Improving Trade and Transport for Landlocked Developing Countries

A Ten-Year Review

World Bank-United Nations report in preparation for the 2nd United Nations Conference on Landlocked Developing Countries (LLDCs)

WORLD BANK GROUP
Trade & Competitiveness

UN-OHRLLS

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Abbreviations

APoA	Almaty Programme of Action
AEO	Authorized Economic Operator
ASYCUDA	Automated System for Customs Data
ATP	Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for Such Carriage
CAREC	Central Asia Regional Economic Cooperation
CCTTFA	Central Corridor Trade and Transport Facilitation Agency
CIF	Cost, Insurance & Freight
CIM-SMGS	CIM – Uniform Rules Concerning the Contract of Consignment, International Carriage of Goods by Rail; SMGS – Agreement Concerning International Freight Traffic by Rail (OSJD)
CMR	Convention on the Contract for the International Carriage of Goods by Road
CPMM	Corridor Performance Measuring and Monitoring
CU	Customs Union
DPL	Development Policy Lending
DPO	Development Policy Operation
ECOWAS	Economic Community of West African States
EDI	Electronic Data Interchange
EU	European Union
EAC	East African Community
ECOWAS	Economic Community of West African States
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GVC	Global Value Chain
LLDCs	Landlocked Developing Countries
LPI	Logistics Performance Index
MDTF	Multi-Donor Trust Fund
NCTS	New Computerized Transit System
NTMs	Non-Tariff Measures

IRU	International Road Transport Union
ICT	Information Communications Technology
OSBP	One-stop border post
PPP	Purchasing Parity Power
PPP	Public-Private Partnership
RECs	Regional Economic Communities
SACU	Southern African Customs Union
SADC	Southern African Development Community
SCO	Shanghai Cooperation Organization
SSATP	Sub-Saharan Africa Transport Policy Program
TEU	Twenty-foot equivalent unit (= standard international container)
TF	Trade Facilitation
TIR	*Transports Internationaux Routiers* – International Road Transport
TRACECA	Transport Corridor Europe-Caucasus-Asia
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UN-OHRLLS	United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
VAT	Value Added Tax
WAEMU	West African Economic and Monetary Union
WEF	World Economic Forum
WTO	World Trade Organization

Foreword

Historically, geography can influence economic development in many ways. While some countries, including a few landlocked countries have benefited from their central location, the majority of landlocked developing countries (LLDCs), however, still faces the constraints imposed by geography and remains on the periphery of major markets. The 32 LLDCs are often characterized by lower per capita incomes when compared to their transit neighbors and 17 of them are classified as least developed. Additionally, LLDCs are usually dependent on their transit neighbors' markets, infrastructures and institutions.

The special needs of LLDCs, especially those related to the need to improve their accessibility and connectivity, have been recognized for a long time by policy makers and developmental institutions. Some needs are very specific and focused, for instance, on the development of efficient transit corridors in order to connect to other countries. Other needs are more challenging and harder to tackle such as the higher trade and transport costs, which dramatically constrain the transformation of LLDC economies, preventing them from diversifying from what often times represents a very small basket of export commodities.

The Almaty Programme of Action for LLDCs, transit countries and their development partners, adopted in 2003, was a major step in putting forward a consistent set of policies addressing these needs. It is expected to be followed by a new Programme of Action to be adopted at the 2nd United Nations Conference on Landlocked Developing Countries to be held from 3 to 5 November 2014 in Vienna, Austria. The United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries, and Small Island Developing States (UN-OHRLLS) has been supporting LLDCs and mobilizing international awareness and support towards the implementation of the Almaty Programme of Action and coordinating the preparatory review process for the Conference.

Along with other partners, the World Bank Group has been actively supporting countries in implementing the actions contained in the Almaty Programme and in achieving its goals. The World Bank Group has consistently financed transport and ICT infrastructure projects, in parallel with an ever increasing emphasis on trade facilitation, connectivity, and corridor-based projects in landlocked and transit countries. The Bank has promoted institutional enhancement in such critical areas as customs reforms, or projects aiming at the reinforcement or diversification of productive capacities. The Bank has also invested in policy research and tools to better identify the source of the constraints and the most appropriate solutions for alleviating the access costs.

This publication is based on the practical knowledge from implementing the Almaty Programme policies, shared by both of our institutions. It provides a snapshot of the economic trends in LLDCs, with regard to trade costs, connectivity constraints and trade diversification. It reviews the key access policies in the Almaty Programme of Action framework that include infrastructure, transport and logistics services, regional integration, trade and transit facilitation. It combines data and substantial feedback from implemented projects and policy changes. The focus of the document is general in scope and does not include

detailed economic or policy analysis of all the potential components of reforms.

The current status and lessons emerging are encouraging but they also point to the importance of persistence in reform implementation. In the decade of the implementation of the Almaty Programme of Action, with the exception of the period of the financial crisis, resource-rich LLDCs have greatly benefited from high commodity and raw material prices. However, the export structure of many LLDCs still remains highly concentrated in few mineral and agricultural products. LLDCs also continue to face high trade and transport costs. Substantial progress has been made in the area of trade facilitation, ICT and transport infrastructure. Furthermore, LLDCs have experienced improvements in logistics performance, which are driven primarily by improvements in infrastructure and basic border management. However, much needs to be done in terms of harmonization of transport and transit systems in cooperation with transit countries, and further improving infrastructure development and maintenance.

The present document provides an analysis of the current situation, constraints, priorities, and discusses potential solutions to reducing LLDCs' access costs. We hope that this document will continue to support the broad community of policymakers, development practitioners and other stakeholders in LLDCs, transit countries and beyond in implementing the new Programme of Action for LLDCs for the decade 2014–2024.

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Introduction

Landlockedness refers to the geographical situation of a country without direct access to the sea (Glassner, 1970). According to this definition, there are 44 landlocked countries in the world. Of these, the United Nations lists 32 as landlocked developing countries that are low- and middle-income countries based on the World Bank country classification (henceforth referred to as landlocked developing countries, LLDCs) with a population of nearly 440 million.[1]

Due to the lack of direct access to the sea Landlocked Developing Countries (LLDCs) are marginalized from major transportation and services (logistics, information technology) networks. Their international trade depends on transit through other countries. In addition, long distance to world markets, cumbersome transit procedures and inadequate infrastructure contribute to high transport and trade costs thereby reducing external trade and subsequent economic growth. Access to major markets is one of the biggest constraints to poverty reduction and economic integration of landlocked developing countries (Faye, McArthur, Sachs and Snow, 2004). Companies in landlocked developing countries are struggling to get the goods to their destination without major delays and increases in cost.

Landlocked developing countries are completely dependent on their transit neighbors' infrastructure and administrative procedures to transport their goods to port. In many cases transit neighbors of landlocked developing countries are themselves developing countries, often of broadly similar economic structure and beset by similar scarcities of resources. Their weak infrastructure and subpar customs and administrative systems result in higher costs on trade passing through a transit country and thus limiting the ability of landlocked developing countries to compete in global markets.

In 2003, the Almaty Programme of Action (APoA) has been agreed upon at the First United Nations conference held in Almaty, Kazakhstan. The APoA called for joint efforts by transit and landlocked countries—with substantial technical and financial assistance from other countries—to address the special development needs and challenges faced by LLDCs. The final goal was to ensure fuller and more effective integration of the LLDCs into the global economy through: (a) securing access to and from the sea by all means of transport; (b) reducing costs and improving services so as to increase the competitiveness of their exports; (c) reducing the delivered costs of imports; (d) addressing problems of delays and uncertainties in trade routes; (e) developing adequate national networks; (f) reducing loss, damage and deterioration en route; (g) opening the way for export expansion; and (h) improving the safety of road transport and the security of people along the corridors. The efforts included the revision of the regulatory framework affecting trade movements, ways to improve trade-related infrastructure and trade facilitation. Under the priority areas fundamental transit policy issues, and international trade and trade facilitation, the APoA identified policy reforms, legal and regulatory measures and actions to improve transport and trade facilitation that are important for decreasing the trading and transport costs for LLDCs.

Under the priority area infrastructure development and maintenance, the Almaty Programme of Action (APoA) identified specific actions required to improve

[1] Annex 1 provides the list of LLDCs and their transit countries.

the road and rail transport, ports, inland waterways, pipelines, air transport and communications needed for achieving the effective integration of the LLDCs into the international trading system and the world economy. Some of the actions involved considerable investment to develop and upgrade the transport infrastructure and complete missing links, establishment of public-private sector partnerships, capacity building, and establishment of new policies and institutional reform. At the regional level actions included adopting comprehensive approaches to develop and maintain transit corridors and development and effective implementation of regional agreements on the regional transport and communications infrastructure.

The World Bank, among other international agencies, has been actively involved in providing policy advice and financial support to LLDCs, as part of its broader program to improve the trade competitiveness of all developing countries. The Bank's contribution to the APoA comprises of a number of knowledge products and technical assistance, including, among others, the mid-term review of the APoA in 2008, and a 2013 report presenting a ten-year comprehensive review of the APoA.

While the review of the APoA in the areas of trade and transport has raised the awareness of the challenges faced by LLDCs globally, LLDCs still remain far from being fully integrated into international trading system.

With a need for a new comprehensive Plan of Action for the next decade, United Nations office of the High Representative for Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS) has been designated as the United Nations system-wide focal point for the preparatory review process for the Second UN Conference on LLDCs. While a new Programme of Action for LLDCs for the next decade (2014–2024) will be adopted at the Conference, UN-OHRLLS has approached the World Bank to prepare an in-depth publication outlining the trends for LLDCs and the implementation of actions, policies and reforms promoted in the APoA in the areas of trade and transport.

This publication provides a comprehensive ten-year review in order to assess the progress made in improving access of LLDCs to global markets, identify the remaining challenges faced by LLDCs, and present improved and innovative ways to overcome them. The team chose to organize the document around several themes, rather than regions, as a way to provide more specific policy insight to better connect the LLDCs regionally and globally. Thus, the publication is organized as follows:

- Chapter1: Economics of Landlockedness
- Chapter 2: Connectivity Constraints
- Chapter 3: Hinterland Connections
- Chapter 4: Transit and Trade Facilitation, Regional Integration
- Chapter 5: Physical Connectivity, Corridors.

This document is based primarily on the experience of project implementation by the World Bank, and on analytical work on trade corridors and LLDCs, including reports and presentations on progress in implementing the Almaty Programme of Action. These previous publications have been widely shared during activities organized by the UN-OHRLLS as contribution to the preparation to the new Programme of Action (PoA) for the next decade of 2014–2024.

1 Economics of Landlockedness

This chapter provides evidence of the trade performance of landlocked developing countries compared with others, especially their transit coastal neighbors, and highlighting the impact of landlockedness.

Export composition in LLDCs has not changed significantly since the turn of the century; much of the LLDC export growth can be attributed to the rise of commodity prices. Indeed, over the period 2000 and 2012, resource-rich LLDCs have been growing at an annual rate more than double of resource-scarce countries income in terms of real per capita income and more than six times in terms of exports per capita. Its reliance on commodities makes them vulnerable to potential negative shocks in commodity prices.

Although resource-rich LLDCs still have an average per capita income below that of costal transit countries, its annual growth over the same period has been higher. Conversely, resource-scarce LLDCs growth has been slower than resource-scarce coastal transit countries both in terms of income and exports per capita.

As landlocked developing countries rely on their neighboring countries to transit most of their imports and exports, coordinating effort with neighboring countries to improve the infrastructure (hard and soft) may serve as a useful way to improve the development prospects of LLDCs.

Landlocked countries are entirely or almost entirely enclosed by land, entailing that they have no shoreline on open seas, in contrast to closed seas or freshwater bodies. They have inherent disadvantages compared to countries with coastlines and deep-sea ports. Trade is more difficult and costly because a landlocked country must access most foreign markets through international transport corridors connecting them to ports in neighboring countries, here called "transit neighbors."

There are 44 landlocked countries in the world. Of these, the United Nations lists 32 countries, home to nearly 440 million, as landlocked developing countries (LLDCs). Based on the World Bank country classification, the LLDCs fall into the low, lower-middle and upper-middle income categories.[2] According to Collier (2007), the majority of these countries are in the "bottom billion," with an average real GDP per capita of US$808 (constant 2005 US$) compared to US$2,785 of transit countries in 2012 (see Table 1). Except for landlocked countries in the upper-middle income group,[3] real GDP per capita (weighted average) in low-income and lower-middle income countries in the last decade has been below than GDP per capita of non-landlocked countries in the same income groups.

The two large concentrations of landlocked developing countries are located in Sub-Saharan Africa and Central Asia. The 16 countries in Sub-Saharan Africa have a population of more than 200 million, nearly 30 percent of the region's total. The nine landlocked countries in Central Asia and Eastern Europe have a population approaching 80 million people, or about 17 percent of the region's total.

[2] Annex 1 provides the list of LLDCs and their transit countries.

[3] Azerbaijan, Botswana, Kazakhstan, Macedonia FYROM and Turkmenistan are the upper-middle income countries in the list of LLDCs.

TABLE 1 ■ Real GDP per capita (weighted), 1990–2012

		Average per capita income (constant 2005 US$)			Compound annual growth rate (percent)		
Income group		2000	2008	2012	2000–2008	2010–12	2000–12
Upper middle income:	LLDC	1,987	3,783	4,347	8.38%	4.17%	6.74%
	non-LLDC	2,392	3,588	4,276	5.19%	4.62%	4.96%
Lower middle income:	LLDC	610	824	926	3.84%	3.76%	3.54%
	non-LLDC	740	1,035	1,212	4.27%	3.62%	4.20%
Low income:	LLDC	234	310	366	3.57%	3.79%	3.79%
	non-LLDC	277	364	419	3.46%	4.04%	3.49%
LLDCs		**487**	**714**	**808**	**4.91%**	**3.42%**	**4.31%**
of which:							
Resource-rich		642	1,046	1,189	6.29%	3.51%	5.27%
Resource-scarce		337	395	438	1.97%	3.18%	2.20%
Transit coastal:		**1,498**	**2,339**	**2,785**	**5.72%**	**4.59%**	**5.31%**
of which:							
Resource-rich		2,116	3,091	3,216	4.85%	2.62%	3.55%
Resource-scarce		1,399	2,218	2,715	5.93%	4.97%	5.68%
World		6,445	7,382	7,533	1.71%	1.35%	1.31%

Source: WDI, World Bank, 2014.
Note: GDP per capita (constant 2005 US$).

Impact of Landlockedness on Development, Economic Growth and Trade Flows

Being landlocked does not necessarily lead to poverty or slow growth. Western European landlocked countries have historically taken advantage of their centralized locations. However, in the development context, being landlocked translates into a reduced connectivity and a higher cost of access to global markets. Therefore, it presents specific challenges to economic operators in all LLDCs. Traditionally, landlockedness is seen as a major impediment to trade. UN-OHRLLS[4] has estimated that, on average, the volume of international trade of a landlocked developing country is only 60% of the trade volume of comparable coastal country. At the same time, the development effects of landlockedness likely extend beyond a decrease in trade, to include various other channels, such as quality of institutions, the stage of economic development, hampering the movement of people and diffusion of new ideas and technological advances. The impact on revenue and poverty is quite obvious as LLDCs tend to have lower per capita income than their neighbors (see Table 1). UN-OHRLLS has estimated that, on average, the level of development in LLDCs is 20% lower than what it would be, were they not landlocked. Individual country estimates show that the range of development cost for most LLDCs ranges from 10 to 30 percent.

The impact of being landlocked on economic growth is less pronounced and is, in fact, dependent on a given landlocked developing country and a time period under consideration. Sachs (2005) found that being landlocked cuts off around half a percentage point off the economic growth rate. However, due to commodity-led growth in many LLDCs, this was not true in the decade of the implementation of the

[4] Source: UN-OHRLLS (2013) "The Development Economics of Landlockedness: Understanding the development costs of being landlocked."

