATION

According to current agreements between countries, all goods in transit leaving or in destination to any of the three countries is subjected to a distribution among existing transport vehicles, depending on the country of origin of the vehicle. These ratios are fixed at 65 percent and 35 percent respectively for Chadian and Cameroonian operators on the Douala–Ndjamena corridor and, 60 percent and 40 percent for CAR and Cameroon vehicles on the Douala – Bangui branch of the corridor.

This measure, taken as a bilateral agreement between countries was originally set up as an incentive for the development of national freight transportation system. However, according to the staff of freight management bureaus of Chad and CAR (BNF and BARC), the targeted ratios have never been respected on the field, due to many reasons including (see paragraph on transport prices). In 2009 for example, Cameroonian transporters obtained the most important share of vehicles ratio for freight transportation with 67 percent and 71 percent on the Douala–Ndjamena and Douala–Bangui corridors respectively. According CAR and Chadian Freight management bureaus, these figures have not changed despite the observed tendency of the renewal of Chadian fleet.

TRAP OF CLEARANCE DELAYS BY SHIPPERS

On arrival of freight at the Port of Douala, shippers are given a maximum of 11 days to complete administrative procedures. Longer than this, shippers must pay extra charges, including for demurrage and container stripping and stuffing. The daily amount to be paid depends on the type of container (5,200 FCFA for a 40-ft container and 3,800 FCFA for a 20-ft container). Because of the generous number of days allowed, shippers do not hurry when dealing with customs clearance. According to shippers interviewed, they seem comfortable with the deadline, and given the penalties applied when the deadline is not respected, they take their time and are willing to pay extra charges. But with shippers' lingering in port, port

congestion increases, reducing the storage capacity of the port, and increasing logistic costs in the entire system.

ROAD NETWORK

The Douala-Ndjamena corridor is more than 1,800 km long and most roads are in good to fair condition or are being rehabilitated. The Douala-Bangui corridor is 1,410 km long and some sections are in very poor condition and need rehabilitation. According to field inventory and trucker interviews (summarized in Table A-11), 76 percent of Douala-Ndjamena road sections and 98 percent of Douala-Bangui road sections are in good or fair condition and the rest are in poor or very poor condition, where the average truck speed does not exceed 20 to 30 kph.

Road maintenance is the responsibility of the Ministry of Public Works in each country. Works are financed by different sources, including state budget and bilateral cooperation. Each country has a road maintenance fund financed by fuel levies, tolls, and penalties imposed on road users.

All traffic to Chad, road or rail, passes through Ngaoundéré.[52] Since the Ngaoundéré (Cameroon)–Moundou (Chad) road section (382 km) of the corridor was paved in 2007, a large portion of the traffic reaches Ndjamena through the northeastern route (Adamaoua region of Cameroon) via Touboro–Koutéré–Moundou–Kélo–Bongor–Guélendeng. The rest follows the far northern way through Kousseri (730 km and last Cameroonian city) before reaching Chad's customs offices (7 km beyond).

Table A-12
Central Africa Corridors Road Route

Road Link	Length (km)	Terrain	Surface		Lanes	Congestion	Speed (km/hr)
			Type	Condition			
DOUALA–NDJAMENA							
Port of Douala-Yaoundé	253	Flat-Hilly	Paved	Good	2 x 2	Heavy	40-50
Yaoundé-Bertoua	318	Flat	Paved	Good	2 x 1	Light	40-50
Bertoua-Garoua Boulai	248	Flat	Paved	Good	2 x 1	Light	40-50
Garoua Boulai-Meiganga	108	Flat	Paved	Fair	2 x 1	Light	25-35
Meiganga-Ngaoundéré	157	Flat	Paved	Good	2 x 1	Light	50-60
Ngaoundéré-Garoua	278	Flat-Hilly	Paved	Poor	2 x 1	Heavy	30-40
Garoua-Maroua/Ngueli	190	Flat	Paved	Fair	2 x 1	Heavy	30-40
Maroua/Ngueli-Kousseri	260	Flat	Paved	Very Poor	2 x 1	Heavy	15-25
Total in Cameroon	1,812						
Kousséri–Ndjamena	6	Flat	Paved	Good	2 x 1	Heavy	15-25

[52] Located 1,084 km by road and 884 km by railway from Douala.

Road Link	Length (km)	Terrain	Surface		Lanes	Congestion	Speed (km/hr)
			Type	Condition			
Total Corridor	**1,818**						
DOUALA – BANGUI							
Port of Douala-Yaoundé	253	Flat-Hilly	Paved	Good	2 x 2	Heavy	40-50
Yaoundé-Bertoua	318	Flat	Paved	Good	2 x 1	Light	40-50
Bertoua-Garoua Boulai	248	Flat	Paved	Good	2 x 1	Light	40-50
Garoua Boulai-Baboua	71	Flat	Being Paved	Good	2 x 1	Light	30-40
Total in Cameroon	890						
Baboua-Bouar	125	Flat	Being Paved	Good	2 x 1	Light	45-55
Bouar-Baoro	65	Flat	Gravel	Poor	2 x 1	Light	15-25
Baoro-Bossemptele	115	Flat	Paved	Good	2 x 1	Light	40-50
Bossemptele-Yaloke	90	Flat	Paved	Good	2 x 1	Light	40-50
Yaloke-Bossembele	85	Flat	Paved	Good	2 x 1	Heavy	30-40
Bossembele-Bangui	200	Flat	Paved	Good	2 x 1	Heavy	40-50
Total in CAR	680						
Total Corridor	**1,570**						

— *Source: Consultant's inventory December to October 2012.*

AXLE LOAD ENFORCEMENT

In the CEMAC zone, admissible axle load is fixed at 13, 21 and 27 tons respectively for single, double and triple-axel vehicles.[53] According to national freight management bureaus, this target is exceeded in 40 percent of the vehicles serving these corridors, resulting in rapid deterioration of road infrastructures. However, operators largely complain about the bad physical condition of some weigh stations along corridors where, according to them, the loading capacity is given in a very arbitrary manner. Whatever the case, the respect and observance of technical requirements is required to sustain road assets and the overall logistics system. This can also result in extra expenses due to regular and expensive maintenance works, not including the losses encountered by shippers due to travel delays on corridors. It should be noted that the official axle load in the CEMAC region is greater than those fixed by other regional economic communities (10 tons and 11.5 tons for COMESA and ECOWAS respectively). This limit is not favorable to cross regional exchanges/trade.

USE OF GPS IN THE CARGO TRACKING SYSTEM

The use of a GPS system for tracking vehicles and freight en route to landlocked countries has been enforced by the Cameroonian customs since 2009. The objective[54] of this system was the

[53] The maximum load is 50 tons, the length is 18 m, the width is 2.5 m and the height is 4 m.

[54] The system aimed at : (1) avoid the doping of transit freight in national boundaries; (2) reduce transport delays and costs; (3) lighten road controls; iv) prompt release of customs guarantee; (4) improve customs incomes; (5) reduce conflicts with customs, etc.

development of sustainable management of transit freight with a destination out of Cameroon boundaries.

Despite the fact that this system has hugely contributed to reaching some of the targeted goals according to the national customs services of Cameroon, other stakeholders (operators, freight forwarders and shippers) still complain about the fact that this additional step of the transit freight clearing process is also an extra occasion to charge them more money. Moreover, with the lack/insufficient number of GPS units, there is a tendency to request illegal payments by those in charge of the management of the system. According to stakeholders met, they pay more (up to five times) than what is supposed to be paid (45,000 FCFA) if they want to be served in time.

According to some shippers, the GPS fixation process on vehicles takes an average of a week. Both the time and money spent during this stage of the clearing process is extra and negatively impacts the transit logistic chain by increasing total costs, and they don't see any direct importance for the destination countries. On the other hand, the lack of interconnection between customs stations/bureaus (checkpoints, border posts, etc.) is a great handicap for information sharing and decision making regarding the management of the GPS. The continuity of the service is not ensured at various terminals located in the landlocked countries.