TABLE 2 ■ Landlocked Developing Countries: Merchandise Exports as Share of World Exports, 2000–2012

	Merchandise Trade As a share of world trade (%)				Merchandise Exports As a share of world trade (%)			
Country group	2000	2006	2012	Annual growth (%)	2000	2006	2012	Annual growth (%)
High income: OECD	73.9	65.5	57.3	7.5	70.4	64.4	57.8	7.4
High income: non-OECD	6.4	7.4	6.9	11.0	5.2	7.3	6.7	12.7
Upper middle income	6.5	6.0	5.7	8.9	6.5	6.4	6.0	8.9
Lower middle income	2.0	2.0	2.9	13.7	2.3	2.3	3.0	12.5
Low income	0.0	0.2	0.1	34.6	0.0	0.2	0.1	33.6
LLDC:	0.4	0.7	1.0	18.3	0.5	0.7	1.1	20.4
In Europe & Central Asia	*0.24*	*0.39*	*0.59*	*21.1*	*0.27*	*0.45*	*0.78*	*24.5*
In Sub-Saharan Africa	*0.12*	*0.19*	*0.23*	*15.9*	*0.13*	*0.19*	*0.18*	*13.5*
In South Asia	*0.02*	*0.01*	*0.02*	*34.7*	*0.01*	*0.01*	*0.01*	*9.9*
Resource-rich	*0.3*	*0.47*	*0.74*	*20.6*	*0.34*	*0.57*	*0.94*	*23.3*
Resource-poor	*0.14*	*0.18*	*0.21*	*13.3*	*0.12*	*0.14*	*0.13*	*12.1*
Transit	11.1	17.7	24.0	17.4	19.9	11.6	26.3	17.2
World	100.0	100.0	100.0	18.1	100.0	100.0	100.0	16.3

Source: WITS, World Bank.
Note: See IMF, 2012 for a list of LLDC countries rich in non-renewable natural resources.

Almaty Programme of Action. Apart from geographical constraints and higher transportation costs, they are highly dependent on their neighbors as markets and their neighbors' transport (hard and soft) infrastructure in order to connect to global markets. Therefore, having "bad" neighbors that have been economically stagnant for several decades (Zimbabwe), having experienced political instability (Central African Republic), or being involved in a civil war has negatively affected to economic performance of LLDCs. In the past decade, LLDCs have been growing slower than the transit coastal countries.

Distinguishing resource-rich LLDCs from resource-scarce LLDCs, Collier (2007) finds that both resource-scarce and resource-rich landlocked developing countries have performed worse than the coastal resource-scarce economies between 1960 and 2000. As shown in Table 1, this trend has been reversed for resource-rich LLDCs, which have been growing as fast as the resource-scarce transit coastal countries between 2000 and 2012. Table 1 also shows that income growth was higher over the period 2000–2008 before the recession following the global financial crisis.

Among landlocked developing countries, (see Table 1), resource-rich LLDC countries[5] have been growing at more than twice the growth rate of resource-scarce countries (5.27% vs. 2.2%) since 2000, resulting in their GDP per capita income to become more than a double of that of resource-scarce countries in 2012 (US$ 1,189 vs. US$ 438). Resource-scarce

[5] Due to volatility in commodity prices, there has been a difficulty in determining an exact threshold (as percent of GDP, fiscal revenue, or exports) to consider a country to be resource-rich. The RR (resource-rich) landlocked countries group includes a sample of 17 landlocked developing countries in the low-income, lower-middle and upper-middle income groups. The group was based on two criteria: (i) being either a low-income, lower-middle and upper-middle income country as classified by the World Bank using 2014 GNI per capita; and (ii) depending on natural resources for at least 20 percent of export or fiscal revenue using average data for 2006–10 (see IMF, 2012). For the full list of landlocked resource-rich countries, see Annex 1. This approach has some limitations, e.g. Afghanistan has significant amounts of undiscovered non-fuel mineral resources.

TABLE 3 ■ Exports per Capita, 2000–2012

	Exports per capita, US$			Compound annual growth rate (percent)		
Income group	2000	2008	2012	2000–08	2010–12	2000–12
LLDCs	958	3,000	2,930	10.1%	6.6%	6.3%
Resource-rich LLDCs	1,194	4,757	4,466	15.7%	16.3%	11.0%
Upper middle	2,924	12,550	11,041	15.7%	11.7%	11.71%
Lower middle	557	1,414	1,414	18.1%	11.5%	11.45%
Low	101	306	306	15.0%	9.9%	9.85%
Resource-scarce LLDCs	723	1,243	1,393	4.5%	–3.0%	1.7%
Upper middle	645	1,282	1,897	9.0%	–0.1%	–0.05%
Lower middle	1,194	2,173	1,908	–5.6%	4.0%	3.98%
Low	329	273	374	–12.5%	1.1%	1.08%
Coastal transit:	34,511	84,533	77,309	4.6%	11.0%	10.98%
Resource-rich	615	2,103	2,701	8.3%	14.1%	14.10%
Resource-scarce	68,407	166,963	151,917	0.9%	7.9%	7.86%

Source: WITS and WDI, World Bank.

LLDCs have also been behind the resource-scarce transit coastal countries in terms of GDP growth.

LLDCs' share of exports represents a mere 1.1 percent of world exports even if this share has been growing on average at 18.3% annually between 2000 and 2012, whereas exports from transit coastal countries represent 24 percent of world exports, as shown in Table 2. Unsurprisingly, the share of merchandise trade between 2000 and 2012 has increased more in resource-rich LLDCs than resource-poor ones. The share of exports from LLDCs in Europe and Central Asia is the highest and has been growing at an annual rate of 24.5%, and changed from 0.27% in 2000 to 0.78% in 2012, led by a surge in gas and oil exports in countries like Kazakhstan, Azerbaijan and Turkmenistan.

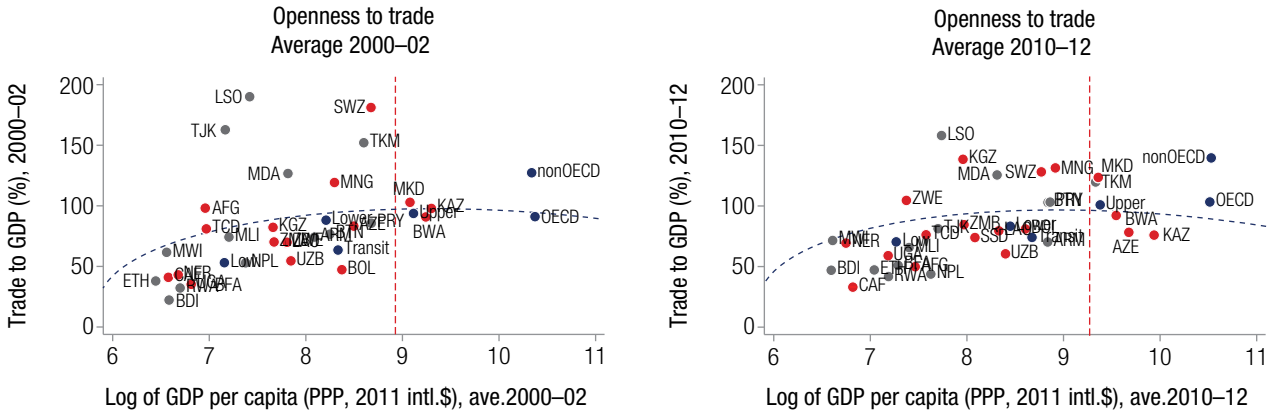
Similar to growth in terms of GDP per capita, Figure 3 shows that exports per capita in LLDCs have been growing, on average, slower than exports per capita of transit coastal countries. Yet, in the period before the global recession (2000–2008) annual growth of exports per capita of LLDCs has been almost double of that of transit countries, 10.1% vs. 4.6%. Indeed, exports in 2012 have not yet reached the 2008 level.

Exports per capita of resource-rich LLDCs have been growing faster than that of resource-scarce LLDCs and almost as fast as exports per capita of resource-rich coastal transit countries. Resource-scarce LLDCs have also been lagging behind all other countries.

Figure 1 confronts the average trade-to-GDP ratios from 2000 to 2002 and from 2010 to 2012 against the log of the average GDP per capita (PPP; 2011 international dollars) during the corresponding period. The dashed vertical line indicates the world's median income. The fitted curve is obtained from regressing the trade-to-GDP ratio on the log of GDP per capita and its squared value. It reflects that countries tend to trade more (relative to their nominal GDP) as per capita incomes rises, but they do so at a decreasing rate.

Country-level evidence shows that the inter-country differences among LLDCs to a certain extent can be explained by good governance and openness to foreign trade (e.g., Paudel, 2014). The trade-to-gross domestic product (GDP) ratio provides an indication of the combined importance of exports and imports of goods and services in an economy. It is one of the most basic indicators measuring a degree of a country's openness to foreign trade and economic

FIGURE 1 ■ Openness to Trade between 2000–02 and 2010–12



Source: authors.

Note: AFG=Afghanistan, ARM=Armenia, AZE=Azerbaijan, BTN=Bhutan, BOL-Bolivia, BWA=Botswana, BFA=Burkina Faso, BDI=Burundi, CAF=Central African Republic, TCD=Chad, ETH=Ethiopia, KAZ=Kazakhstan, KGZ=Kyrgyz Republic, LAO=Lao, PDR, LSO=Lesotho, MKD=Macedonia, FYROM, MWI=Malawi, MLI=Mali, MDA=Moldova, MNG=Mongolia, NPL=Nepal, NER=Niger, PRY=Paraguay, RWA=Rwanda, SSD=South Sudan, SWZ=Swaziland, TJK=Tajikistan, TKM=Turkmenistan, UGA=Uganda, UZ-B=Uzbekistan, ZMB=Zambia, ZWE=Zimbabwe. OECD = high-income OECD; non-OECD = high-income non-OECD; Upper=upper middle income; Lower=lower middle income; Low=low income; Transit = transit countries; "+"=Resource-rich LLDC countries.

The fitted curve is obtained from regressing the trade-to-GDP ratio on the log of GDP per capita and its squared value.

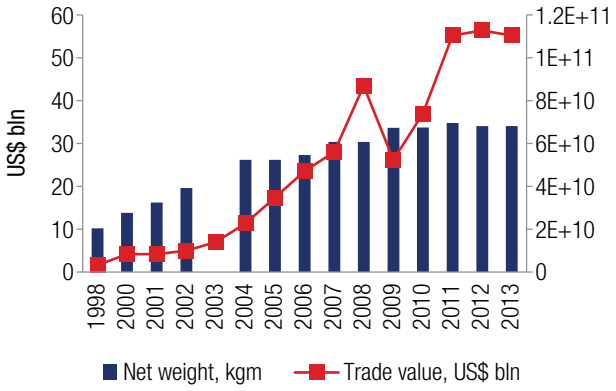
integration. Figure 1 shows that, although trade openness in mostly resource-poor LLDCS like Burundi or Malawi has remained stagnant in between 2000–02 and 2010–12, trade openness in most resource-rich countries like Azerbaijan, Botswana, and Kazakhstan has increased as a result of high commodity prices.[6]

The increase in exports from resource rich LLDCs has often been driven by prices rather than volumes, like in the case of oil exports from Kazakhstan. Indeed, while the export value of Kazakhstan's crude oil has increased more than 30-times from US$1.6 bln in 1998 to US$55.2 bln in 2013, the actual exported volume has only increased by 3-times (see Figure 2).

Commodity prices have driven exports in resource-rich LLDCs until mid-2008, before the financial crisis caused a sharp decline in commodity and raw material prices. As the global economy recovers, commodity prices are expected to climb again. Indeed the overall LLDC trade value in 2012 has recovered to the level of 2008 before the crisis occurred.

According to Alcala and Ciccone (2004), when trade is divided by real GDP in PPP terms (and not nominal GDP), the relationship is slightly different because real openness corrects for distortions created

FIGURE 2 ■ Kazakhstan Exports of Crude Oil: Value and Volume (product code 270900)



Source: WITS, World Bank.

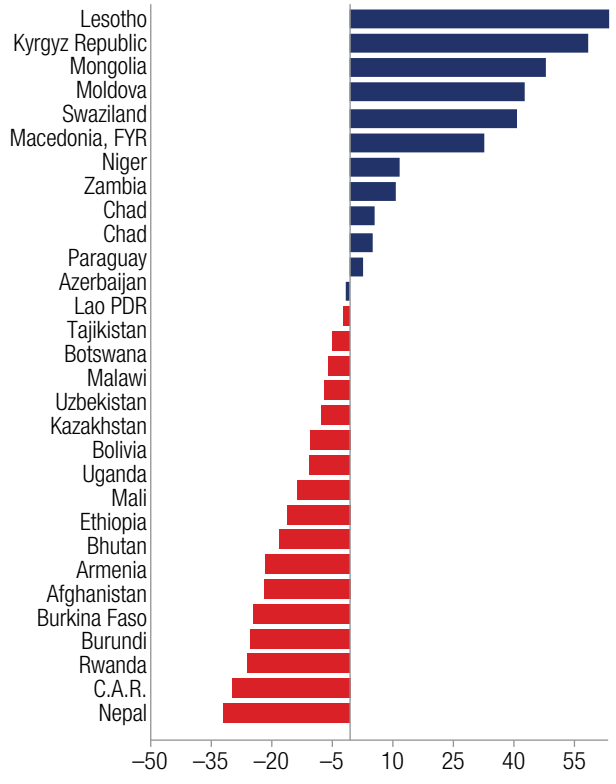
[6] For instance, price of oil went from $15/barrel in 1999 to $130 in mid-2008, and has been hovering around $100 in the post-financial crisis period.

when non-traded goods are priced differently across countries. Without putting other characteristics in context, it can be difficult to say whether a country's ratio of trade to GDP is relatively low or high. Generally, economies large in terms of geography or population tend to have a lower trade-to-GDP ratio than smaller countries because they have the option of undertaking a bigger share of trade within their borders.

In addition to income, other structural characteristics such as population and geography play a significant role in determining a country's openness. All else equal, landlocked developing countries are at a greater disadvantage when it comes to trade compared to countries with access to the sea.

Reis and Farole (2012) carry out a parametric analysis by regressing trade-to-GDP ratios on GDP per capita, population, remoteness, and a measure for general cost of trading (which is correlated with being landlocked).[7] The analysis provides us with a better measure of what a country can be expected to trade given its structural characteristics. Figure 3 shows the difference between actual trade and trade predicted by the model from 2011 to 2012. The difference between actual and predicted trade between 2011 and 2012 appears to be the largest for Lesotho, Kyrgyz Republic, Mongolia, indicating a greater economic integration as opposed to Nepal, Central African Republic, Rwanda, and Burundi, which traded less than predicted.