SYSTEM FOR TRANSIT CARGO TRANSPORTED BY ROAD

Cameroon screens vehicles' documents, GPS tracking systems, and seals placed at the departure point. If no irregularities are found, a stamp testifying conformity is issued and the GPS is removed. Other institutions involved include the police, gendarmes, and agents of freight management bureaus (BNF or BARC). Thanks to the GPS tracking system established in 2009, trucks departing from Douala to landlocked countries are no longer physically escorted. Instead, a GPS is simply attached to the truck after all documents are provided and transit formalities are complete.

After crossing the border, vehicles and cargo are subject to the control procedures of Chad or CAR. This involves the same institutions as in Cameroon as well as agricultural and sanitary agencies, local councils, agents of the petroleum taxation board, etc. In Chad, vehicles arriving from Cameroon park at Ngueli platform to wait processing. In CAR, they park at PK12. Twice each day, CAR's national customs service escorts vehicles to the Bangui platform for processing.

RAILWAYS

The railway at Douala links the port to Ngaoundéré, through Yaoundé and Belabo, with a total network of 884 km. This infrastructure is a one-way and metric network, with rails of 36 kg and wooden crossings bars. The link between Batchenga–Ka'a (124 km) is in very bad shape and an improvement study is underway. The one-way route causes delays and

accidents on the network. There are six sites for loading and downloading cargo including two yards at the port and terminals in Bessengue, Yaoundé (for carbohydrates), Belabo (timbers), and Ngaoundéré.

CAMRAIL was born out of the privatization of the Cameroon National Railways, initiated by the Cameroon Government as part of an economic boosting policy. The privatization process which took off in January 1996 ended in January 1999 with the signing of a concession agreement. CAMRAIL effectively began activities on April 1, 1999. The concession agreement conceded to CAMRAIL technical and commercial management of the railway system; maintenance, renewal, development and the exploitation of railways infrastructure; and management of the railway estate.

CAMRAIL has three different loading/downloading areas in Douala (two in the port and one in the town) and three other sites in Yaoundé, Belabo and N'Gaoundéré. Small freight (and passengers) is transported on classic and semi-direct trains that link five different country regions (out of ten) on various frequencies. Large freight is transported on a full wagon basis.

For freight transportation, CAMRAIL owns a fleet of various wagon types including tanks (6 units); 20 to 80 ton capacity platforms for timber and containers (685 units), covered platforms of 50 ton capacity (277 units), tipcarts (tomberaux) for livestock (43 units) and other freights (41 units). In addition to this, the railway company manages a total of 34 line engines/locomotives and 23 operating locomotives. During the year 2012, a total of six locomotives (2,500 ph each) were acquired to improve the level of service offered.

Table A-13
Douala-Ndjamena and Douala–Bangui Rail–Road Routes

Corridor	Rail		Road		Road–Rail Length (km)	Road Route Length (km)
	Link	Length (km)	Link	Length (km)		
Douala–Ndjamena	Port of Douala–Ngaoundéré	884	Ngaoundéré–Ndjamena	741	1,625	1,818[a]
Douala–Bangui	Port of Douala–Belabo	602	Belabo–Bangui	670	1,272	1,570[a]

— *Note:* [a] *Via Garoua-Boulai*

— *SOURCE: MINTP, INC.*

- **INLAND CARGO PROCESSING**

Before entering the territory of landlocked countries, all vehicles are subjected to strict control by Cameroonian Customs. The conformity of all documents is screened as well as the GPS tracking system and the seals put on the vehicle at the departure point. A stamp testifying all conformities is put on them in case no irregularity is found and the GPS is removed; but in the reverse situation, both vehicles and their cargo are thoroughly checked by the customs bureau located at the country border. Apart from Customs agents, other institutions involved in the

control of conformities include: police, gendarmes and agents of freight management bureaus (BNF or BARC). After crossing the border, all vehicles and their freight are surrendered to control procedures carried out by landlocked country customs authorities. These authorities include the same as those on the Cameroonian side, in addition to agricultural and sanitary officers, local councils, agents from the petroleum taxation board, etc.

BORDER POSTS

There is only one border post along the Douala–Bangui corridor, at Garoua Boulaï–Béloko. There are three posts along the Douala-Ndjamena corridor between Cameroon and Chad:

5. The Nguéli–Kousséri border post on the Douala–N'Gaoundéré–Maroua–Ndjamena segment;

The Koutéré–Bogdibo post on the Douala–N'Gaoundéré–Touboro–Monudou–Ndjamena segment; and

The Léré post on the Léré–Figuil segment.

Each country contributes to border post control and management. Most administrative buildings (e.g., customs, police, freight management agencies, transporters associations) are not fully equipped and may lack permanent electricity, potable water, and sanitary blocs. The borders are open during working hours and night crossing is prohibited at some, such as at Ngueli. Chad's police supervise the barriers.

LOGISTICS PLATFORMS

Ngaoundéré

In Cameroon, the Ngaoundéré logistic platform (called Ngaoundéré Logistic) includes the following:

4 ha passenger station
6 ha complex of basic services and facilities
1 ha garage for CAMRAIL equipment maintenance
1.75 ha timber park
3 ha yard for GEODIS Chad-Cameroon Logistics (managed by TCL, a company in charge of construction of the Chad-Cameroon pipeline)
6 storage buildings totaling 20 ha
10 ha park of the Société de Manutention de Ngaoundéré (SMN)
8 quays (130 ml/quay) and 8 overhangs.

A parking facility belonging to the urban community of Ngaoundéré is managed by a private commissioner.

Nguéli

In Chad, 500 meters from the Nguéli Bridge and 7 km from Ndjamena, is the logistics platform of Nguéli, which includes a customs area, the Société de Manutention du Tchad

(SMT) park, external parking areas (for about 100 trucks), areas for cattle, and oil taxation offices.

There is no logistics equipment to facilitate freight transportation, movement, and maintenance. The platform is an open space with parking and several unfinished buildings for customs services. The parking area is almost always full, which causes congestion on the road going to the platform. Buildings are lightly equipped but in good physical condition. Electricity is provided by two generators.

Still under construction, the platform is managed by the SMT, a member of the Bolloré and CIVOME group, under a 10-year agreement that can be renewed once. SMT was formed to secure customs' incomes and goods, and improve transport fluidity and speed. The facility will include a 4,500 m² building for storage and administrative offices.

Bangui

Customs processes start at PK12, then trucks are escorted to Bangui station where processes are completed. The station consists of a physically secured parking area of more than 2,000 square meters with basic facilities (toilets, water). The platform has representatives of customs, the national freight management bureau (BARC), and the national transporters association (Groupement des Transporteurs Centrafricain). It is managed by BARC. Though a very wide space is reserved for parking, it is often insufficient during high and intense seasons.

WEIGH STATIONS

The Economic and Monetary Community of Central Africa (CEMAC) road code limits axle loads to protect road infrastructure: 13 tons for a one-axle vehicle, 21 tons for a tandem axle, 27 tons for a triple axle, and 50 tons for total loading weight. Weigh stations along both corridors include point bascule and axle scales.

In Cameroon, the Ministry of Public Works has 10 weigh stations (axle scales) on the Douala–Bangui and Douala–Ndjamena corridors. A renovation program for equipment and buildings at weigh stations has been launched in Cameroon to improve weigh station service.

CAR has two weigh stations along the Douala–Bangui Corridor: one at PK12 and the other in Bouar. The station at PK12 is difficult to run and will be replaced by one at PK26.[55] The Bouar station is scheduled to be moved to Béloko. The construction of two weigh stations is envisaged at Bossembélé and Baoro.

In Chad, the only fixed weigh station is at Walia. The Walia–Ngueli road extension project (with a two-way bridge) includes construction of another station and a weigh station is to be built at the Moundou exit, close to the Cameroon border (Koutéré). Mobile weigh stations are sometimes used.

[55] PK12 and PK26 are along the corridor at 12 and 26km, respectively, from Bangui.

CONTROL POINTS

According to bilateral agreements (dating to 1999), eight official checkpoints or "unique control points" exist on the Douala–Ndjamena corridor (seven in Cameroonian territory and one in Chad) passing through Kousseri. There are also six checkpoints located on the Douala–Bangui corridor (one is under construction) of which three are in Cameroon and three are in CAR. Each of these official control points is staffed by authorities and representatives in charge of transit freight control between the two countries including police, gendarmes, customs, and representatives of national freight management bureaus. However, the reality on the ground is very different in the sense that apart from these checkpoints, tens of control points[56] are found along corridors, and according to vehicle operators, their number keeps growing often reaching more than 120 controls at some periods of the year. The presence of these multiple control points is a serious matter as it is a source of extra expenses on the road which contributes to increases in the cost of transportation not only through the money left at these control points, but also considering the time spent/wasted by the transporter in dealing with these controls. Operators say they spend between 200,000 and 300,000 FCFA on a single journey.

TRUCK PARKING AREAS

Both corridors have parking facilities that belong to local councils and are managed by private concessioners or unions. They are generally in bad physical condition and lack basic facilities like toilets, potable water, lights, and other basic facilities. Trucks park there for various reasons—to wait for travel documents or loading space, or to conduct vehicle maintenance. Parking fees range from US$2 to US$6 per day. The main parking areas along the Douala corridors include:

In Cameroon—exit from Douala (Yassa), entry into Yaoundé (Mvan), Bonis, exit from Bertoua, Garoua Boulai, Ngaoundéré, Garoua, Maroua and Kousséri

In CAR—Béloko, Baoro, Yaloké, and entrance into Bangui

In Chad—Nguéli, Toukra, and Moundou.

[56] On average, there are two control points (at the entrance and exist) at every locality crossed by the corridors including different bodies. In some cases, they reach up to four different bodies.

Abidjan-Lagos Corridor

CORRIDOR DEMOGRAPHICS

It is estimated that the Abidjan-Lagos Corridor directly affects nearly 35 million people. This estimate includes city centers in Nigeria that are close to the Abidjan-Lagos corridor (ALC), but not those along the Cotonou–Niamey corridor that influence traffic volume in transit between Cotonou and Niamey.

PHYSICAL CHARACTERISTICS OF INFRASTRUCTURE

Public infrastructure consists of roads, ports, railways, and border crossings. The capital cities all have airports serving the movement of cargo (basically in passenger airplanes). This physical supply is complemented by transport and logistics services, mainly ancillaries.

Ports

Ports serving ALC are Abidjan (Côte d'Ivoire), Tema (Ghana), Lomé (Togo), Cotonou (Benin), and Apapa (Lagos). All are in capital cities except Apapa

Apapa—Lagos. The Lagos Port complex consists of Apapa Port and Tin Can Island Port. Apapa has nine marine terminals serving container, bulk, and break-bulk cargo. The marine terminals are run by private companies under concessions. The Ministry of Transport created customs-bonded terminals or inland container depots (ICDs) relatively far from the port. Even though ICDs reduce congestion they add time and costs.[57] The Nigeria Port Authority is in charge of the port. Official statistics on the port's website are outdated (2002-2006), but the study noted in footnote 6 has information on port traffic up to 2008. Recent information[58] is that the port complex moved 24 million tons in 2011 and 1.5 million containers, of which 51 percent were imports, 6 percent exports and the rest empty containers. This movement was split nearly evenly between Apapa and Tin Can Island.

Table A-14
Population along the Abidjan-Lagos Corridor, 2010

Total Population	Urban Population (%)	Main City	Population ('000s)	Urban Population in the Corridor (%)
CÔTE D'IVOIRE				
19,737,800	49.8	Abidjan (2009)	4,007	41.01
GHANA				
24,658,823	50.9	Greater Accra (includes Tema)	4,010	36.52

57 "During a peak of congestion in Lagos Port Complex in 2008, the Ministry of Transport was forced to take extreme action to decongest the port. One action was the unprecedented creation of Customs-bonded storage facilities known in Nigeria as ICDs…the transfer from a marine terminal to an ICD can cost as much as US$400 for one 40-ft container or US$300 for one 20-ft container, to which handling cost at the ICD should be added. And the transfer process may take several days if trucks are not available." Nathan Associates (2010b).

58 Interview to Mr. Borha, General Manager for Corporate and Strategic Planning Port of Apapa. March, 2012

Total Population	Urban Population (%)	Main City	Population ('000s)	Urban Population in the Corridor (%)
		Takoradi Metropolitan Area and Western Region	2,558	
		Cape Coast Metropolitan Area and Central Region	2,201	
		Koforidua and Eastern Region	2,376	
		Ho and Volta Region	2,118	
TOGO				
6,191,155	37.7	Lomé and Maritime Region	2,599	41.98
BENIN				
8,849,892	42.0	Cotonou (2006)[a] Litoral	719	33.2
		Ouidah (2006)[a] and Atlantic Region	982	
		Porto Novo (2006)[a] and Ouémé Region	836	
		Comé, Grand Popo (2006)[a] and Mono Region	403	
NIGERIA				
158,423,182	50.0	Lagos (2006)[a]	9,850	n.a.
		Ibadan (2006)[a]	2,250	n.a.
TOTAL			34,869	n.a.

— *Note: [a] These data are included as a reference to identify the extent of the influence area.*

— *SOURCES: Benin—l'Institut National de la statistique et de l'Analyse Economique; Côte d'Ivoire— Perspectives Démographiques de Côte d'Ivoire de 1998 à 2018, Institut National de Statistique; Ghana—2010 Population and Housing Census, Ghana Statistical Services May 2012; Nigeria—National Bureau of Statistics; Togo—RGPH4 Recensement Général de la Population 2010, D.G. de la Statistique et de la Comptabilité Nationales;* www.worldbank.org

Cotonou—Benin. The Port of Cotonou has six berths for conventional cargo, one for containers, one ro-ro, and one for petroleum tanks. The traffic in Cotonou reached 231,000 TEUs in 2011.

Lomé—Togo. The infrastructure of the Autonomous Port of Lomé includes one terminal for conventional cargo that can handle up to five ships; one container terminal; a mineral wharf and a petroleum wharf; and a fishing port. The port is ISPS compliant. It has several projects to increase the capacity and the efficiency. Projects that will affect the corridor include the following:

A third berth 450 meters long and 15 meters deep to double container handling capacity (to be built by Bolloré Africa Logistics).

A sheltered dock 1,050 meters long and 16,700 meters deep to host a container terminal.

Mineral berth extension.

A dry port and a railway link to reduce port congestion.

An electronic single window to facilitate paperwork and formalities.

The Port of Lomé is more efficient than Cotonou, and because of the additional short distance, some Beninese importers prefer having their goods shipped to Lomé and then transit them to Benin.

Until 2011, goods in transit from Lomé to the hinterland were escorted by customs under the "Solidarité sur la Mer" scheme. This system is not operating anymore and one of the reasons was the inefficiencies at the Terminal du Sahel.

Tema—Ghana. The Port of Tema is the entry gate for Ghana and landlocked countries, mainly Burkina Faso, Mali, and Niger. Since conflict arose in Cote d'Ivoire, Tema has become more important as the entry port of goods in transit to these countries. To speed inspections, the port now has two container scanners. ICDs, warehouses, transport and haulage companies, and related service centers are on the premises. The port has 12 berths with draughts ranging from 8.0 to 11.5 meters and additional dedicated oil jetty and a VALCO berth. SBM and CBM facilities are privately operated offshore. The port is ISPS compliant.

Takoradi—Ghana. Takoradi is a four-hour drive from Accra. It is almost equidistant to Abidjan and to Tema. The berthing facilities include four multipurpose berths with drafts between 9 meters and 10 meters and dedicated berths for manganese, bauxite, and oil. The traffic is half as much in Tema in volume and the movement of container is 1/10. No transit traffic is reported in the official statistics.