FIGURE 3 ■ Trade Potential: Difference between Actual and Predicted Trade in 2011–12



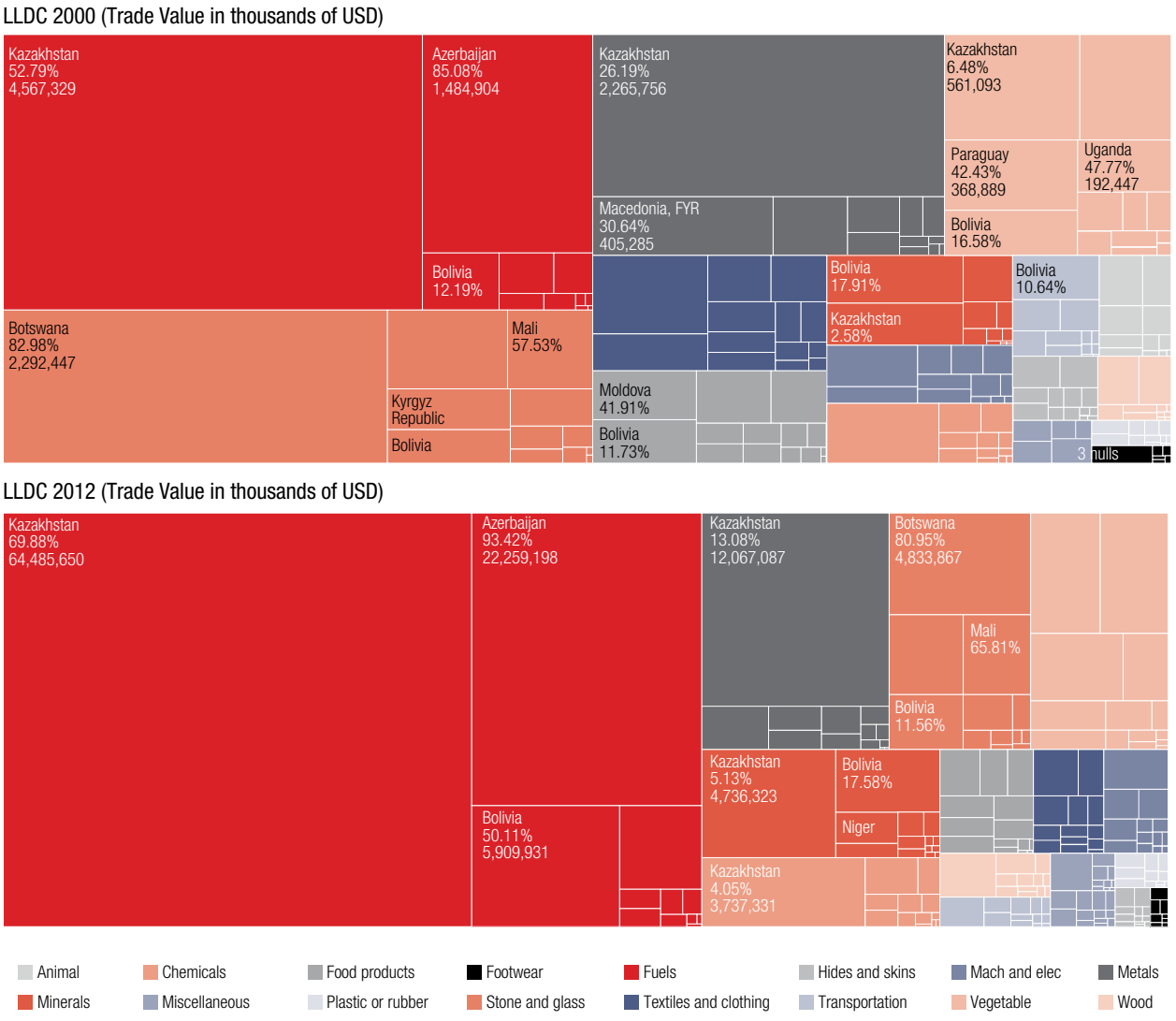
Source: Authors' calculations. A positive [negative] value is related to over trading [under-trading] as actual trade is larger [smaller] than trade predicted by the model.

LLDCs: Little Diversification in Export Composition and Export Markets

Five products defined at the HS2-digit level make up for at least 90 percent of exports in one third of LLDCs. In general, exports in LLDC countries seem to remain quite concentrated within the last twelve years, as shown in Figure 4 depicting the evolution of export composition in LLDCS between 2000 and 2012. The share of fuels export in Azerbaijan, Kazakhstan, and Bolivia has increased significantly as a result of increases in oil prices. The reliance of resource-rich LLDCs on commodity exports makes them vulnerable to potential negative shocks in commodity prices. Resource-rich countries should prioritize savings and domestic investment in order to generate lasting development gains, but also diversification. Collin (2007) suggests, for instance, that LLDCs could become hubs for financial services or other types of services, for the neighboring region.

[7] The model has been specified as follows: Trade (as % of GDP) = f(log(GDP per capita), log(GDP per capita)^2, log(population), Cost to export).

FIGURE 4 ■ LLDCs: Export Composition, 2000 and 2012, in US$ mln



Note: select LLDC countries with reported data. This product group is largely based on World Custom Organizations (WCO) Sector classification for the Harmonized System (HS) product nomenclature with some minor difference.

2 Connectivity Constraints

This section provides evidence on connectivity constraints of landlocked developing countries. It also provides the evidence on factors explaining differences in logistics performance and trade costs between landlocked developing countries (LLDCs) and their transit and coastal neighbors. Despite positive changes with regard to logistics performance and increased involvement of transit countries, LLDCs still experience considerably higher cost of trade when compared to the transit coastal countries: a mark-up of about 70 percent in ad-valorem equivalent. Distance alone cannot explain it; it is rather a lack of overall connectivity of international trade supply chain, related to logistics performance.

Supply chain connectivity depends on the quality of physical infrastructure and the quality and sophistication of services, including customs and border control, trade or transportation policies that affect logistics performance.

Supply chain bottlenecks are the primary cause of frictions in trade; logistics (trade) costs increase with decreasing logistics performance. Reducing logistics (trade) costs by half would raise trade by 15% and production by 5% globally (see Figure 5).

LLDCs: Logistics Performance

Most of the increase in logistics costs arises due to lower reliability of supply chain. Launched in 2007, a Logistics Performance Index (LPI) is based on information from multinational freight forwarders and the main express carriers with worldwide operations. They provide an international benchmark for comparing logistics performance and effectiveness in facilitating trade across 150 countries. The LPI is a useful tool in comparing logistics performance across countries and identifying key reform priorities within countries (see Box 2). The LPI survey is based on ratings by respondents of logistics performance of their own and eight other countries on a scale of 1 (weakest) to 5 (strongest).[8]

Box 1: What is Supply Chain Connectivity?

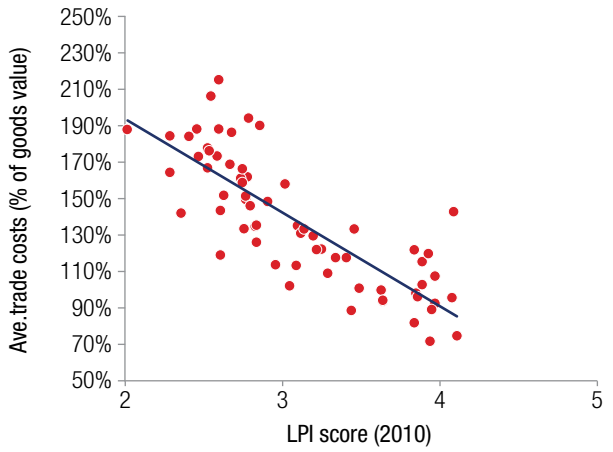
The reference to connectivity in the context of logistics has been popularized by the World Bank report on logistics performance "*Connecting to Compete: Trade Logistics in the Global Economy*" (World Bank 2007). In this context supply-chain connectivity is the ability of the traders in one country to effectively establish reliable supply chains with their customers or suppliers. These supply chains are not taking one specific route or mode of transportation, but rather have several options. Their performance is dependent not only on the transport route but also on the logistics business environment, which depends on national or regional patterns (customs is a nationwide agency). The criterion may depend on the product.

For instance, exporters of dried fruits from the Isfara region in northern Tajikistan are dependent on partnerships with long-distance road services with Russia and Europe to serve their customers and face potential issues in transit. They are also dependent on the local cross-border road network within the Kyrgyz Republic to expand and diversify their collection area. In the case of the General Motors factory in Uzbekistan, or a large wholesaler operating from Almaty, the concern will be the predictability of the rail transit to Almaty and beyond from distant sources in East Asia, Russia, or the European Union, so as to avoid potential stock-outs.

Source: The Eurasian Connection. Supply-Chain Efficiency along the Modern Silk Route through Central Asia. Rastogi and Arvis, 2014.

[8] Available at: http://lpi.worldbank.org/

FIGURE 5 ■ Country Trade Costs vs. LPI score, 2010



Source: World Bank.

Graphically, Figure 6 demonstrates how the six LPI dimensions fit into the supply chain framework.

Table 4 provides a comparison of the logistics performance of landlocked and coastal countries, globally and regionally. From the comparison of logistics performance of landlocked and coastal countries by income group, it appears that between 2007 and 2014 LLDCs have experienced the largest increase in LPI (14.2%), which significantly exceeds the increase in LPI for transit coastal countries (6.8%).

However, in absolute terms, the LPI score for landlocked developing countries has been historically lower than the LPI score of the corresponding transit coastal countries, and the increase in LPI for LLDCs between 2007 and 2014 constitutes only 0.31. In comparison, the LPI score of the high income countries has been quite high and with little variation from year to year, while the LPI score of the lower income countries has grown by almost 8% and that of the low income countries by a slightly higher rate of 8.6%. Overall, there is a persistent and large difference in logistics performance between countries with different income levels.

Specifically, among the landlocked developing countries, Rwanda, Afghanistan, Kazakhstan, and Tajikistan have experienced the largest increases in mean LPI score between 2007 and 2014 (see Figure 7) due to recent improvements in infrastructure and trade facilitation efforts. On the other hand, Central African Republic and Turkmenistan have experienced a decline in their logistics performance as measured by the LPI.

Overall, there is strong evidence that landlocked developing countries remain at logistics disadvantage when compared to their transit neighboring countries. The difference between LLDCs and their transit neighbors is more pronounced for countries in South Asia, East Asia and Pacific, and Europe and Central Asia, even though the difference between LLDCs in South Asia and its transit coastal neighbors has been rapidly declining (see Figure 6).

Table 5 provides detailed information on some components of the LPI. In Sub-Saharan Africa, two LPI components such as ease and affordability of arranging international shipments and ability to track and trace international shipments en route contribute to the gap between coastal transit and landlocked countries in 2014, as opposed to lack of competence of the local logistics industry in 2007.

In South Asia, the difference seems to stem from all three LPI components shown below, but the gap for the infrastructure and tracking components between coastal transit and landlocked developing countries has been declining almost by half between 2007 and

Box 2: Logistics Performance Index (LPI)

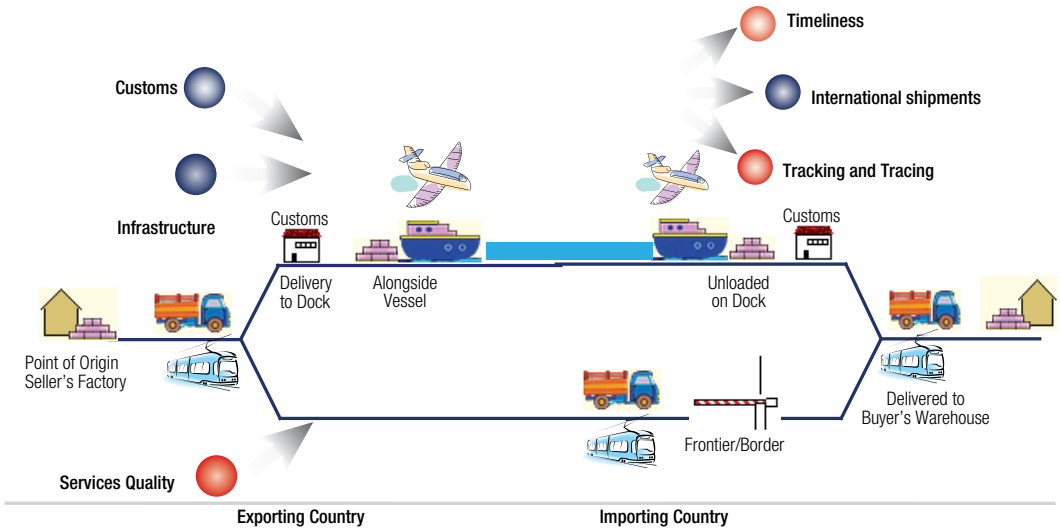
The overall Logistics Performance Index (LPI) is a composite index based on performance of countries on six dimensions (indicators) of trade-related logistics performance. The indicators are:

- *Efficiency of customs* and other border agencies in expediting cargo clearance.
- *Infrastructure efficiency* (in the quantity and quality of transport infrastructure and information technology infrastructure for logistics).
- *Ease and affordability* of arranging international shipments.
- *Competence of the local logistics industry*, where the freight forwarding operations are subcontracted to domestic agencies by the global logistics companies.
- *Ability to track and trace international shipments* while the shipment is en route.
- *Timeliness of shipments in reaching destination.*

Logistics performance is evaluated on a 5 point scale, with 1 the lowest and 5 the highest. This data is corroborated by factual information from domestic sources, for instance on time, cost, or effectiveness of process and services. On average, one LPI point less on this scale is the equivalent of six days more to import and three days more to export.

Source: World Bank.

FIGURE 6 ■ Six LPI Dimensions along the Supply Chain Framework



Source: World Bank.

TABLE 4 ■ LPI Performance by Country Income Group, 2007–2014

Income group	2007	2010	2012	2014	2007–2014, change	2007–2014, growth %
High income: OECD	3.64	3.66	3.63	3.70	0.06	1.6
High income: non-OECD	3.13	3.19	3.21	3.18	0.05	1.6
Low income	2.22	2.38	2.37	2.41	0.19	8.6
Lower middle income	2.4	2.58	2.58	2.59	0.19	7.9
Upper middle income	2.64	2.74	2.78	2.82	0.18	6.8
LLDCs	2.18	2.46	2.40	2.49	0.31	14.2
Transit coastal countries	2.66	2.78	2.85	2.84	0.18	6.8
WORLD	2.74	2.87	2.87	2.89	0.15	5.5

Source: World Bank.

2014. In Central Asia, a low ability to track international shipments and predict their arrival is one of the main reasons for the low reliability of regional supply chains. As a result, many companies are forced to maintain higher inventory, which adds to their costs.

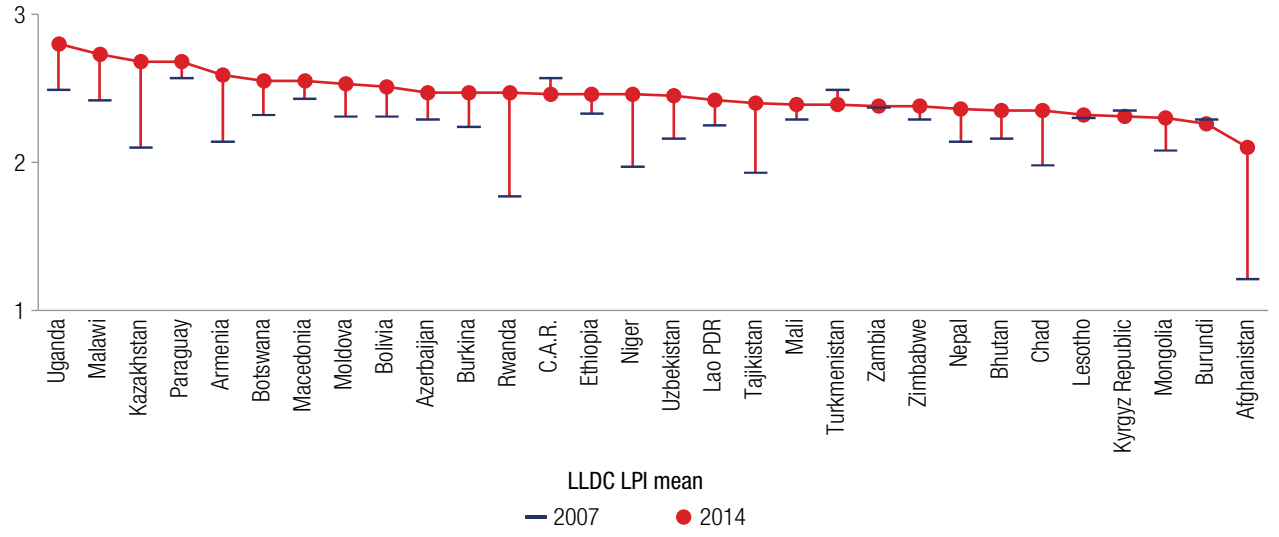
These findings seem to be in line with recent 2014 LPI findings for the low income country group, where progress in logistics performance has been driven primarily by improvement in infrastructure and basic border management.