Abidjan—Cote d'Ivoire. The Autonomous Port of Abidjan is the main port of Cote d'Ivoire. A public enterprise, the port operates with administrative autonomy under the technical supervision of the Ministry of Economic Infrastructure and the economic and financial supervision of the Ministry of Economy and Finance. The port development plan was elaborated in 1985 and updated in 1998 by the Port Authority. The authority launched a BOT project that has been frozen since the sociopolitical crisis started in 1999. As in Lomé, Abidjan's port community was officially formed in December 1995 to represent public and private actors. The community coordinates activities of related parties, and contributes to port modernization to improve competitiveness.

Road Network

The infrastructure along the ALC consists largely of coastal roads linking Abidjan, Tema, Lomé, Cotonou, and Lagos. The roads have more capacity the closer they are to the cities (e.g., 2x2 lanes in the accesses to Cotonou, Lagos and Lomé), and between Cotonou and the border with Nigeria (Semé-Kraké). Otherwise most roads in the corridor have only two lanes.

In 2009, the PIDA study (SOFRECO 2011) concluded that roads serving the ALC were in good to fair condition, the segment between Cotonou and Lagos being the most damaged, especially close to the border. The report also highlighted that the ALC is composed of a series of national roads with widely varying design, operation, and maintenance standards

combined with inefficient border crossings. This situation has gradually improved with the support of diverse financing institutions, of which the most important is the World Bank through the Abidjan-Lagos Trade and Transport Facilitation Project (ALTTFP), the second phase of which was approved in May 2012.

Railways

The few railways in West Africa are penetration lines linking ports with the north and landlocked countries. No coastal line serves traffic along the ALC. Several stakeholders have mentioned the importance of a railway for the corridor. The long distances and relatively low volume of freight in transit along the corridor suggests that such a project is infeasible, but a feasibility study that takes into account competition between modes of transport is warranted.

Border Posts

Border posts on the ALC operate as binational crossings instead of one-stop posts, but a joint post between Nigeria and Benin is under construction (Semé-Kraké).

Table A-15
Border Posts along the Abidjan-Lagos Corridor

	Côte d'Ivoire	Ghana		Togo		Benin		Nigeria
	Noé	**Elubo**	**Aflao**	**Kodjoviakopé**	**Sanvee Condji**	**Hillacondji**	**Semé**	**Kraké**
Distance	2.7 km		2.1 km		0.2 km		n/a	
Type	Bi-national		Bi-national. The one-stop control post has been decided and expropriation by Togo is proceeding.		Bi-national. The one-stop control post has been decided, expropriation by Togo is proceeding.		Bi-national. The one-stop control post is being built.	

ORGANIZATION OF ROAD TRANSPORT SECTOR

In Benin, the General Director of Road Transport of the Ministry of Public Works handles road and rail transport rules, drivers' licenses, transport authorizations, and coordination of road transport of goods.

In Togo, the transport sector is considered strategic; 10 percent of the GDP is estimated to be rooted in transit flow services. The 2011 country strategy of the African Development Bank suggests that a combination of liberalization and incentives could develop transit services further.

In Ghana, the government has taken action to control overloading and improve licensing procedures through the World Bank's Transport Sector Project. Côte d'Ivoire's road sector suffered during the last political crisis. In response, the Ministry of Transport has the following priorities: (i) organization and professionalization of the sector and stakeholders; (ii) fleet renovation; (iii) investment in infrastructure, including truck stations; and, (iv) universal medical insurance. The organization will be improved by promoting the creation of

enterprises and cooperatives, and the creation of the Federation of Transport Enterprises in Côte d'Ivoire.

TRUCK OVERLOADING AND AXLE WEIGHT

Overloading remains a problem. Regional agreements[59] to harmonize regulations provoked a strong reaction among transporters and forwarders, obliging some governments to negotiate a vacant period before full implementation. This same harmonizing rule obliges the control in the origin of any freight of more than 200,000 tons per year (ports, airports, logistics platforms, intermodal platforms, warehouses, industries, and mining sites). The more recent agreement was to begin full implementation in July 2012.

An assessment of axle weight rules in UEMOA member states describes Ghana's experience in limiting the weight of trucks in transit to Burkina Faso in 2009 and lessons for other countries (WATH, 2010b).

TRAFFIC COUNTS

Traffic in the ALC is diverse and the average size of cargo carrying vehicles is heterogeneous. In the Benin section of the corridor, heavy vehicles make up about 9 percent of traffic in the less dense segments, with small vehicles prevailing close to the urban areas. Traffic density and mix changes noticeably the closer one gets to Cotonou.

Passengers conducting informal border trade dominate traffic along the corridor. It has been estimated that two-thirds of the trade is generated among neighboring countries. Transit traffic from Abidjan to Lagos is limited to less than five trucks a day (ALCO, 2006) but almost 50 percent of passengers cross the border at least once each week, mostly to trade on the other side. ALC is also the gateway to coastal and landlocked countries in West Africa, with all landlocked countries using at least one port along the corridor, and traders shifting ports when there are problems in a given port.

Table A-16
Traffic Counts in Benin, 2011

Station	Hillacondji -Comé	Dept. Limit (Ouidah)	Ouidah–Godomey	Weigh Bridge Ekpe	Semé
Vehicle	3,207	4,682	7,367	26,821	6,883
Vans	108	854	1,635	1,809	1,163
Mini-bus	171	288	521	2,149	223
2-axle trucks	73	244	325	329	129
3-axle trucks	49	132	350	143	80
4-axle trucks	30	55	111	122	55

[59] Rule N°14/2005/Cm/UEMOA

Station	Hillacondji -Comé	Dept. Limit (Ouidah)	Ouidah–Godomey	Weigh Bridge Ekpe	Semé
5-axle trucks	93	66	102	119	39
6-axle trucks	40	41	50	62	40
6-axle trucks	1	1	7	1	0
Motorcycles	1,349	1,539	9,274	53,999	n.a.
Total without motorcycles	3,772	6,363	10,468	31,555	8,612
Total	5,121	7,902	19,742	85,554	8,612
Percent of trucks over total	6%	7%	5%	1%	4%
Percent of trucks over total without motorcycles	8%	8%	9%	2%	4%

— *SOURCE: Ministère Délégué chargé des Transports Terrestres, des Transports Aériens et des Travaux Publics.*

Dakar–Bamako Corridor

PORT

The Port of Dakar has a deep-draft structure, 640-foot wide access channel that allows round-the-clock access to the port and lies on a water surface area of 177 ha, with alongside depths between 10 and 13 meters. The port has two main zones. The northern zone contains berths 4, 5 and 8, 10; the container terminal (21 ha and 3 berths with alongside depth of 13 meters); and facilities for liquid bulk (refined hydrocarbons, oil, wine) and solid bulks (phosphates, wheat, rice). Twenty berths are available, one of them with alongside depth up to 12 meters for phosphate shipping. This area also contains an oil wharf accessible to vessels with a maximum draught of 12 meters.

The southern zone contains berths 1, 2, and 3 and is dedicated to general cargo, part of the container traffic (40 percent), transit traffic to Mali, passenger and vehicle traffic, and has depths from 8.5 meters to 10 meters. The southern zone has three terminals for ro-ro traffic, 12 for general cargo, and two tug and pilot boat stations.

SYSTEM FOR TRANSIT CARGO TRANSPORTED BY ROAD

Road transport is mainly along the Dakar-Kaolack-Tambacounda-Kidira-Kayes-Bamako axis; about 80 percent of cargo going to Mali is moved along this route. Trucking in Senegal is dominated by small operators and a half a dozen subsidiaries of large multinational carriers or logistics providers (e.g., Maersk). Except for the multinationals, Senegal's fleet is obsolete and most traffic to Mali is carried on Malian trucks (up to 90 percent of all Mali traffic). Mali recently upgraded its fleet and has a large capacity to make the long trip from Dakar to Bamako.

The pace of road transport has picked up so much over the last decade that volumes are reportedly about 300 trucks per day at the border between Senegal and Mali. It is therefore very timely that Senegal is working on a new Southern corridor linking Dakar to Bamako. The road—linking Kedougou to Saraya, and Saraya to Faleme and the border with Mali—will shorten the corridor by 180 km and expand capacity for road transport between the two countries.