Another effective way to quantitatively describe the trade connectivity patterns of LLDCs countries is to look at the bilateral trade costs with major trading countries.

LLDCs Still Face High Trade Costs

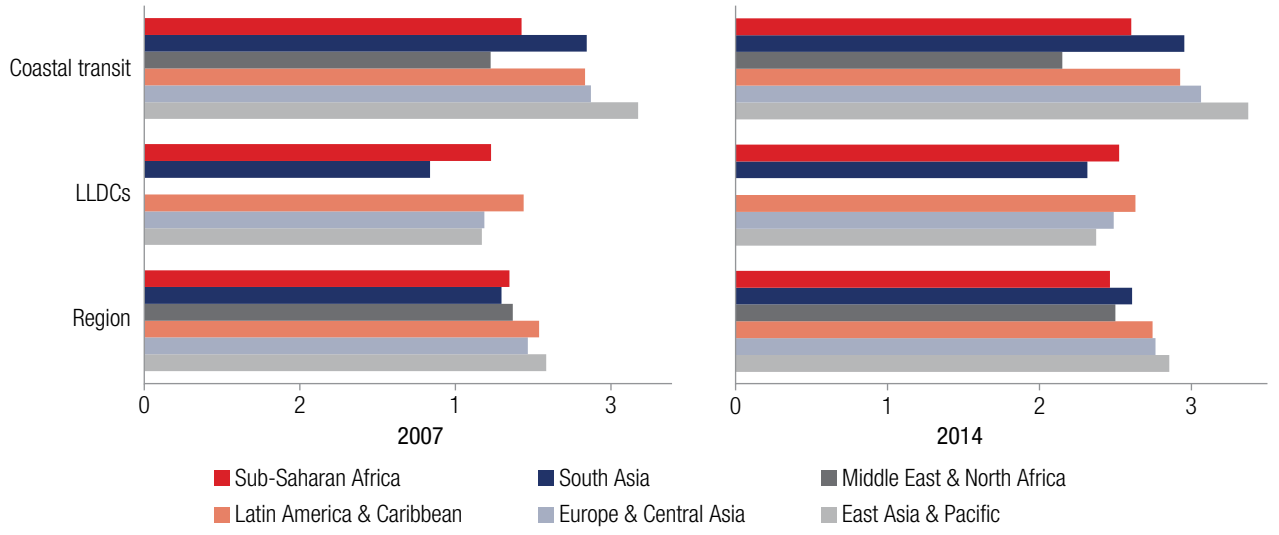
The intensity of trade between countries is reduced by many factors that capture the degree of separation between them. These factors fall into two main categories. The first category consists of exogenous factors that separate the exporter from the importer such as geographical distance, transportation costs, common features (language, border, history, participation in the same economy community). The second category has to do with endogenous trade costs, which are factor specific to the origin or destination and are dependent on particular policy choices. Examples include

FIGURE 7 ■ LPI performance of LLDCs in 2007 and 2014



Source: World Bank.
Note: 2007 data are not available for Botswana, C.A.R., and Turkmenistan; 2010 scores were used instead.

FIGURE 8 ■ Mean Logistics Performance Index for Coastal and Landlocked Developing Countries, by Region



Source: World Bank.
Note: 2007 data are not available for Botswana, C.A.R., and Turkmenistan; 2010 scores were used instead.

logistics performance (cost, delay and reliability) and bottlenecks on international supply chains, international connectivity (existence of regulator maritime services), tariffs and non-tariff measures.[9]

The trade cost is the price equivalent of the reduction of international trade as compared with the potential implied by domestic production and consumption in the origin and destination markets. Higher bilateral trade costs result in smaller bilateral trade flows. The recently published World Bank-UNESCAP dataset proposes comprehensive measures of trade costs for 178

[9] Rastogi and Arvis, 2014.

TABLE 5 ■ LPI in Regions with Poorly Performing Landlocked Developing Countries

	Sub-Saharan Africa				Central Asia		South Asia			
	Landlocked		Coastal		Landlocked		Landlocked		Coastal	
Background data	2007	2014	2007	2014	2007	2014	2007	2014	2007	2014
Overall LPI	2.23	2.52	2.42	2.6	2.19	2.49	1.84	2.31	2.85	2.95
Selected LPI components:										
Infrastructure	1.92	2.35	2.21	2.39	1.95	2.31	1.61	2.09	2.64	2.77
Intl. shipments	2.27	2.47	2.44	2.69	2.19	2.63	1.79	2.34	2.9	3.14
Tracking	2.12	2.52	2.41	2.64	2.2	2.46	1.87	2.28	2.81	2.92

Source: World Bank.

TABLE 6 ■ Trade Costs with Main Trading Countries by Income Group, 2000–2010

	With USA			With Germany			With Japan			With China		
Income group	2000	2010	change	2000	2010	change	2000	2010	change	2000	2010	change
High income – OECD	106.2	102.8	–3.2%	71.5	61.4	–14.1%	135.4	128.3	–5.2%	147.5	101.8	–31.0%
High income – non OECD	149.9	146.6	–2.2%	175.5	184.2	4.9%	189.1	215.1	13.8%	256.4	143.7	–43.9%
Upper middle income	161.2	160.2	–0.6%	178.6	153.8	–13.9%	227.6	224.1	–1.6%	262.7	186.9	–28.9%
Lower middle income	196.5	187.4	–4.6%	203.0	189.0	–6.9%	243.8	225.8	–7.4%	253.6	196.0	–22.7%
Low income	287.6	256.0	–11.0%	230.2	215.3	–6.5%	309.5	315.6	2.0%	303.2	206.0	–32.1%
LLDCs	265.3	254.0	–4.2%	225.5	199.4	–11.6%	329.6	307.4	–6.8%	328.9	222.5	–32.4%
Transit coastal countries	194.6	171.7	–11.8%	153.7	144.9	–5.7%	216.4	205.7	–5.0%	213.4	161.4	–24.3%
World	178.5	174.1	–2.4%	172.8	162.0	–6.3%	221.4	223.9	1.1%	243.4	175.5	–27.9%

Source: World Bank.

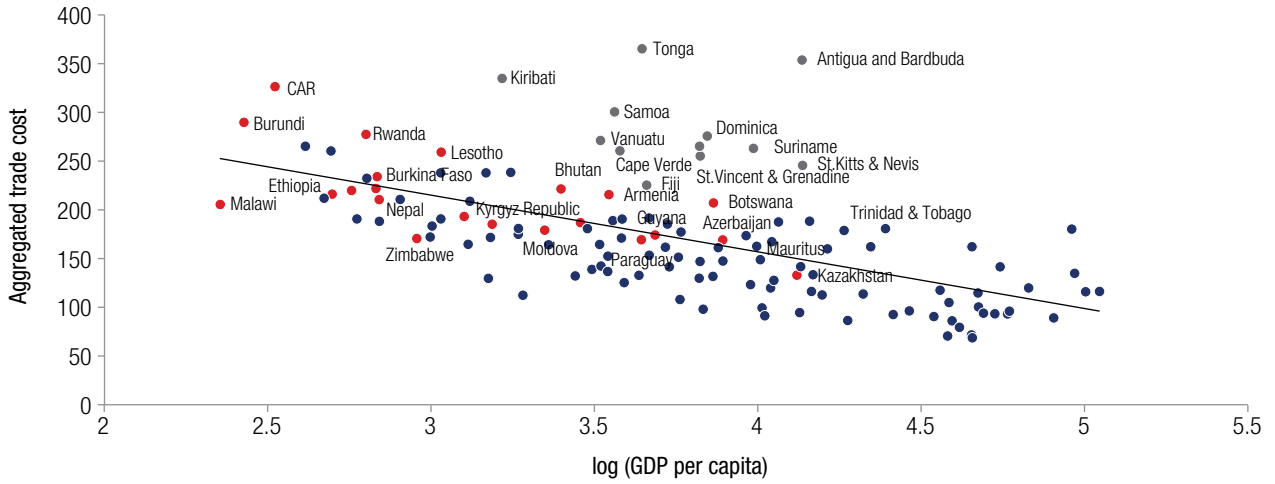
countries over the period of 1995–2010.[10] Trade costs are not to be simply understood as "out of the pocket" expenses, they rather represent an ad-valorem equivalent that captures the effect of distance, trade facilitation and connectivity on trade. Arvis (2013) found that connectivity (e.g. shipping) and logistics performance play an even more important role in explaining trade costs than distance, or traditional trade policies focused on tariffs. Unlike distance and geography, which are impossible to change, connectivity and logistics performance can be addressed through various policies in the LLDCs and their transit neighbor countries.

From looking at Table 6, trade costs inversely correlate with the level of income, and landlocked developing countries tend to have higher trade costs compared to transit coastal countries. The difference is not negligible—the landlocked developing countries' trade costs are over 1.5-times those of the corresponding transit countries.

There is a noticeable improvement in trade costs of LLDCs with Germany and China, which can be attributed to trade facilitation efforts in Central Asian countries, namely Kazakhstan that has launched container block trains from China to Germany and a surge in Chinese investment to and trade with Sub-Saharan Africa. China has surpassed the US in the volume of imports from Sub-Saharan Africa and has reached US$88 bln in 2013, while Chinese exports have

[10] The trade costs are ad valorem equivalent computed from trade and production data. Trade costs in this construction are symmetric. Arvis, Duval, Shepherd, Utoktham, 2013.

FIGURE 9 ■ GDP per capita and Aggregate Trade Costs, 2013



Source: Authors.

Note: Data for aggregate trade costs is for 2009. LLDCs are shown in red; Small Island Developing States are shown in yellow.

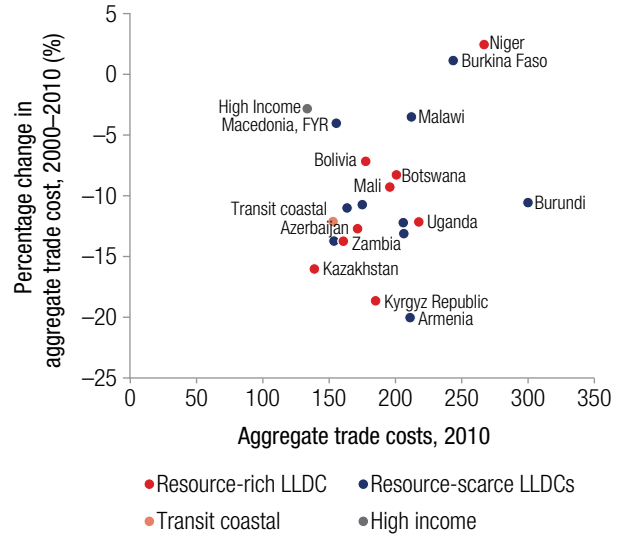
exceeded the US exports and reached US$70 bln in 2013; between 2005–2010 Chinese FDI constituted about 14% of China's investment abroad.[11]

When using aggregate trade costs instead of bilateral trade costs, landlocked developing countries in general are characterized by higher trade costs and lower per capita income (see Figure 9). Yet, their trade costs seem to be lower than those of Small Island Developing States.

Resource-rich landlocked developing countries seem to have experienced a larger decrease in aggregate trade costs between 2000 and 2010, when compared to their resource-scare peers, except for Armenia (see Figure 10). Among LLDCs, Kazakhstan appears to have the aggregate trade costs below the average of that of transit coastal countries. Although Kyrgyz Republic, Armenia, Zambia, Zimbabwe, and Uganda have experienced a drop in aggregate trade costs since 2000, the level of these costs in 2010 still remains high. On the other hand, Niger and Burkina Faso that are also characterized by very high aggregate trade costs had experienced increases between 2000 and 2010.

In Central Asia, there have been a number of initiatives to raise awareness and help reduce bottlenecks along certain road and rail corridors. Launched in 2009, the Central Asia Regional Economic Cooperation (CAREC) Program has developed corridor performance metrics in terms of travel time and cost (Corridor Performance Measurement and Monitoring, or CPMM) along the six transport corridors using actual commercial shipments (see Table 7). Field surveys point to high costs and border and transit delays, which results in low reliability of regional supply chains.

FIGURE 10 ■ Measure of Aggregate Trade Costs, 2000–2010



Source: World Bank.

[11] http://www.economist.com/node/18586448, IMF.

TABLE 7 ■ Trade Facilitation Indicators, CAREC, 2010–2013

	2010 (Baseline)		2011		2012		2013	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Time to clear a border crossing point, hrs	8.7	4.1	7.9	4.1	10.9	4.2	10	5.3
Cost incurred at border crossing clearance, US$	186	114	156	90	157	76	235	120
Cost incurred to travel a corridor section, US$ per 500km per 20ton	712	405	959	637	999	621	1482	1003
Speed to travel on CAREC corridors, kph (SWD)	23.5	22.6	21.9	20.2	22.9	25	19.9	18.2
Speed without delay (SWOD), kph	35.2	37.5	38	39.9	37.8	35.5	36.1	34.2

Source: CAREC CPMM, Trade Facilitation Indicators, May, 2014.

However, due to their focus on specific routes and corridors, such initiatives do not address policy constraints at the nationwide level and do not facilitate deeper regional harmonization and integration of cross-border or transit logistics. They rather provide evidence of non-performance in terms of high costs and lengthy periods of time required to cross border posts along certain corridors.

On the other hand, "Trading across Borders" indicator from World Bank's Doing Business demonstrates that LLDCs, on average, are characterized by a higher number of documents, a higher cost per container and a longer period of time required to export or import compared to transit coastal countries Table 8. This indicator does not reflect the actual time spent to go through particular corridors or ports. It rather serves as a metric for bureaucracy and red tape at cross borders.

Evidence shows that in LLDCs logistics costs, other than transportation, constitute a very high percentage

TABLE 8 ■ Doing Business: Trading Across Borders, 2007–2014

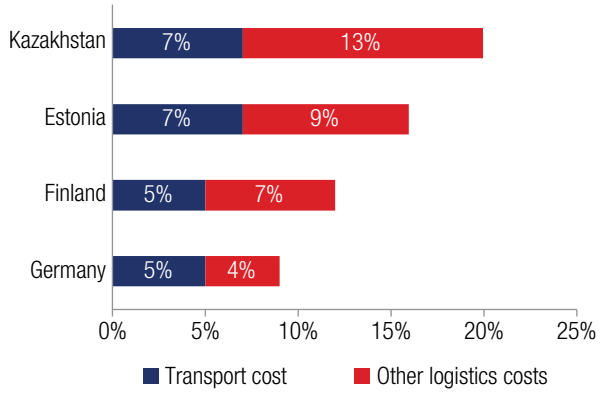
	Exporting						Importing					
	Number of docs		Days		Cost per container		Number of docs		Days		Cost per container	
	2007	2014	2007	2014	2007	2014	2007	2014	2007	2014	2007	2014
High income: OECD	4	4	11	10	921	1014	4	4	11	9	997	1045
High income: non-OECD	5	5	17	14	737	1079	7	6	19	15	1160	1258
Upper middle income	6	6	26	19	1291	1276	8	7	30	24	1465	1589
Lower middle income	8	7	29	25	1019	1542	9	8	35	29	1323	1858
Low income	9	8	45	36	1886	2591	11	10	57	41	2205	3128
LLDCs	9	9	51	41	2301	3142	11	10	59	47	2693	3732
Transit coastal countries	8	6	32	22	1295	1422	10	7	37	25	1525	1742
World	7	6	26	22	1241	1504	8	7	31	25	1425	1847

Source: World Bank.

of sales. In Kazakhstan, for example, such logistics costs are about 13% of total sales compared to 4–7% in high income countries in Europe (see Figure 11). Due to unpredictability of supplies from abroad, manufacturing and retail companies are forced to maintain high levels of inventory in order to operate smoothly. Addressing supply-side constraints and inefficiencies by establishing a secure and reliable transit transport system would allow LLDCs to reduce transport and logistics costs.

It has to be noted, however, that as LLDCs countries strive to further reduce trade costs, the structure of a retail system in many of these countries is such that mark-ups on certain categories of imported products may still be quite high and significantly outweigh all the benefits of lower trade costs.

FIGURE 11 ■ Firm-level logistics expenditures as percentage of sales, 2011–2012



Source: Authors, for Germany: TU Berlin, for Brazil: ILOS, for Finland: Turku School of Economics, for Kazakhstan: World Bank project.

Hinterland Connections: Efficiency of Transport and Logistics Services

3

The main obstacles to trade faced by landlocked developing countries involve transiting through territories of other countries. These obstacles include: long distances, inadequate transport services and infrastructure and inefficient institutional and operational transit regimes. Additionally, in many locked developing countries, centers of production and consumption are located more than 800 kilometers (km) away from the closest seaport, which imposes a significant cost and time penalty on the manufacturers. Moving beyond cost and time parameters, it has been shown that unreliable hinterland connections have been the greatest impediment faced by manufacturers in landlocked in their attempt to increase regional trade as well as to enter global value chains (Faye et al, 2004; Arvis et al, 2011, UNCTAD, 2013). Efficient logistics services and transport operations are therefore crucial in reducing the effects of remoteness, in particular at modal interfaces, freight terminals, and ports, all of which play a fundamental role in trade of landlocked developing countries.

The operation of these services is provided mainly by the private sector or by commercially oriented public entities. Policy makers in LLDCs and transit countries have a critical responsibility to ensure that regulations at national, as well as at bilateral and regional levels, promote efficient and cost-effective services. Each of these help to overcome geographical constraints or the lack of economies of scale due to small transportation volumes. Unfortunately, many countries have inadequate policies that still favor closed but small and inefficient services markets. LLDCs may be "policy locked" and a renewed focus on the efficiency of transport operations and logistics services is long overdue.

The flow of freight from and to landlocked developing countries as elsewhere requires the involvement of logistics service providers and transport operators into a succession of transport activities (by road, rail, sea, waterways or air) along the networks connecting the LLDCs. Nodes and gateways, such as ports, or terminals, are places where logistics activities take place and where shipments are (i) received, unconsolidated and eventually cleared for imports; (ii) received, reconsolidated and eventually cleared for exports; (iii) trans-loaded to another mode of transportation (e.g. rail <> road); (iv) stored in warehouses; (iv) undergo light transformations, like packaging for the local market; (v) loaded on trucks for local or regional distribution; and (vi) reconsolidated and shipped to distant satellite facilities. Efficient logistics nodes generate economies of scale and facilitate consolidation of transportation between them, with positive impact in terms of reduced cost, delays and, most importantly, increased reliability. While transportation modes are an essential component of those systems, they can be grouped into three general categories: road, rail and, marginally, lake and river transport. In many landlocked developing countries, centers of production and consumption are located more than 800 kilometers (km) away from the closest seaport (see Table 9).

TABLE 9 ■ Distance to Ports from Select Landlocked Developing Countries

Landlocked Developing Country	Ports	Range (km)	Mode
Afghanistan	2	1,200–1,600	Road
Armenia	2	800–2,400	Rail, road
Azerbaijan	2	800	Rail, road
Bolivia	8	500–2,400	Rail, river, road
Botswana	4	950–1,400	Rail, road
Burkina Faso	5	1,100–1,900	Rail, road
Burundi	2	1,500–1,850	Lake, rail, road
Bhutan	1	800	Rail, road
Central African Republic	2	1,500–1,800	Rail, road
Chad	2	1,800–1,900	Rail, road
Ethiopia	3	900–1,250	Rail, road
Kyrgyz Republic	4	4,500–5,200	Rail, road
Laos	3	600–750	Rail, road
Lesotho	2	500	Rail, road
Malawi	3	600–2,300	Rail, road
Mali	6	1,200–1,400	Rail, road
Mongolia	4	1,700–6,000	Rail, road
Nepal	2	1,100–1,200	Rail, road
Niger	3	900–1,200	Rail, road
Paraguay	4	1,200–1,400	Rail, river, road
Moldova	2	800	Rail, road
Rwanda	2	1,500–1,700	Lake, rail, road
Swaziland	4	250–500	Rail, road
Uganda	2	1,300–1,650	Lake, rail, road
Uzbekistan	3	2,700	Rail, road
Tajikistan	3	1,500–2,500	Rail, road
Macedonia, FYR	1	600	Rail, road
Turkmenistan	3	4,500	Rail, road
Zambia	8	1,300–2,100	Rail, road
Zimbabwe	3	850–1,550	Rail, road

Source: UNCTAD.

Historically, carriage by road or sea has been performed by private operators. Furthermore, the private sector has increasingly taken a larger role in the provision of infrastructure services by expanding its involvement in domains that were traditionally dominated by public entities (such as ports or railways) and also in the provision and management of logistics facilities. However, given that many landlocked countries are faced with low freight volumes, these services are often provided in an environment with a low level of competition and a weak regulatory framework. This chapter will assess the importance of transport operations and logistics services for the efficiency of hinterland connections.

Networks and Connectivity of Freight Terminals

Given long distance to centers of production and consumption in landlocked developing countries, freight terminals are critical nodes along transportation routes (or networks of routes) that connect LLDCs. These points of interchange provide services for the loading, unloading and storage of freight in their facilities.

Freight terminals combine the physical handling of cargo and transport equipment (handling, storage, interchange between modes if applicable, reception / delivery, etc.) and the associated documentation process by the border management agencies.

While the freight terminal's operator focuses on maximizing profits, from a development perspective, one has to look at the role of freight terminals not in isolation but in relation to the entire supply chain. Although the management and provision of accompanying services for the terminal infrastructure are delivered by private operators, public agencies, especially in transit countries, also play an important role in making the supply chain work seamlessly. Appropriate incentives and a suitable regulatory environment, facilitation of choice of location or adequate financing schemes under the PPP (public-private partnership) are the prerequisites for ensuring that these facilities support trade and not hinder it.

FIGURE 12 ■ Connection from the Port to the Hinterland

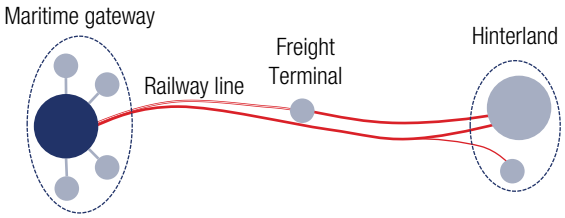


TABLE 10 ■ Characteristics of West African Ports

Port	Length	Draught	Biggest ships TEU	Container traffic 2011 TEU	Capacity current TEU	Future add. capacity	By Date
Dakar	660 m	13 m	5100–7999	415,592	600,000	500,000	2020
Banjul	330 m	10 m	1000–1099				
Conakry	270 m	10.5 m	1000–1099	135,075 [a]	160,000	300,000	2013
Freetown	722 m	9.5 m	1000–1999	75,000	300,000		
Monrovia	600 m	11 m	2000–2999	59,746 [a]	75,000		
San Pedro	325 m	13.5 m	5100–7999	80,000	120,000	500,000	2017
Abidjan	1000 m (limit to 250 m)	11.5 m	2000–2999	546,417	1,100,000	1,500,000	2018
Takoradi	190 m	9 m	1000–1099	57,000			
Tema	660 m	11.5 m	3000–5099	730,000	600,000	c	
Lome	430 m	11 m	2000–2999	350,000	350,000	1,000,000	2014
Cotonou	540 m	13.5 m	5100–7999	337,758 [a]	250,000	540,000	2013
Lagos (Tin Can)	770 m	11.5 m	2000–2999	1,413,276 [b]	400,000	3,000,000 [b]	2016
Lagos (Apapa)	500 m	13.5 m	5100–7999		850,000		

Source: MLTC/CATRAM (2013).

Note: Cells with red border indicate current capacity limits. [a] estimate; [b] traffic and future capacity for both ports; [c] future plans are considered not realistic.

Ports as Gateways to the Hinterland: The Case of West Africa

The evolution and development of ports throughout the world as points of convergence between the land and maritime transportation is well known [Panayides, 2006]. As freight terminals, ports handle the largest amounts of freight, more than any other types of terminals combined and significant efforts have been made to improve the capacity of those gateways. These efforts include, for example West Africa, where new terminals are proposed to be developed in Abidjan, Conakry, Lome and Cotonou. If those planned investments were to be realized, the current handling capacity of West African ports would triple by 2020 (see Table 10).

According to Alix (2011)[12] growth in maritime transport with West Africa is leading to an increase in the number of larger ships, able to handle 2,500–4,500 TEUs. The process of consolidation is also illustrated by the emergence of direct routes to the large West African gateways such as the ports of Abidjan and Lagos and sub-regional calling and feeder services that collect freight from smaller, more limited (for example, in terms of draft or length of quays) port cities, and connections through transcontinental hubs between African markets and export markets. Thus, in the future, a model with a limited number of ports of regional importance, served by secondary ports, is expected.

While traffic is increasing in volume, it is worth noting (see Figure 13) that the level of connectivity of African port, as measured by UNCTAD[13] does not seem to be progressing at a similar pace and, for instance, much slower than that of Morocco,[14] another, arguably geographically very well placed African country. According to the data, there is not, at this stage, a discernible hub in the region (a country with significantly higher connectivity).

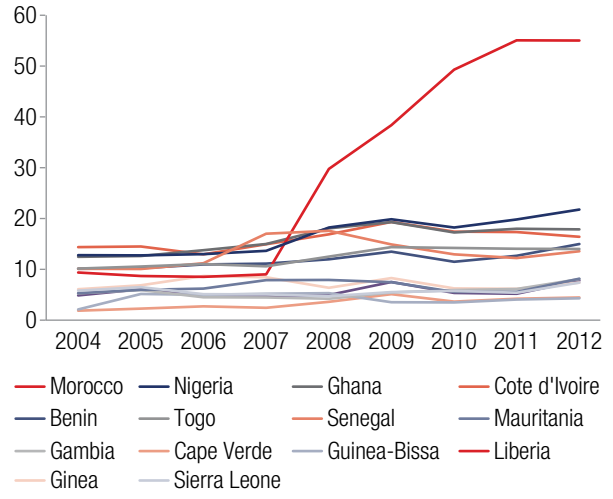
A good indicator on the unreliability experienced at intermodal interface is dwell time. For freight terminals and gateways, such as ports, dwell time refers to the amount of time cargo stays in a terminal yard or

[12] Alix, Y., 2011. *Growing containerized trade between West Africa and European and Asian economies*, UNCTAD Trade Logistics Branch, Division on Technology and Logistics Transport Newsletter, No. 51.

[13] Liner Shipping Connectivity Index

[14] As a result of the opening of the transshipment hub at Tangiers (Tanger-Med).

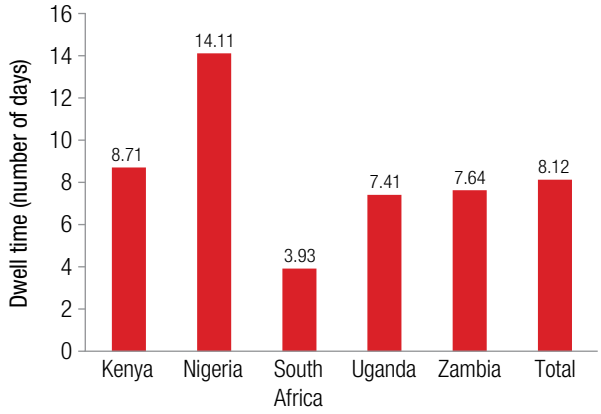
FIGURE 13 ■ Liner Shipping Connectivity Index of West African Ports (max = 100)



Source: UNCTAD (2013).

storage area while waiting to be loaded. In the case of ports in Africa, the amount of dwell time cargo spends in the port terminal averages about 20 days—compared with 3 to 4 days in most other international ports—despite the fact that additional berths have been added and most ports are already run by private container terminal operators (Raballand, 2012).

FIGURE 14 ■ Cargo Dwell Times in Select African Countries (in days), Weighted by Number of Imported Containers, 2011



Source: Raballand, 2012. World Bank.

Recent research (Raballand, 2012) has shown that the long dwell time is in the interest of certain public and private actors in the system. Specifically, importers use the ports to store their goods; in Douala for instance, storage in the port is the cheapest option for up to 22 days. Customs brokers, meanwhile have little incentive to move the goods because they can pass on the costs of delay to the importers. Worse still, when the domestic market is a monopoly, the downstream producer has an incentive to keep the cargo dwell times long, as a way of deterring entry of other producers. The net result is inordinately long dwell times, ineffective interventions, such as building berths or privatizing ports, and globally uncompetitive industries in African countries.

The Development of Rail Freight Terminals: Some Insights from Central Asia

In Sub-Saharan Africa and Central Asia, nearly all countries have, or are planning for, the development of rail freight terminals (see Table 11). Given the much longer distances to port in Central Asia (see Table 12), the railroad is the main solution for long distance transportation. Central Asia also benefits from an extensive, and relatively well maintained, extensive legacy rail network from the former Soviet Union. In comparison, the railways in Africa and other regions with LLDCs are shorter and not connected to the railroad corridors. With few exceptions such as, Côte d'Ivoire, Cameroon or South Africa, most railways have not maintained or regained significant market share from a typically more agile and quite competitive road transport. The threshold for efficient operations of general cargo (containers) is about 1–2 mln tons per year (Arvis 2011), which is higher than current market potential of most African LLDCs. It means that the development of new railways just to satisfy the needs of LLDCs is unlikely to happen in the short- or medium-term. However, a lot can be done to improve the efficiency of existing networks.

The interface between railways and other modes of transport takes place at freight terminals, which have a unique characteristic related to shunting (or switching) which requires separate yard facilities, often adjacent to the terminal, and at times independent facilities. Those terminals are typically located on the outskirts of a hub city, where the price of land is lower,

TABLE 11 ■ Examples of Rail Freight Terminals in Sub-Saharan Africa and Central Asia

Country	Location	Mode	Transport Route
Botswana	Gaborone	Rail/road	Trans-Kalahari
Burkina Faso	Ouagadougou, Bobo-Dioulasso	Rail/road	Tema-Ougadougou, Abidjan-Ougadougou
Cameroon	Ngaoundere	Rail/road	Douala-Bangui
Congo, Dem. Rep.	Beni, Mwene Ditu (Kasai)	Rail/road	North-South, Dar
Côte d'Ivoire	Bouaké, Ferké	Rail/road	Abidjan-Ougadougou
Ethiopia	Mojo, Semera	Rail/road	Ethio-Djibouti
Kazakhstan	Almaty, Astana	Rail/road	China – West.Europe
Kyrgyz Republic	Bishkek, Karasuu	Rail/road	China-Uzbekistan
Kenya	Nairobi, Mombasa	Rail/road	Northern
Mozambique	Moatize	Rail/road	North-South
Namibia	Walvis Bay	Port/rail/road	Trans-Kalahari, Trans-Caprivi
Nepal	Sirsiya (Birganj)	Rail	India-Nepal
Niger	Dosso, Niamey	Road	Cotonou-Niamey
Rwanda	Kigali	Road	Northern, Central
South Africa	Johannesburg City Deep	Rail/road	North-South
Tajikistan	Nizhniy Pyandj	Rail/road	Tajikistan-Afghanistan
Tanzania	Isaka, Mbeya	Rail/road	Dar
Turkmenistan	Ashgabat, Serkhetyaka	Rail/road	Russia-Uzbekistan, Kazakhstan-Persian Gulf
Uganda	Tororo, Malaba, Kizarewe	Rail/road	Northern
Uzbekistan	Navoi, Angren	Rail	Afghanistan – Central Asia – Europe
Zimbabwe	Harare	Rail/road	North-South

and arterial highways provide good access, and freight does not interfere with urban traffic or traffic at a rail head. Rail freight terminals are found along most trade routes in all regions of the world. When these terminal facilities are located near the final destination or an economic center, they serve as cargo consolidation and distributions centers. The role, location, and attributes of inland facilities and terminals, need to be assessed based on current traffic demand and forecasts and included in a respective transport master plan, irrespective of the financing source.