Road Transport Performance

The Bamako-Dakar corridor has the lowest density of controls of all the corridors studied under the Improved Road Transport Governance Initiative (IRTG), with about 1.3 controls per 100 km. The number of stops and bribes is decreasing thanks to the gendarme's efforts.

Table A-17
Dakar-Bamako Road Performance Indicators, April to June 2012

Corridor/ Country	Controls per Trip	Bribes per Trip (US$)		Delays per Trip (minutes)	
		On the Road	At the Border	On the Road	At the Border
Dakar-Bamako	27	38	40	168	147
Mali	12	18	20	118	72
Senegal	15	20	20	50	76
Bamako-Dakar	10	31	15	218	177
Mali	7	26	12	193	114
Senegal	3	5	3	26	63

SOURCE: WATH 20th Road Governance Report (Q2- 2012).

RAILWAYS

The 1,240 km Dakar-Tambacounda-Kayes-Kita-Bamako corridor has the only regional rail connection to Bamako. There are connections at the Port of Dakar, EMASE, and at the new logistics platform but only direct Dakar-Bamako transportation is operational (rail is not used to move domestic freight).

The advantages of rail transport include simplified customs procedures adapted from the International Convention to Facilitate the Crossing of Frontiers for Goods Carried by Rail. There are no customs and police inspections en route. One document, the Transit International Ferroviaire (TIF), accompanies goods, replacing Senegalese and Malian national customs documents and procedures. The implementation of an international customs transit regime on the rail corridor has facilitated train movement between Senegal and Mali, unlike its less-than-ideal road equivalent, the TRIE.

In the past about 80 percent of cargo moving along the Dakar-Bamako corridor was moved by rail; the rail network's deteriorating state has reduced this to 20 percent. In 2003, Mali and Senegal privatized international traffic on the Dakar-Bamako railway, the management of the new entity being assumed by the Transrail consortium. Since then, Transrail has not complied with its operating contract, which required it to develop an investment plan for maintenance and repairs. The lack of investment has caused severe deterioration in rail infrastructure, equipment shortages, and frequent accidents, resulting in poor service and reliability for cargo shipments, and forcing traders and forwarding agents to move time-sensitive goods by road.

BORDER POSTS AT SENEGAL-MALI BORDER

Handling about 300 trucks per day, the Kidira-Diboli border crossing needs a parking lot to alleviate congestion cause by trucks idling on the road. The governments of Senegal and Mali are considering integrating customs operations and procedures and creating one-stop joint border posts at Kidira-Diboli and the border crossing along the new southern road.

LOGISTIC PLATFORMS

The logistics platform at the Port of Dakar has 20 hectares with bonded warehouses, a business center, logistic parks, customs offices, forwarding agents and wholesalers, fuel supply station, etc. It was designed to improve urban and interurban traffic and alleviate congestion near the port and at wharves. Since its implementation, goods handling costs, customs clearance times, ship wait times, and maintenance costs have all declined.

DRY PORTS

Warehousing and storage are being invested in in Dakar and in Bamako. The ENSEMA dry port provides storage and warehousing in Bamako, and Dakar has a number of warehouses and container freight stations, with a logistics platform coming online soon, and the Port of Dakar building fruit and grain terminals. From a direct Dakar-Bamako perspective, the corridor is well served with storage and warehousing.

Tema–Ouagadougou Corridor

PORT

The Port of Tema is one of two main seaports in Ghana and it handles about 80 percent of the nation's import and export cargo. The port has 12 berths whose depths range from 8 meters to 13 meters.

Berths 1 and 2, also referred to as Quay 2 South, are under concession to Meridian Port Services. They are the deepest at Tema (13 meters) and are the only ones with shore-based gantry cranes. Quay 2 South serves only specialized container ships.

Berths 3, 4, and 5, also referred to as Quay 2 North, are at the back of Quay 2 South. They handle container ships, general cargo, ro-ro, and breakbulk (e.g., bagged imports) vessels. The container ships handled in Quay 2 North are also usually smaller than those handled at Quay 2 South because of the shallower draft. The inner berth, berth 5, is more difficult to reach and can handle only small ships and rarely used for containers.

Berths 6 through 12 are multipurpose berths.

ROAD NETWORK

A four-lane road connects Tema with Accra and continues up to Nsawam. Traffic is heavy because this segment serves Accra's urban traffic. From Nsawam the road changes to a two-lane road all the way to the border and then to Ouagadougou, except where it enters and exits Kumasi. The Tema-Ouagadougou corridor road component is summarized in Table A-17 on the basis of subjective ratings.

Road Transport Performance

The number of controls increased by 7 percent over the previous quarter but bribes and delays decreased (see Table A-18). After Mali, Ghana has the highest number of controls and collects the fewest bribes in the region.

RAILWAYS AND INLAND WATERWAY

The rail (Tema-Accra-Kumasi) and inland waterway (Lake Volta) infrastructure along the corridor is not developed enough to be used for transit cargo.

BORDER POSTS AT GHANAIAN-BURKINABE FASO BORDER

The border post in Paga (Ghana) and Dakola (Burkina Faso) is simple. There is a yard on each side of the border for trucks to park while paperwork is done. The yard can fill up fast and trucks often park on the road. The crossing facilities include a single-line gate that stays closed until a truck is allowed to cross after its paperwork is finalized.

Table A–18

Tema-Ouagadougou Road Corridor Characteristics

Road Link	Length (km)	Terrain	Surface Condition	Congestion
GHANA				
Tema–Apedwa	98	Flat-Hilly	Poor	Heavy
Apedwa–Kumasi	200	Flat-Hilly	Good	Heavy
Kumasi–Paga	582	Flat	Fair	Light
Paga–Dakola	1	Flat	Fair	Light
Total	881			
BURKINA FASO				
Dakola –Ouagadougou	176	Flat	Fair	Light
Total	176			
Total Corridor	1,057			

— *SOURCE: Nathan Associates (2010a)*

Table A-19

Tema-Ouagadougou Road Performance Indicators, April to June 2012

Corridor/ Country	Controls per Trip	Bribes per Trip (US$)		Delays per Trip (minutes)	
		On the Road	At the Border	On the Road	At the Border
Tema-Ouagadougou	30	18	10	62	101
Burkina Faso	6	8	9	10	57
Ghana	24	10	1	53	45
Ouagadougou-Tema	16	12	9	33	192
Burkina Faso	5	8	6	10	90
Ghana	11	4	3	23	103

SOURCE: WATH 20th Road Governance Report (Q2- 2012).

DRY PORTS

As described earlier, transit cargo arriving at Tema port and destined to Burkina Faso must be cleared in Ouagarinter.

Lomé–Ouagadougou Corridor

PORT

The Port of Lomé was built in 1968 and has not been changed much. It has two finger piers and a bulk terminal:

Pier 1 is 366 meters long, has four berths dedicated to conventionally transported cargo, ro-ro and break-bulk vessels (bagged imports), and multipurpose vessels.

Pier 2 has two berths with deepest depths in the port (11 and 12 meters) and is dedicated to containerized cargo, handling about 90 percent of container traffic. It is under the concession of two stevedoring companies, SE2M and Manuport.

The other two berths are dedicated to liquid and dry bulk (oil, iron ore, cement, and clinker).

Pier 3 Terminal is a project in the study phase. A quay with berthing facilities for container ships will be built between the fishing terminal (not described under this study) and Pier 2.

ROAD NETWORK

The road from Lomé to Ouagadougou is about 928 km with mixed conditions—fair through poor—with a few severely damaged segments. In general, the road is better maintained in Burkina Faso than in Togo. The road corridor component is summarized in Table A-19 on the basis of subjective ratings.