In the Central Asia region, as elsewhere, scheduled rail services imply consolidation of containers from many shippers and concentration of service on relatively few origins and destinations: currently, Almaty, the former capital of Kazakhstan alone has 10+ small scale rail terminals in the city's vicinities (20,000 TEUs). Beyond Almaty, the current policy is to encourage investment in terminals by the railway company (Kazakhstan Terminal Joly) or by private operators. Private operators naturally prefer to invest in places of larger economic concentration, with existing terminals concentrated in three regions: Western Kazakhstan (Aktobe, Atyrau), Northern Kazakhstan (Petropavlovsk, Astana, and Pavlodar) and South of the country (Almaty region). The railway company, to the contrary, operates 18 terminals in the country and it is currently modernizing 5 of them: Atyrau, Aktobe, Astana, Almaty, and Shymkent.

The reason for the existing fragmentation, as opposed to having one or two "200,000 TEU +" rail freight terminals, is essentially related to historical patterns. These patterns have been formed as a result of distributing freight by rail to/from the industrial and commercial districts. They may have provided benefits in terms of having shorter truck journeys, or lower congestion. Despite those developments, consolidating container transit traffic in a selected number (3–4) of locations in the country with high throughput (for

Box 3: Belarus Logistics System

Belarus is a landlocked country and an upper-middle-income economy. It is located in Eastern Europe, with a geographical position that allows it to be (together with Ukraine) a viable alternative land-linking EU, Russia, Asian and Central Asian countries. Belarus optimized the good location and transformed the landlockedness into an opportunity, by adopting policies favorable to transit by foreign operators, which created business for nationals.

Belarus is crossed by two Pan-European Transport Corridors (PETrC): II and IXb. Corridor II ensures the connection between East and West on the alignment Berlin – Pozna – Warsaw – Brest – Minsk – Smolensk – Moscow – Nizhny Novgorod. Corridor IX ensures the connection between North (Helsinki) and South (Alexandroupolis) and its branch IXb provides access from Eastern Ukraine and central Russia to the specialized ports of Klaipeda, Ventspils and Kaliningrad.

Given the projected annual growth rate of 4–10 per cent, it is expected that by 2020 the transit of goods through the territory of Belarus will be 16–22 million tons, and there will be 1.8–2.4 million trucks passing through the Belarusian-Lithuanian and Belarusian-Polish borders. The program "Roads of Belarus" for 2006–2015, approved by the Government, provides for the implementation of measures aimed at further development of transit potential of the country's road network and increasing its attractiveness to foreign users. Taking into consideration the growth of transit, the Republic of Belarus directed the investments in rehabilitating the two PETrC so as to provide competitive roads allowing for traffic of vehicles with 11.5 tons/axle. The same program foresees for the development of roadside services including gas stations, car washes, parking facilities, retail outlets, eating establishments, service stations and roadside hotels.

Following the same strategic thinking, the Government approved in 2008 a Program for the development of the national logistics system up to 2015. The document provides for the establishment of logistics centers in Minsk, Brest, Vitebsk, Gomel, Grodno, Mogilev, Baranovichi, Bobruisk, Borisov, Zhlobin, Mozyr, Orsha, and Pinsk, with priority given to the ones located on the main transit corridors.

For the purpose of effective development of the logistics system, various Decrees of the President of Belarus and Government Resolutions grant benefits and privileges to local authorities which would facilitate the establishment of such centers in their areas, as well as to investors who plan to invest in existing logistic centers, and in the construction of new transport and logistics centers.

Source: United Nations Economic Commission for Europe, Review of the Transport and Logistics System of the Republic of Belarus, 2013.

TABLE 12 ■ Typical Land Distances for Landlocked Developing Countries

Region	Typical corridor	Distance
West Africa	Abidjan – Ouagadougou	1,120km
East Africa	Mombasa – Kampala	1,250km
Southern Africa	Durban – Lusaka	1,628km
Central Asia	Hamburg-Almaty	4,900km
South Asia	Kolkata-Kathmandu	886lm
East Asia	Tianjin-Ulaanbaatar	1,690km
Latin America	Arica-La Paz	470km

example, 100,000 TEUs) to accommodate high frequency of scheduled container train services should be considered. Such a development may be facilitated with the arrival of major terminal operating companies to the country (e.g. Dubai Port World-Kazakhstan TemirZholy agreement).

Road Transport and Logistics Services

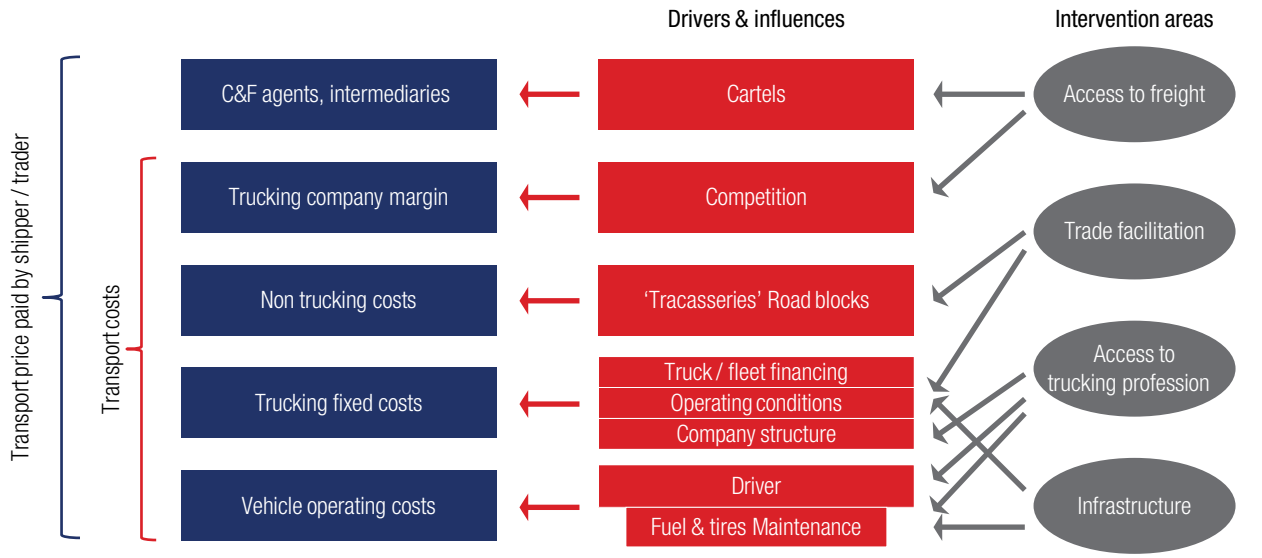
Challenges in the Trucking Industry

Road transport has become the dominant transport mode for freight, even though the distance between the sea and the main economic centers of most landlocked countries worldwide is typically within the range where rail is competitive over road transport.

Trucking prices for an articulated vehicle are over $2 per km for the most competitive markets (such as in East and Southern Africa), and well over $3 per km for the least functional ones (as in West and Central Africa). Accordingly, road transport is the largest component of the total transport cost between the overseas markets and the economic centers of the landlocked countries. Fostering a competitive and efficient trucking industry is therefore critical.

At first sight, trucking is a highly competitive industry that meets the basic requirements for perfect competition: many suppliers, with none of them in an ostensibly dominant position, similar nature of services (at least for the dry freight segment of the market), open information on prices, almost no barrier to entry and exit for operators. While these characteristics would suggest that the industry is indeed competitive, prices should equal marginal costs. However

FIGURE 15 ■ Prices and Costs for Road Transport



Source: Authors.

Teravaninthorn & Raballand (2009) find that the transport of freight between Sub-Sahara Africa landlocked developing countries and ports, and thus the world market, is at prices that significantly exceed underlying costs, suggesting large profits. They also find that these high profits can be attributed to rent-seeking road-transport cartels benefiting from oligopolies that exist as a result of existing governance and institutional structures. They argue that, unless governments take steps to remove the structural distortions in the trucking market, there is little point in investing in infrastructure improvements, to reduce road-transport costs, as the cartels will capture the benefits from lowered costs: prices will remain the same and cartel members will benefit from higher profits.

Part of that apparent disconnect between prices and cost relates to what is measured as price, and what is measured as cost: the price is what is paid by the shipper, which is only loosely related to the actual revenue of the trucker ultimately moving the cargo, due to a cascade of intermediaries. The figure below is providing a schematic view of the components of the transport price and the factors influencing them.

Improving the trucking industry requires a multipronged approach, as each of the drivers and influences of a given cost component respond to a different type of intervention. The four main types of interventions are (i) improve the road infrastructure, (ii) regulate the access to the industry to ensure only professional operators can provide trucking services, (iii) trade facilitation, and (iv) regulate the access to freight to promote a competitive industry. Due to the inter-relations between the drivers and influences, acting on one of them in isolation is likely to have limited, or no, impact on the final price paid by the shipper.

The rationale for improving the road infrastructure is that better roads reduce vehicle operating costs. The causal chain between better roads and lower costs passes through several assumptions, which may be true or not, therefore reducing the actual impact on cost savings. The two main expected effects of better roads are on the driving speed, and on the wear and tear of the vehicles. Increased driving speed is assumed to translate into reduced driving time for a given trip, and therefore higher utilization of the trucks, lowering the incidence of fixed costs. This is false when the idle time is high, and for instance, in West Africa, distances to the hinterland are short, around 1,000km, but roundtrips are long, weeks. Reducing the driving time by a few hours will have a very limited effect on the overall utilization of the trucks. The second assumption is that better roads

reduce damage to trucks. This is true when the truck fleet is recent and in good conditions, as it is for instance in the case in East and Southern Africa, but where the trucks are dilapidated and overage, such as in West and Central Africa, the savings on maintenance expenses are largely overestimated. Infrastructure remains, however, critical to ensure connectivity between the main corridor network and the rest of the country.

Soft measures

Such as trade and transport facilitation, tend to reduce the costs of trade through various channels. Arvis et. al. (2010) show that the main channel to reduce trade costs is through reducing the value of time the good spends in transit and increasing the reliability of the supply chain. Shippers or consignees incur the higher costs in the form of extra inventory or the cost of missed shipments as a result of lengthy and, above all, unreliable transit supply chains. The World Bank has found that commercial distributors often have to maintain, on average, several months of inventories. Poor quality of the supply chain translates into higher losses due to physical damage to and theft of, goods (which, for instance, represent several percent of good value, as found in Central Asia, see Rastotgi and Arvis, 2014).

Trade facilitation along the corridors has a positive impact on fixed costs through the reduction of truck idle time, and potentially a better use of the trucks with higher mileage per year. The gains usually come from: i) optimizing the interface between terminals and trucks (planning port delivery/pick-up, streamlining documentation, etc.), ii) 'en route' by reducing border crossing times and unnecessary stops (roadblocks), and iii) finally, at destination, by improving the clearance process and thus enabling earlier release of trucks. This has, for instance, been a driver of reduction of transport costs in Eastern Africa over the last decade. However, in the context of market interventions (e.g. freight allocation systems) and restrictions, these gains may not materialize. Arvis, Raballand, and Marteau (2010) point to a nexus between regulation and transport prices. They suggest that regulatory reform will decrease transport prices in a competitive market, but only if it also increases the utilization of trucks.

Quantitative vs. Qualitative Criteria for Access to Road Market

International trucking and bilateral agreements

Quantitative restrictions are a major component of how bilateral and some multilateral agreements are implemented. Bilateral agreements typically restrict the number of vehicles allowed to provide services between the two countries. The restrictions are administered through permits designed to ensure equity of participation in the transport markets of the respective countries, and to limit the activities of other, third-country, foreign carriers. Countries prefer these agreements in part because they are easy to negotiate and manage. However, the management of quantity regulation brings with it institutions, procedures, documentation, conditions, and penalties, the cost of which is borne by the road transport industry. The most common implementing structures may involve ministries in charge of transport, foreign affairs, or communications; road regulators/agencies; road infrastructure administrations; border agencies; chambers of commerce; and associations of transport operators.

National policies and access to profession

Access to the trucking profession is equally critical. It is a national prerogative, with eventually, rules set up within a regional community. Worldwide experience has proven that strictly implemented, international, qualitative regulation of access-to-the-market conditions has many benefits. The introduction of qualitative criteria for access to the road transport profession and market ("domestic liberalization") of transport services should replace quantitative restrictions of market access. Examples of such regulation include requirements related to the quality of professionals (e.g. logistics operators, drivers, and freight forwarders), to road safety, security, and protection of the environment. Introduction of regulation of road transport services based on qualitative criteria leads, in general, to free and healthier competition in freight transport markets, a subsequent fall in prices, emergence of new operators, greater competitiveness of freight rates (due to diminishing transport costs), and better international logistics and supply chain service quality. The negative effects of imposing such regulation include a potential decline in the profitability of the sector, a relative decline in

wages, bankruptcies (WTO 2010), and absorption of independent small operators by big companies.

In the LLDCs and, to a lesser extent, in transit countries, the regulator or by the truck professional associations are very limited in their capacity to implement the strict rules on access to the trucking profession, even when proper regulatory framework has been adopted. The situation varies significantly, depending on the region, and, more so than on policies, as it is essentially the result of historical trends that have shaped the current market organization.

Examples of different business models include small informal operators that transport for their own account; cargo handling companies delivering goods within the metropolitan area of the maritime gateway; relatively efficient trucking companies with direct contracts with Clearing and Forwarding agents, and individual trucking companies that depend on several intermediaries. All those can be grouped broadly into three main categories comprising several sub-groups: (i) commercial trucking—divided itself in several classes of operators from large companies connected to shippers or C&F agents with secured access to freight to small scale operators, (ii) own account transport—with traders / industries operating trucks carrying their own goods, (iii) intermediaries, or brokers, with varying degrees of predatory practices, as commonly found in West and Central Africa).

In Eastern and Southern Africa, the trucking market is rather efficient and is characterized by healthy competition between organized and professional firms. Much of supply is located in the coastal countries, but homegrown competitive industries could also emerge in such LLDCs as Uganda, Malawi, Zambia or Zimbabwe.

On the other hand, countries in Western and Central Africa are characterized by significantly less efficient trucking markets. Essentially, the lack of transparency and strict criteria for access to the profession has led to the emergence of a few dominant intermediaries. These intermediaries allocate freight volumes to truckers while pocketing a large commission and leaving the operators physically moving the cargo at barely break-even rates. This market structure has triggered the emergence of widely different business models, depending on how they benefit from, or cope with, imperfect system incentives in order to provide quality services and improve market transparency between shippers and truckers.

Central Asian countries have developed a dual system, wherein international operators under the TIR system essentially operate under the European standards in relatively large companies. However, the rest of the industry does not have proper regulation of entry, and there is no clear distinction between one's own account activities. Some countries still maintain monopolies for freight allocation (Rastogi et Arvis, 2014). As a result, regional freight transportation is mixture of independent, small truck operations, and larger scale oligopolistic activities.

Improving Availability and Quality of Road Transport Services

Improving the competitiveness and efficiency of the trucking industry implies shifting away from current opaque practices for access to the transport market towards a situation in which transport operators are recognized based on their ability to provide quality transport services in a professional manner, in view of their compliance with a number of access criteria. If combined with measures to enhance the transparency of the allocation of cargo to transporters, a more competitive market structure will emerge that would lower costs and bring prices more in line with costs. Hence, the improvement of the road transport sector requires coordinated action on at least three areas:

- Access to the profession of transport operator, for which regional regulations have been developed which cover most aspects, but with no, or limited, actual adoption by member states. As a result of the revision of access criteria, some of the informal operators, with limited capacity of compliance, will no longer be allowed to operate, creating space for professional operators to operate at greater efficiency and profitability;
- Liberalization of access to the transport market, both domestic and international, so as to introduce competition as an incentive for efficiency. This will imply formalizing the contractual relationship between the trucking company and the shipper (or its C&F agents), eliminating unnecessary intermediaries;
- Trade Facilitation, in order to improve the operating environment and establish the conditions for profitable trucking companies.

Box 4: Exports of Cut Flowers from Kenya and Freshwater Fish from Tanzania

One of the prime examples of a strong perishables export industry are Kenya's cut flower exports to the European Union. Over the past forty years Kenya has risen to the largest cut flower producer and exporter to the European market, maintaining a solid market share of 31 percent. Since inception, air transportation has been the basis for the global distribution of Kenya's perishable goods. However, Kenya's national air carrier does not have any dedicated freighter aircraft. Nevertheless, the airline transports about 90 percent of the country's air cargo exports in the cargo hold of regular passenger aircraft with destinations in the United Kingdom, and the Netherlands. Only a small part of the overall exports are transported on dedicated cargo aircraft. This fact underscores the importance of passenger air services for air cargo, especially in countries which do not possess a large air cargo fleet or whose volume of cargo business is too small to support dedicated cargo operations.

Another illustrative example of perishables is the export of fresh fish and seafood products. Traditionally, countries with a sea shore have developed a fishing industry, providing opportunities for export (Mauritania). However, such countries have often developed their fishing industry over centuries, with well-established local distribution networks. Some nations have organized and managed their exports from fisheries by traditional means, such as transportation by sea or processing off-shore and freight forwarding by land, and some have assigned fishing rights to foreign operators. Air transportation has created a new export market for some landlocked countries or for countries with access to large freshwater reservoirs. The production of freshwater fish, such as the West Nile Perch or the Tilapia, has become a very lucrative export sector for a few developing countries. A good example is Tanzania, where the West Nile Perch was artificially introduced into the Lake Victoria in the 1950s and 1960s. The processing and export industry that arouse out of this freshwater fish production created an export market of about US$ 122 million in 2005. The center for Tanzanian fishing operations and processing is the city of Mwanza. According to the City Council of Mwanza, the fishing industry of Lake Victoria has created direct employment for over 8,000 local processing workers, and overall 300,000 indirect jobs. About 52,000 Tanzanian fishermen benefit directly from the Nile perch. The key logistics element for the timely export of the processed fish is air transportation. Mwanza disposes of an airport with a 3,300 meter (10'827 feet) long runway, and two non-precision instrument approach procedures. This allows the take-off of medium-sized cargo aircraft, which are able to transport the fish products directly to destinations for distribution in Europe.

Source: Bofinger (2007), Gibbs (1984), International Trade Statistics (UNCTAD/WTO).
Note: About 400'000 kilograms fish pass through Mwanza airport each month. The declared value of the product is US$3.20 per kilogram, and the estimated overall cost of transport to final destination as value added to the product is about US$1 per kilogram.

Under a system of quality licensing, trucking licenses are provided to enterprises that meet specified minimum professional standards. Unlike the quantity-based freight allocation quota system, still in place in some LLDCs, the quality-based system does not set limits on the number of operators. Instead, by imposing higher standards on truck drivers, operated vehicles, or the financial, legal, and ethical status of the companies, it raises the professionalism of the industry.

Air Transportation

Air transportation plays an important role in connecting LLDCs. Scheduled flights play an important role in moving goods in belly cargo, thus opening the way for non-traditional exports such as fresh agricultural produce (exotic fruits, vegetables), freshwater fish, cut flowers (recent example is Ethiopia),[15] meat from livestock, as well as time-sensitive high value goods such as electronic components for the computer industry (see Box 4). Another industry, for which air transportation has become indispensable, is tourism. It is probably the largest sector overall, if all related services and activities are included.

Air Connectivity

Combined, LLDCs represent about 1.5% of global air transportation, providing few air freight transportation services. The connectivity of LLDCs to the rest of the world depends on their connectivity to regional hubs. Air connectivity is determined by the number and frequency of connections to other countries and, in particular, to regional or extra-regional hubs. To measure air connectivity of a country, the World Bank has piloted an Air Connectivity Index, using the complex network theory.

The metric shown below is based on Arvis (2011) and shows a percentage of the air connectivity of a country as a share of the Highly Connected Country

[15] http://www.aircargoworld.com/Air-Cargo-World-News/2014/07/ethiopian-flower-market-bloom/6641

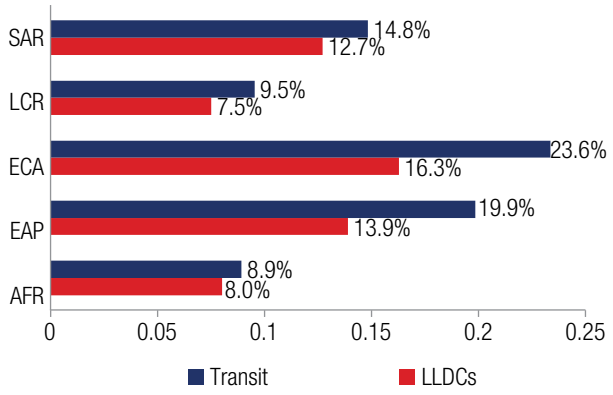
(in this case is the USA). Unlike LLDCs in Africa, which are dependent on smaller regional air hubs, LLDCs in Europe, Central Asia and East Asia seem to have as high air connectivity as transit coastal countries. The reason for this is that main airports in these 2 regions are located relatively close to major global air hubs.

Connectivity and the development of air transport services in developing countries are dependent on several key policy areas to improve their connections to the regional hubs. These policy areas include: (i) air transport infrastructure and charges, (ii) air transport liberalization, and (iii) safety and security.

Air Transport Infrastructure and Charges

The air transport industry depends on adequate and efficient airport infrastructure, which complies with international standards. However, it is often not available in developing countries. Structurally, landlocked countries have poor connectivity because of dependence on regional hubs and distance. Being faced with a low traffic volume, their relatively simple service offering requires only very basic facilities, including land (e.g., passenger services, food and beverage concessions, duty free, car parking) and airside (airfield, gates, air bridges, runways, aprons and taxiways) infrastructure. According to the World Economic Forum (WEF) survey, air transport infrastructure in Africa, Asia and Latin America, and even in Eastern Europe, are still considered of poor quality (WEF, 2012).

FIGURE 16 ■ Connectivity as a % of the connectivity of the USA (most connected country)



Source: Arvis and Shepherd, 2011.

The level of airport charges plays a major role in the development of affordable air services in developing countries. As cheaper secondary airports are less available, new air carriers are forced to establish their operations at a country's primary airports. These airports experience not only higher levels of congestion, but also often demand higher airport charges as justified by the complexity of their operations and expensive, and sometimes unnecessary, infrastructure investments. In Zambia, for instance, the National Airports Corporation, a parastatal company, has recently introduced a new infrastructure and development charge to fund, develop, maintain, and manage four designated Zambian Airports.[16] In some cases, airports in developing countries can also prove to be an important source of foreign revenue for governments, and are, therefore, seen as "cash cows." Furthermore, at smaller airports, the lack of landside infrastructure and limited opportunities for commercial revenue creates a larger dependency on aeronautical charges (landing fees, terminal-area air navigation, passenger and cargo services, aircraft parking and hangars, security, airport noise, noxious emissions (air pollution), ground handling, and en route air navigation). This can have a detrimental impact on ticket prices. Taxes on a sample of West African routes represent in some cases over 50 percent of the ticket price. Removing excessive taxation can have a substantial positive impact on airfares, and the economy as a whole. Although these reasons help to explain why airport charges may be higher in developing countries, such generalizations are difficult to make. Further assessments need to be made on a country-to-country basis.

Air Transport Liberalization

The probably most important element of the strong development of the global air transport industry in recent years has been the deregulation of the domestic and international air transport markets, as well as the establishment of transparent and competitive markets without protected state-owned carriers. The example of liberalization of air services in developing

[16] Lusaka Times. 2012. Available at: http://www.lusaka-times.com/2012/08/11/national-airports-corporation-introduce-infrastructure-development-levy-departing-passengers-zambian-airports/

Box 5: Open Skies for Armenia

In early 2013, Armenia decided to implement an "Open Skies" policy, breaking apart from a long legacy of tight regulations in its commercial aviation market. The particularity of the Armenian case relies in its historical limited connectivity with international markets, partly determined by geography, and partly determined by geopolitical considerations. Besides being landlocked, the country has open land borders with only two of its four neighboring countries. Moreover, the size of its Diaspora is several times larger than the number of inhabitants currently residing in Armenia. All these factors contribute to create frictions for the free movement of travelers, workers, knowledge and ultimately curtail the growth of the Armenian hospitality sector, which accounts for about 20 percent of all goods and services exports.

For over 20 years—since the country became independent–attempts at setting up a national airline proved unsustainable. After the disbandment of the Soviet Union, Aeroflot's Armenian Directorate continued to operate under the name of "Armenian Airlines"—a company wholly owned by the Armenian State—until the year 2002, when it ceased operations due to insolvency issues. The following year, a joint venture between Russian and Armenian private capitals established "Armavia Airline Company", under an investment agreement signed between the parties and the Armenian government. The agreement granted Armavia exclusivity rights for a period of 10 years, to operate on designated international routes, and "first refusal" rights on any new routes negotiated in bilateral air service agreements by the Armenian Government. During the duration of the contract, Armenia maintained a single designation policy—whereas only one airline per country is allowed to operate on every route—except for the case of the Russian Federation. Moreover, traffic rights were set up to match Armavia's operational possibilities, as a way of ensuring a "balanced" share of traffic for the Armenian carrier.

As a consequence of the restrictive aviation policies applied by the country, the number of flights that foreign airlines could offer was significantly constrained, and competition between carriers limited. Different studies carried out by international donors between 2010–2012 estimated that, as a result of these policies, inbound and outbound fares per kilometer into and out of Armenia (exclusive of taxes, fees and charges) evidenced a premium of 33 to 50 percent, as compared to neighboring Georgia –a country with a fully liberal aviation regime (e.g. Open Skies). During the period 2005–2011, passenger traffic growth rates in Georgia doubled those of Armenia after liberalizing its aviation policy.

After facing a prolonged period of financial distress, Armavia ceased operations in March 2013. The demise of the Armenian carrier brought an agitated debate in Armenian policy fora over its aviation policy. The disappearance Armavia seemingly acted as a catalyst for the Government of Armenia to consider the liberalization of its commercial aviation market. In effect, through a series of Government decrees, Armenia adopted an Open Skies policy in late 2013. The result is such that any airline wishing to serve the Armenian market can do so (not including 5th freedoms) without any restriction in the number of frequencies or aircraft size, provided they comply with safety regulations. The Russian Federation and UAE were the first to amend the old air service agreements with Armenia. After almost a year, recent passenger traffic growth figures indicate that the Armenian market has expanded in 2014 by 25 percent (Jan-June) as compared to 2013, and the number of carriers serving Yerevan increased from 27 to 31. New services will also include not only a combination of international legacy carriers and regional airlines from the CIS countries, but also low cost carriers; the arrival of the latter will also bring a wider range of services offering, especially for the more price-sensitive segment of the market. In addition to this, Armenian sources indicate that fares have dropped up to 25 percent in certain routes, further stimulating demand growth.

Source: World Bank project.

countries is best illustrated by Air Transport Liberalization in Africa by the Yamoussoukro Decision, which entered into force in the year 2000. The Declaration committed all representative governments to making all necessary efforts to integrate their airlines within eight years; it represents a radical move away from regulating air services between states on the basis of restrictive bilateral agreements. However, implementation of the decision has encountered two quite opposite realities. Implementation in terms of carrying out public policy has seen little progress at the pan-African level. Many of the key policy elements are still missing or exist only on paper. At the same time, in terms of operational implementation, many examples can be seen of countries opening up by applying the Yamoussoukro Decision at the bilateral level. Given the current structure of the air transport sector in many African countries, one can assume that about two-thirds are willing to apply the Decision because they see little value in protecting their own markets from outside competition (Schlumberger, 2010).

Another example of maintaining an open sky policy, at least with regional partners, is Armenia (see Box 5). It shows that cross-country policy coordination is beneficial to the LLDCs because it increases the potential for human mobility to and from coastal countries and main partners. For business people, it improves access to regional economic centers.

Safety and Security

The state of air transport safety and security in a country plays a critical role with regard to aircraft financing and insurance. The cost of purchasing or leasing aircraft can be significantly higher when standards are perceived to be inadequate in the markets in which they operate.[17] Indeed, aircraft manufacturers may be reluctant to sell aircraft due to reputational risk. While Africa only accounted for five percent of total accidents in 2012, 45 percent of all fatalities occurred in the region, and it still has the largest number of accidents per million passengers.[18] The reason for the higher number of accidents can be found in various areas, including issues such as operational shortfalls, insufficient and defective equipment, inadequate maintenance of aircraft, and/or lack of properly trained staff. These derive primarily from the lack of adequate infrastructure, insufficiently trained human resources, and poor oversight.

Other Transport and Logistics Services

Forwarders and Customs Brokers

Logistics agents not moving freight themselves play a critical role in organizing supply chains and moving goods on transit corridors: they are the freight forwarders and the customs brokers.

The role of freight forwarders is to organize international (or eventually domestic) logistics on behalf of shippers and consignee. This includes organizing transportations with railways or trucking companies, and customs representation activities at the border. They make a key contribution to supply chains by linking with forwarding partners abroad, which essentially insures the continuity of the supply chain, and makes it possible to track shipments in transit. Eventually, stronger and diversified freight forwarders may have evolved into third party logistics (3PLs) offering, for instance, asset based services such as warehousing, or terminal operations for commerce and industry. The professional criteria and the regulation principles have been set up by the International Federation (FIATA). Larger countries have membership of FIATA

The role of customs representatives is more specific, since they are accredited by customs authorities to fill out customs and transit declarations, and eventually to perform other trade-related procedures, on behalf of a client. In practice, the two activities are quite intertwined with each other. In most countries forwarding companies also perform customs brokerage. Companies that once started as pure customs representatives may eventually start providing freight forwarding services. Customs brokers are regulated in the customs code, spelling the professional requirement of individual brokers and the financial guarantees (deposits or bonds) that companies offering brokerage should offer.

In LLDC the two main issues are: i) the development and international connectivity of freight forwarders and 3PLs, and ii) the integrity of the brokerage activities. The situation is quite different depending on the regions.

For instance, in Africa, forwarding is dominated by international companies, and often tied to terminal operations or shipping lines. There are relatively few players; the share of regional firms is small, higher in southern Africa, where integration links with the strong regional trucking industry plays a role. In the former Soviet Union, the forwarding industries is largely home-grown, quite fragmented and largely comes from the externalization of commercial activities of the railways (when the railroads emerged as national entities at the breakup of the Soviet Union in the 1990s). In contrast to Africa, international companies in Central Asia have a small presence. The (small) development of higher value logistics activities (3PLs) is essentially tied to the presence of multinational companies, which brings externalization of logistics activities to 3 PLS, as part of their operations in LLDCs. International distributors (supermarket chains like Shoprites in Southern Africa, or Metro in Central Asia) or companies involved in the production and distribution of consumer goods (Unilever, P&G) would operate this way.