Table A–20
Lomé–Ouagadougou Road Corridor Characteristics

Road Link	Length (km)	Terrain	Surface Condition
TOGO			
Port of Lomé–Terminal du Sahel	13	Flat	Fair
Terminal du Sahel–Atakpamé	139	Flat-Hilly	Good
Atakpamé– Sokode	176	Flat-Hilly	Fair
Sokode–Kara	73	Mountainous	Poor
Kara–Cinkassé	242	Flat-Hilly	Very poor
Cinkassé–Bittou	37	Flat	Fair
Total	680		
BURKINA FASO			
Bittou–Koupéla	107	Flat	Fair
Koupéla–Ouagadougou (Ouagarinter)	141	Flat	Good
Total	248		
Total Corridor	928		

— *SOURCE: Nathan Associates (2012a).*

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Road Transport Performance

The Lomé-Ouagadougou corridor has briefest delays (131 minutes) and, with Ghana, Togo is the best-in-class country for bribes in the region. The amount of controls in each direction did not change from previous quarter. See Table A-20.

Table A-21
Lomé-Ouagadougou Road Performance Indicators, April to June 2012

Corridor/ Country	Controls per Trip	Bribes per Trip (US$)		Delays per Trip (minutes)	
		On the Road	At the Border	On the Road	At the Border
Lomé-Ouagadougou	18	12	14	71	34
Burkina Faso	8	5	9	52	16
Togo	10	7	5	19	18
Ouagadougou-Lomé	10	6	10	39	119
Burkina Faso	5	4	5	26	46
Togo	5	2	5	13	73

SOURCE: WATH 20th Road Governance Report (Q2- 2012).

RAILWAYS

Togo has two rail lines. One runs from Lomé to a cement factory at Kpalima near the Ghanaian border; it is owned and operated by the plant and does not serve transit traffic. The other runs Lomé to Blitta but has not been functional for many years.

BORDER POSTS AT TOGOLESE-BURKINABE BORDER

In addition to clearing transit cargo at Lomé port, customs organizes convoys in Terminal du Sahel, clears goods at the Cinkassé (Togo) and Bittou (Burkina Faso) border posts, and clears goods at Ouagarinter. The Terminal du Sahel, basically a parking lot, can hold up to 180 trucks and has a restaurant, a mosque, a motel, and a service station. It does not have electricity for refrigerated containers and this limits the type of cargo that can go to Burkina Faso from Port of Lomé.

The border posts in Cinkassé and in Bittou are simple. A new border post, Ouaga 2000, was built in Cinkassé at the initiative of UEMOA. It operates as a joint post; entry cargo is controlled by authorities of the entry country but not those of the exit one, but authorities of both are present at the post. There is some resistance among transporters to using the new post given the higher fees charged.

DRY PORTS

As described earlier, transit cargo destined for Burkina Faso is cleared by customs in Ouagarinter.

Appendix B. Calculation of Export Volumes

Calculation of the volume of agricultural goods was separated from calculation of volume of other products, and an estimate made for the range of value per ton for these products and for other nonagricultural goods, as shown in Tables B–1 and B–2.

Table B–1

Value and Estimated Volume of Nonpetroleum Regional Trade by Country Pair in West Africa, 2010 and 2011

Country Pair	Type of Trade	Value of Exports (US$ 000)		Average Value Range (US$/Ton)	Est. Volume of Exports (000 Tons)	
		2010	2011	2010	2010	2011
Senegal–Mali	Ag. products	45,773	67,728	$350–$700	65–130	97–194
	Other products	502,645	371,843	$1,000–1,500	335–503	248–372
	Total volume				400–633	345–566
Cote d'Ivoire–Mali	Ag. products	46,346	36,610	$350–700	66–132	52–105
	Other products	178,658	203,366	$1,000–1,500	119–179	136–203
	Total volume				185–311	188–308
Cote d'Ivoire–Burkina Faso	Ag. products	65,776	74,825	$350–700	94–188	107–214
	Other products	294,605	269,058	$1,000–1,500	196–295	179–269
	Total volume				290–483	286–483
Ghana–Mali	Ag. products	1,633	2,038	$350–700	2–5	3–5
	Other products	125,097	19,528	$1,000–1,500	83–125	13–20
	Total volume				85–130	16–25
Ghana–Burkina Faso	Ag. products	3,724	10,235	$350–700	5–11	15–29
	Other products	69,147	490,335	$1,000–1,500	46–69	327–490
	Total volume				51–80	342–519
Togo–Mali	Ag. products	506	744	$350–700	1	1–2
	Other products	18,198	23,793	$1,000–1,500	12–18	16–24
	Total volume				13–19	17–26
Togo–Burkina Faso	Ag. products	2,109	3,509	$350–700	3–6	5–10
	Other products	71,607	90,933	$1,000–1,500	48–72	61–91

Country Pair	Type of Trade	Value of Exports (US$ 000)		Average Value Range (US$/Ton)	Est. Volume of Exports (000 Tons)	
		2010	2011	2010	2010	2011
	Total volume				51–78	66–101
Togo–Niger	Ag. products	4,813	4,468	$350–700	7–14	6–13
	Other products	41,328	69,004	$1,000–1,500	28–41	46–69
	Total volume				35–55	52–82
Benin–Niger	Ag. products	10,201	–	$350–700	15–29	–
	Other products	3,777	–	$1,000–1,500	3–4	–
	Total volume				18–33	–

SOURCE: COMTRADE 2011. SOFRECO (2011). Annex Table 3.2–7

Table B–2

Value and Estimated Volume of Nonpetroleum Regional Trade by Country Pair in Central Africa, 2009 and 2010

Country Pair	Type of Trade	Value of Exports (US$ 000)		Average Value Range (US$/Ton)	Est. Volume of Exports (000 Tons)	
		2009	2010	2010	2009	2010
Cameroon–CAR	Ag. products	8,170	9,424	$350–800	10–23	12–27
	Other products	11,863	44,321	$1,200–1,300	9–10	34–37
	Total volume				19–33	46–64
Cameroon–Chad	Ag. products	8,883	20,366	$350–800	11–25	25–58
	Other products	43,052	316,258	$1,200–1,300	33–36	243–264
	Total volume				44–61	269–322

SOURCE: COMTRADE 2011. SOFRECO (2011). Annex Table 3.2–7

Appendix C. Trade and Infrastructure Projects

Projects Affecting Trade and Infrastructure

ABIDJAN CORRIDORS

There are a number of projects under way or planned for improving the transport infrastructure in the Corridor or trade facilitation measures as described below.

Port Projects. The Abidjan Port Authority has several upgrade and expansion projects to respond to the constant challenges associated with globalization, technologic progress and increasing demand for port services. These projects include the widening and deepening of the Vridi Canal to serve larger ships serving the West Africa trade routes and the modernization of the North, South and Siveng berths.

Railway Projects. Sitarail has ordered 97 additional wagons which are scheduled to be delivered by 2013 and this will increase their existing freight capacity along the corridor by 11percent.

Road Projects. The Government Cote d'Ivoire is in the process to upgrade the Singrobo-Yamoussokro Highway, expanding the current Abidjan–Singrobo highway up to Yamoussokro over a linear of 85 km. The new road link will be a 2x2 lane road with an asphalt concrete surface.

Similarly, UEMOA is sponsoring the rehabilitation and enforcement of 458 km of road, construction of 86 km of road missing links, and the construction of a joint border post in Pogo/Zegoua (Cote d'Ivoire–Mali).

Trade Facilitation Projects. In 1982, ECOWAS members adopted Convention A/P4/5/82 (ISRT Convention) and Supplementary Convention A/SP.1/5/90 to ensure the free movement of goods from landlocked countries—Burkina Faso, Mali, and Niger—to coastal countries. Drawing on international conventions, these laws are based on four principles:

- Conveyance of goods in guaranteed vehicles with a customs seal approved by countries that ratified the convention.

- Coverage of duties and taxes by an internationally recognized guarantee.
- Acceptance of customs control arrangements of the country of departure by the countries of transit and destination.
- Goods are to be accompanied by an ISRT/Log book (ISRT Declaration) issued in the country of departure for use as a control document in the countries of transit and destination.

To improve implementation of the ISRT Convention, the ECOWAS Secretariat (now Commission) and the UEMOA Commission drew up the Regional Road Transport and Transit Facilitation Programme in West Africa in August 2003. The main components of the program are as follows:

- Simplification and harmonization of road transit documents
- Creation of one-stop border posts
- Improvement of goods information systems.
- Road transit facilitation (road safety, HIV/AIDS, environment and gender awareness)

The implementation of the program is based on new institutional organs to insure an effective guidance and coordination mechanism for all components.

COTONOU-NIAMEY CORRIDOR

A number of projects are underway or planned to improve transport infrastructure in the corridor or to otherwise facilitate trade.

Port Projects. The investment works in the MCA program include two new berths, deepening of the channel to 15 meters, and optimizing the space on the land side of the port. The Government of Benin is also building a dry port in Seme Kpodji, closer to the border with Nigeria, to keep containers out of the port. Little space is available outside the port and congestion caused by trucks in the city near the port is thick. The Government has signed an agreement with Solutions Technologiques pour le Transport au Bénin (STB) to control the flow of trucks in the city.

Railway Projects. The tender for a two-stage rehabilitation project funded by the EU (EUROAID/ 130161/D/SER) will be released on January 1, 2013. Stage 1 will rehabilitate the 25km Cotonou-Pahou section; Stage 2 will rehabilitate the 438km Cotonou-Parakou section.

Road Projects. Benin is planning to rehabilitate all road segments in the corridor (except Cotonou-Bohicon) and Niger is rehabilitating the Gaya-Bella segment, having so far completed 30 percent of the project.

Trade Facilitation Projects. Same as in Abidjan corridors.

DOUALA CORRIDORS

There are two on-going, multi-sector, multi-country projects along the corridors which include infrastructure rehabilitation and construction, multimodal coordination and policy improvement for trade facilitation (see Appendix B for more details). These are:

NEPAD–STAP Transport and Transit Facilitation Program. This includes (1) establishing joint border posts at Garoua Boulai/Beloko (Cameroon/CAR), Kousséri and Koutéré (both in Cameroon/Chad); (2) developing a harmonized transit regime on Douala-Bangui and Douala-Ndjamena corridors; (3) improving intermodal interfaces; (iv) setting up an observatory for abnormal practices; (v) investing in road and rail; (vi) setting up environmental mitigation measures for HIV/AIDS and malaria prevention, and road safety.

NEPAD–STAP Road and Rail Rehabilitation and Construction. This includes road rehabilitation and construction along the two corridors: Douala-Ngaoundere–Ndjamena and Douala–Ngaoundere–Bangui. It also includes the construction of a bridge along the Logone between Chad and Cameroon and road sections that bypass a number of agglomerations. The railway component comprises a design study, a transport sector study, and a rail concession audit along the Douala–N'Gaoundéré–Ndjamena route. It also includes also trade facilitation and road safety components.

Tables C-1 and C-2 below provide detailed descriptions of the projects mentioned above.

Table C-22
West Africa Corridors Ongoing and Planned Projects

Country	Name/Description	Road	Port	Rail	Border	Trade Facili-tation	Financer	Sponsor	Est. Cost (US$ million)	On-going ?
All West African countries	**NEPAD–STAP Reinforcement of Capacity of National Transport Facilitation Committees** Training and providing equipment to members of National Transport Facilitation Committees.					✓	EU	ECOWAS, UEMOA, governments		✓
	NEPAD–STAP Securement of Users' Road Safety Harmonizing driving license procedures in the subregion and creating National Vehicle Control Centers.					✓	EU, World Bank	ECOWAS, UEMOA, governments		✓
	Facilitation of Road Transit Transport Program Establish measures of road transport and transit by constructing 15 joint border posts in state borders, establishing expected actions to simplify procedures and rules, improving information system, organizing awareness campaigns on the TRIE convention, considering related aspects (HIV/AIDS, environment, road security) along with monitoring and evaluation.				✓	✓		ECOWAS, UEMOA, governments		✓
ABIDJAN-OUAGADOUGOU-NIAMEY AND ABIDJAN-BAMAKO CORRIDOR										
Senegal, Mali, Burkina Faso, Niger	**Improvement of Service Level of UEMOA Corridor 2A (CU2A)** Rehabilitation and enforcement of 920 km of paved road, periodic maintenance of 130 km of roads, construction of 165 km of road missing links, rehabilitation of a bridge, and construction of 3 joint border posts: Kidira/Dibol (Senegal-Mali), Koloko/Heremankono (Mali–Burkina Faso), and Diboli (Burkina Faso–Niger). ** Dakar–Kaolack–Tambacounda–Kidira–Kayes–Bamako–Sikasso–Ouagadougou–Niamey-Zinder–Chad Border.	√			✓		FAD, FED, BID, BOAD, IDA	UEMOA, governments	$524 (road) $53 (BP)	✓
Cote d'Ivoire	**Improvement of Service Level of UEMOA Corridor 7B (CU7B)** Construction of and equipment for a joint border post in La Leraba/ Niangoloko (Cote d'Ivoire/Burkina Faso) and establishment of transport facilitation measures. ** Ouangolodougou-Bobo Dioulasso				✓	✓		UEMOA, governments	$15 (BP)	✓

Country	Name/Description	Road	Port	Rail	Border	Trade Facili-tation	Financer	Sponsor	Est. Cost (US$ million)	On-going ?
Niger, Burkina Faso	**Improvement of Service Level of UEMOA Corridor 14 (CU14)** Rehabilitation and enforcement of 110 km of paved road, construction of 335 km of road missing links, and construction of the joint border post between Dori and Tera. ** Ouagadougou–Dori–Tera–Farie–Namaro–Niamey	✓			✓			UEMOA, governments		✓
Cote d'Ivoire	**Upgrade Singrobo-Yamoussokro Highway** Expand current Abidjan–Singrobo highway up to Yamoussokro over a linear of 85 km. The new road link will be a 2x2 lane road with an asphalt concrete surface.	✓					Islamic Dev. Bank, BADEA, OPEP Fund, Saudi Dev. Fund, Kuwait Fund, Cote d'Ivoire government	Government		✓
Cote d'Ivoire, Mali	**Improvement of Service Level of UEMOA Corridor 7A (CU7A)** Rehabilitation and enforcement of 458 km of road, construction of 86 km of road missing links, and the construction of a joint border post in Pogo/Zegoua (Cote d'Ivoire–Mali). ** Abidjan–Bouake–Ferke–Ouangolodougou–Zegoua--Sikasso	✓			✓			UEMOA, governments	$92 (road) $15 (BP)	✓
COTONOU-NIAMEY CORRIDOR										
Benin, Niger	**Improvement of Service Level of UEMOA Corridor 10 (CU10)** Rehabilitation and enforcement of 258 km of paved road and periodic maintenance work on 214 km of roads, and construction of and equipment for a joint border post in Malanville/Gaya (Benin–Niger). ** Cotonou–Dassa–Save–Parakou–N'Dali–Kandi–Malanville–Gaya–Dosso	✓			✓			UEMOA, governments	$149 (road) $10 (BP)	✓
Benin, Niger	**Benin=Niger Railway Reconstruction**			✓						
ABIDJAN-LAGOS CORRIDOR										
Cote d'Ivoire, Ghana Togo, Benin,	**Joint Border Posts along Abidjan-Lagos Corridor** Design, construction, and legal status definition of joint border posts between country pairs along the Abidjan–Lagos Trans–Coastal South Corridor: Elubo/Noe (Cote d'Ivoire–Ghana), Kodjoviakope/Aflao (Ghana-Togo), Ouidah/Hillacondji (Togo–Benin), and Kraké/Sémé Badagry (Benin–				✓		European Union	ECOWAS, governments	$240	✓

Country	Name/Description	Road	Port	Rail	Border	Trade Facili-tation	Financer	Sponsor	Est. Cost (US$ million)	On-going ?
Nigeria	Nigeria). This project is integrated part of the Regional Road Transport & Transit Facilitation Program of the Abidjan -Lagos corridor.									
Cote d'Ivoire, Ghana Togo, Benin	**Improvement of Service Level of Road Infrastructure of the UEMOA Corridor 1 (CU1)** Rehabilitation and enforcement of 629 km of paved road, periodic maintenance work on 105 km of road, construction of 125 km of road missing links, rehabilitation and construction of four bridges, and construction of two joint border posts (Guinea Bissau/Senegal and Benin/Togo). ** Abidjan–Tema-Lomé–Cotonou–Porto Novo–Igolo–Nigeria border	✓			✓			UEMOA, governments		✓
Nigeria	**Reconstruction and Upgrade along Lagos-Badagri-Benin Border Road** Reconstructing Lagos–Badgri section (50.7 km) and upgrading the Badagri–Benin border road link (22.1 km). The overall link (72.8 km) is a 2x2 lane.	✓					World Bank/ALF TTP	ECOWAS, Government		✓
Benin	**Reconstruction and Upgrade along Nigeria Border-Cotonou-Togo Border Road** Upgrading 2x2 -lane road connection (currently in fair status). ** Cotonou urban area–Ouidah–Hilacondji (Benin/Togo border) (10 km)	✓					World Bank/ALF TTP	ECOWAS, Government	$28	✓
Togo	**Reconstruction and Upgrade Benin Border-Lomé-Ghana Border Road** Upgrading components of 2x2 lane road section, because of its poor condition and constructing Lomé bypass road. ** Hillacondji–Aneho (5.7Km), Aneho Bridge–Avepozo–Lomé urban area – Kodjoviakopé–Ghana Border (18 Km)	✓					World Bank/ALF TTP, BOAD, Dev. Islamic Bank (DIB), EC	ECOWAS, government	$24	✓
Ghana	**Reconstruction and Upgrade of Togo Border-Accra-Cote d'Ivoire Border Road** Includes expanding and upgrading Tema Expressway (14 km), upgrading the 2x2-Lane Akatsi-Agbozume road section, upgrading the 2x2 lane Mullam-Winneba road section (58.3 km), reconstructing the 2x1 lane Agona junction-Axim-Mpataba-Elubo/Cote d'Ivoire Border (119.7 km).	✓					AfDB, World Bank/ALF TTP	ECOWAS, government	$112	✓
Cote d'Ivoire	**Reconstruction and Upgrade Ghana Border–Abidjan Road** Reconstructing the Cote d'Ivoire/Ghana Border-Aboisso 2x2 lane (50 km) because of poor status, upgrading the Aboisso-Grand Bassam 2x2 lane road section (85.6 km), and enlarging Noe/Elubo Bridge.	✓					World Bank ALFTTP	ECOWAS, government		✓

Country	Name/Description	Road	Port	Rail	Border	Trade Facili-tation	Financer	Sponsor	Est. Cost (US$ million)	On-going ?
Benin	**Construction of Roundabout/Fly Over in Godomey and Godomey Padahu Rehabilitation Works** Construction of roundabout/fly over in Godomey (Benin) to alleviate urban congestion and improve the flow of the transit traffic crossing Godomey urban area.	✓					Chinese Rail Way Tsishisu Group, Chinese Government	Government	$72	✓
TEMA-OUAGADOUGOU CORRIDOR										
Ghana	**Upgrade Konongo-Anyiam Road** Upgrading 2x1-lane road link: Konongo-Anyiam (41 km), in fair status.	✓						ECOWAS, government		✓
Burkina Faso	**Improvement of Service Level of UEMOA Corridor 8 (CU8)** Periodic maintenance of 30 km of roads, construction of a joint border post (Burkina Faso–Ghana), and establishment of transport facilitation measures. ** Ouagadougou- Pô-Ghana Border	✓			✓	✓		UEMOA, government		✓
Ghana, Burkina Faso	**Ghanaian Rail Network Rehabilitation and Extension to Burkina Faso Border** Expansion, reconstruction, and operation of Accra-Tema-Paga line. The project has a concessionary period of 35 years. The government of Ghana and the China National Machinery Import & Export Corporation has signed a US$6,050 billion contract for construction of a railway from Nsawam through Kumasi to Paga on the border with Burkina Faso, together with a branch from Tamale to Yendi. A memorandum of understanding signed with the government of China could lead to extensive investment in rehabilitation and extension of the rail network as part of a two-year package of infrastructure works. The government of Ghana has secured a US$10.4 billion concessionary loan from the Export-Import Bank of China to develop infrastructure.US$4 billion will be used to extend the railway to Paga.			✓			Government of Ghana and China National Machinery Import & Export Corporation (CMC)	UEMOA, government	$6,090	
LOMÉ-OUAGADOUGOU CORRIDOR										
Togo, Burkina Faso	**Improvement of Service Level of UEMOA Corridor 9 (CU)** Rehabilitation and enforcement of 350 km of paved road, periodic maintenance of 214 km of roads, construction of 111 km of road missing links (including bypass of Alejo Flaw and of Defale Mountains), along with construction of joint border post at Cinkasse (Burkina Faso/Togo). ** Lome–Atakpame–Kara–Sinkanse–Tenkodogo– Koupela	✓			✓			UEMOA, governments	$194 (road)	
DAKAR-BAMAKO CORRIDOR										

Country	Name/Description	Road	Port	Rail	Border	Trade Facili-tation	Financer	Sponsor	Est. Cost (US$ million)	On-going ?
Senegal, Mali	**Improvement of Service Level of UEMOA Corridor 2B (CU2B)** Rehabilitation and enforcement of 60 km of paved road, construction of 310 km of road missing links, rehabilitation of three bridges, and construction of a joint border post (Mali–Senegal). ** Tambacounda–Kedougou–Saraya–Kenieba–Kita–Bamako.	✓			✓			UEMOA, governments		✓

SOURCE: Nathan Associates compilation.

Table C-23
Douala Corridors Ongoing and Planned Projects

Country	Name/Description	Road	Port	Rail	Border	Trade Facili-tation	Financer	Sponsor	Est. Cost (US$ million)	On-going ?
Cameroon, Chad, CAR	**NEPAD–STAP Transport and Transit Facilitation Program** Includes (1) establishing joint border posts at Garoua Boulai/Beloko (Cameroon/CAR), Kousséri and Koutéré (both in Cameroon/Chad); (2) developing harmonized transit regime on Douala-Bangui and Douala-N'djamena corridors; (3) improving intermodal interfaces; (4) setting up an observatory for abnormal practices; (5) investing in road and rail; (6) setting up environmental mitigation measures for HIV/AIDS and malaria prevention, and road safety.	✓		✓	✓	✓	World Bank, African Dev. Bank, European Commission, Agence Françaide de Développement, Arab Funds	ECCAS, CEMAC, governments	$75 (BP)	✓
Cameroon, Chad, CAR	**NEPAD–STAP Road and Rail Rehabilitation and Construction** Road rehabilitation and construction along two intercapital links and regional corridors: Douala-Ngaoundere–N'djamena and Douala–Ngaoundere–Bangui. Includes the construction of the bridge along the Logone between Chad and Cameroon and road section to bypass a number of agglomerations. The railway component comprises a design study, a transport sector study, and a rail concession audit along the Douala–N'Gaoundéré–N'Djamena route. Includes also trade facilitation and road safety components.	✓		✓		✓	World Bank, AfDB, EC, AFD, Arab Funds	ECCAS, CEMAC, governments	$553 (road) $1.5 (rail)	✓
Chad, CAR	**Upgrading Road and River Infrastructure and Navigation Facilities on the Pointe Noire–Brazzaville / Kinshasa–Bangui–Ndjamena Corridor** Goal is to develop an integrated multimodal road/river transport corridor involving four countries: Chad, CAR, Congo, and DRC. Includes	✓			✓		AfDB, ECCAS	ECCAS, Secretariat of Internation		✓

	establishment of two joint border posts.							al Commission for the Congo–Oubangui–Sangha Basin (CICOS), governments		

SOURCE: Nathan Associates compilation.