Proper regulation of customs brokerage by customs agencies is important to prevent non-professional services (part-time brokers), monopolistic behavior,

[17] World Bank. 2013. *Doing Business: EAC.*

[18] International Civil Aviation Organization (ICAO), 2013 Safety Report.

or collusion among brokers and customs officials. In recent years, customs reforms, including in low-income countries, have paid attention to these aspects. Requirements have been adjusted, including the introduction of a higher level of guarantees in order to reduce the number of registered brokers to that of any regular profession. Trade Facilitation measures taken to address transparency, including incentive to submit-declaration online, (next chapter) also increase the quality of provided services.

Transit and Trade Facilitation, Regional Integration

4

Regional integration and facilitation of trade and transit are at the heart of efforts to reduce access costs of LLDCs. While transit cooperation encompasses legal issues, it is rather an issue of a proper implementation of transit agreements. With few successes in the past decade, the Vienna Programme of Action offers an opportunity for LLDC countries and development partners to pay close attention to the issues of transit. While traders in LLDCs, transit countries and development partners may be confronted with bad infrastructure or long distances to market, the main sources of higher cost have to do with unreliability of supply chains and delivery of goods. The main factors behind unreliability depend on the "soft infrastructure of LLDCs", including the lack of proper implementation of a transit system, procedural complexity, and, in many cases, inefficient market for services such as trucking, reviewed in the previous section. Progress did happen in other areas where some trade facilitation practices, not specific to the needs of LLDCS, have been widely adopted worldwide such as the use of IT or modern border crossing facilities. More cross border cooperation is still much needed to fully integrate supply chains regionally and address one of the key access constraints of the LLDCs.

Importance of Regional Initiatives: Transit Systems and Components

The core of the cooperation between LLDCs and transit countries aimed to improve LLDC's access to global markets happens within a regional integration framework. Main areas for regional integration policies in developing countries target trade, customs and transport integration. These areas are especially important because they allow improving LLDCs' access by regulating the movement of goods in transit.

From the 13th century on, modern transit procedures emerged in support of the commercial revolution in Europe as goods began to move between distant buyers and sellers thanks to a new banking and trading system. Formal transit systems were needed to help the transport operators move the goods across a Europe that was highly fragmented territorially. Bonds, seals, and carnets were designed so that traders approved by the authorities could move, bypassing the payments and controls applicable to goods for local consumption.

The primary sources of LLDCs' access costs are found by examining the inner workings of the corridor and its institutions, notably those involved in moving goods and regulating vehicles, as well as by looking at mechanisms and incentives for cooperation between participants in the corridor supply chain: traders, transport companies, and customs and control agencies.

"Transit system" refers to the infrastructure, legal framework, institutions and procedures serving trade corridors. Transit system has the following components:

1. Hard and soft infrastructure of the transit system:
    a. Political commitment to allow transit trade, formalized in treaties that can be bilateral, regional, or multilateral;
    b. Physical infrastructure, including border checkpoint facilities;
    c. Market for services available in the region, including the trucking industry, customs brokers, and freight forwarders.
2. Institutions that enable the transit system to move goods and vehicles on the corridor:
    a. Transit regime, implemented mostly by customs agencies, comprising the operating procedures that govern the movement of goods;
    b. Transport policies and protocols that govern the movement of vehicles. They are implemented in countries and across borders to regulate logistics services, recover infrastructure costs, and to improve competition within and between modes of transportation.
    c. Initiatives to facilitate cooperation and to build trust between transit and landlocked countries and between public and private participants, including the setup of joint corridor management institutions or the survey of corridor performance indicators common solutions.

Recent research (Arvis et al., 20114) shows that transportation costs alone do not account for trade costs on corridors, and it is important to take into account other important outcomes in corridor performance, such as delays, reliability, or service quality. The trade and transport costs borne by LLDCs now depend more on operations than on infrastructure capacity. The main factor is the fragmentation of the supply chain. Few traders in LLDCs have access to the door-to-door logistics infrastructure that has developed in industrialized countries over the past two decades. Instead, they rely on an extended sequence of distinct operations, with many procedures, agencies, and services, all prone to rent-seeking and overregulation. The performance of the various components of this system explains in large part the outcome in trade and supply-chain connectivity in the region.

Many initiatives in Central Asia and Africa, supported by different institutions such as the Central Asia Regional Economic Cooperation (CAREC) Program or the Transport Corridor Europe-Caucasus-Asia (TRACECA) Program have focused on improvements of specific and eventually competing routes.[19] Building a successful transit system raises a need for resolving a wide range of issues at the national or regional level—regulations, delivery of private services, institutions, and organizations or partnerships, most of which are not corridor-specific. It requires complementarity between the various levels of legislature, e.g. between global/regional integration and bilateral treaties.

Nowadays, the focus has been shifting slowly from corridor approach to the regional integration framework, global or regional connectivity and

Box 6: Transit Regime

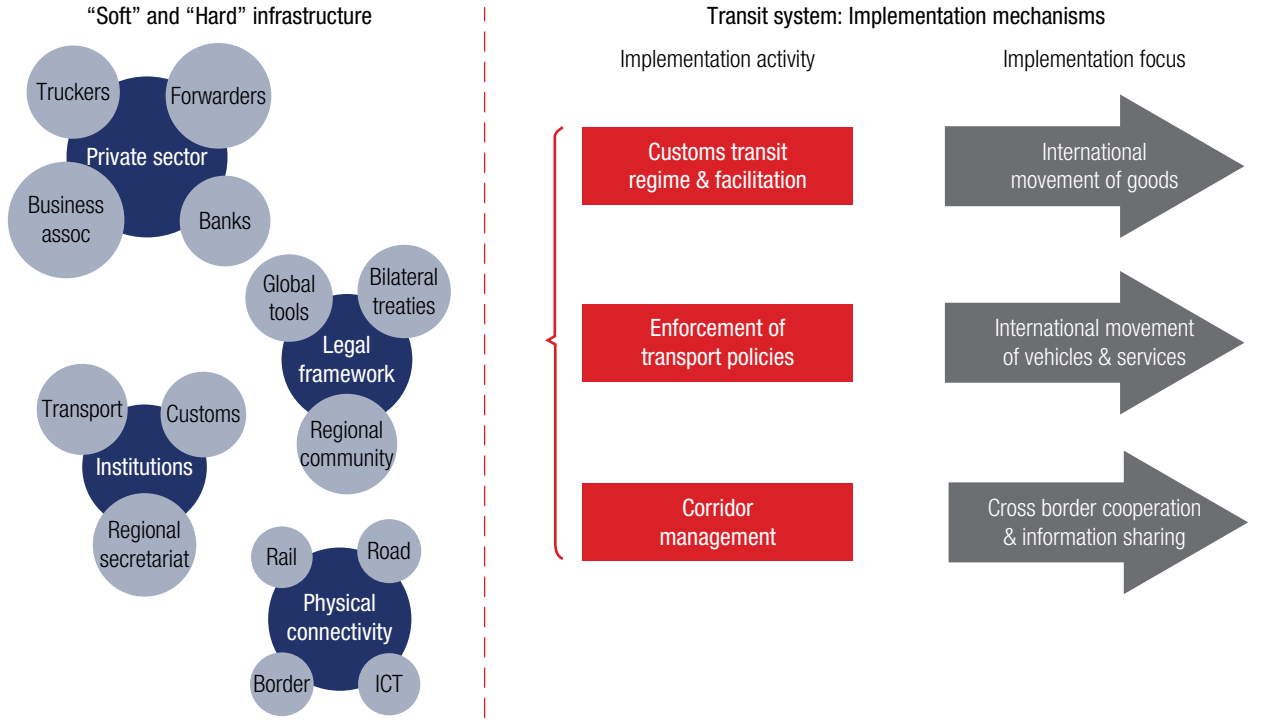
The supply-chain connectivity is the ability of the traders in one country to effectively establish reliable supply chains with their customers or suppliers. These supply chains are not taking one specific route or mode of transportation, but rather have several options. Their performance is dependent not only on the transport route but also on the logistics business environment, which depends on national or regional patterns (customs is a nationwide agency). The criterion may depend on the product.

For instance, exporters of dried fruits from the Isfara region in northern Tajikistan are dependent on partnerships with long-distance road services with Russia and Europe to serve their customers and face potential issues in transit. They are also dependent on the local cross-border road network within the Kyrgyz Republic to expand and diversify their collection area. In the case of the General Motors factory in Uzbekistan, or a large wholesaler operating from Almaty, the concern will be the predictability of the rail transit to Almaty and beyond from distant sources in East Asia, Russia, or the European Union, so as to avoid potential stock-outs.

Source: Rastogi and Arvis, 2014.

[19] Africa's geography and the number of its LLDCs make it highly dependent on transit corridors. It hosts several transit agreements on paper—but implementation has faced various challenges. There are four different regions with separate sets of problems: West Africa (the West African Economic and Monetary Union [UEMOA] plus Ghana); Central Africa (the Douala Corridor); Eastern Africa (the Kenyan and Tanzanian corridors); and Southern Africa.

FIGURE 17 ■ Components of the Transit System



Source: Arvis et al. (2011).

supply-chain performance. This framework is not corridor-specific: it rather offers a complementarity with corridor approach taken in the past. Such approach is important but in practice it is rather about implementation.

In Central Asia especially, the corridor concept so far has not solved fundamental issues concerning institutional capacity and private sector competence. Most of the binding constraints are not route specific; they are structural issues found to various degrees in all countries but are largely national. They have to be addressed at the national level, eventually within a regional integration framework with a strong customs and transport component, such as the Eurasian Customs Union and/or the SCO.

What is Transit?

The transit customs regime is a very important component of logistics of landlocked developing countries. The transit regime makes possible the movement of goods not yet cleared by customs to move under customs control. Transit may happen:

1. From border to border going through the country (international transit)
2. From border to an internal destination where goods are cleared (national transit)

In both cases there are huge gains in making transit interoperable between countries so that there is not duplication or differences in procedures. In the context of a Customs Union such as the EU or the Eurasian CU, the transit regime between countries within the CU is unique, like a national transit scaled to the full CU.

The following concepts are essential to a transit regime:

- Seals to secure the vessels
- Documentation flow (transit declaration and its automation)
- Principal (owner of the goods) and guarantor (a party that agrees to pay jointly with the debtor the duties and taxes that will be due if a transit document is not discharged properly

- Guarantees (financial securities, bond by a bank, deposits)

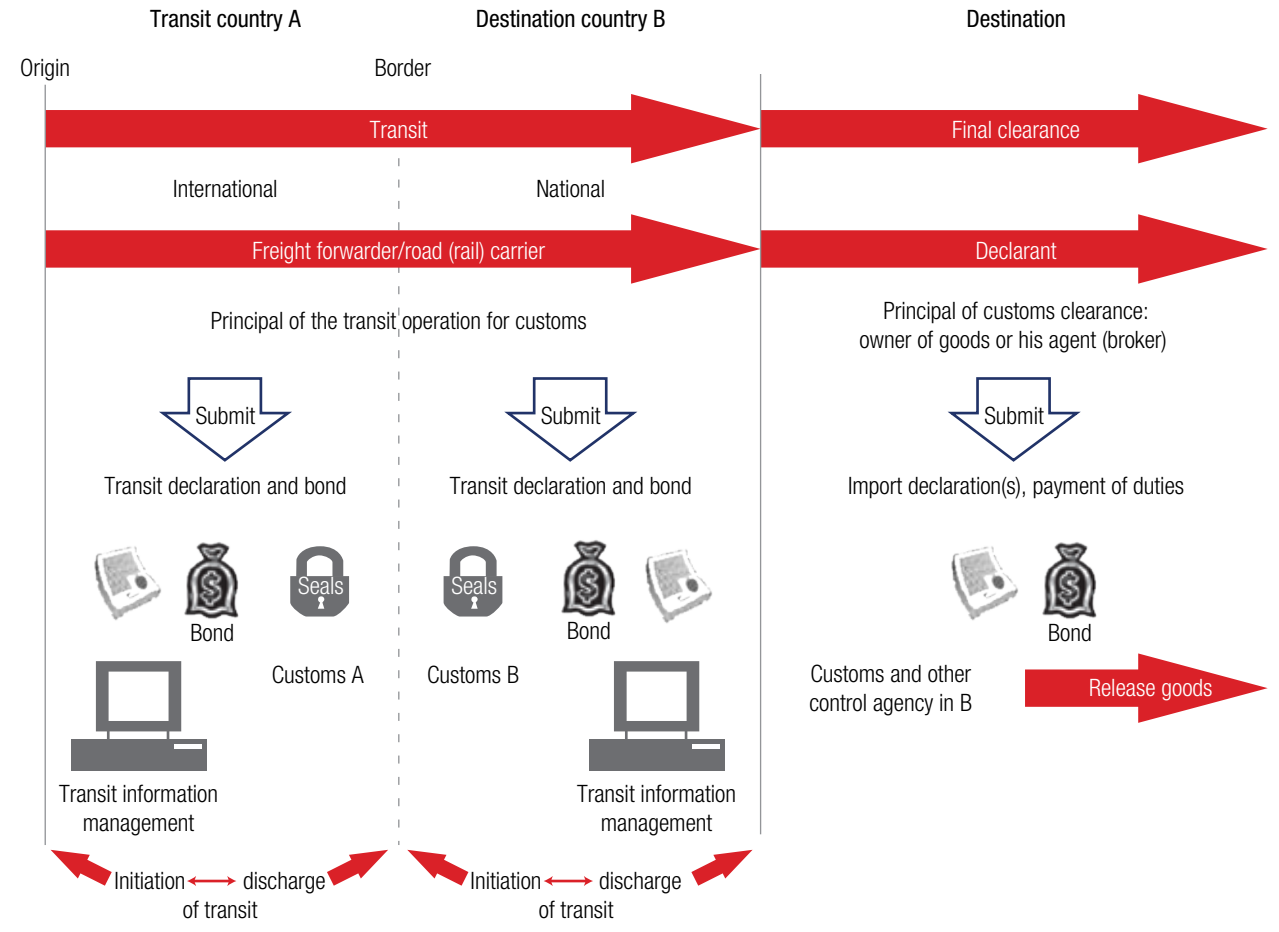
A functional transit regime ensures that the physical movements of goods, information flows and financial flows are effectively synchronous.

The agent for a transit operation is the carrier or the freight forwarder, not an owner of the goods. The agent furnishes the guarantee and files the transit declaration with customs. Unlike for regular clearance, for transit traffic, the due diligence by customs authorities is limited to affixing or checking the seals and verifying the guarantee instrument. Customs do not need to value the goods precisely for each vessel—they need to make sure that a proper guarantee is issued by the transit operator.

In many countries transit arrangements such as guarantees are poorly implemented; other issues include weak information systems to reconcile the entry and exit documents.

Transit requires an exchange of information from at least three places: a place of transit initiation, a place of transit termination, and a place of the guarantor (to validate and discharge the bonds). Pricing of the guarantee (or bond) may vary but it is proportional to the time between the initiation of the guarantee and its discharge. Therefore, inefficient information exchange between the three places and delayed

FIGURE 18 ■ The Transit Regime: International and National Transit and Final Clearance



Source: Arvis et al. (2011).

Note: Transit trade describes the inland movement of goods under customs control that is not cleared by customs. Transit can take place in the country of destination and origin of the goods (national transit) or in a third country where the merchandise is carried from an entry post to an exit post (international transit). Hence, a complete transit is a sequence of international and national transit links. Landlocked developing countries can trade with non-neighboring countries only through transit systems.

discharge of bonds result in significant costs. NCTS (New Computerized Transit System) in Europe is a good example of a seamless exchange of information on a transit manifest or the initiation and termination of a bond/guarantee.

Transit does not require a heavy border infrastructure to check the transit manifest and the seals. Transit flows should be separated from the flows cleared at the border: a separate fast lane, etc.

Another important feature of a modern transit regime, such as the Common transit in Western Europe, is that the requirements procedure applicable to the transit operator may be simplified and the guaranteed lowered for regular operators with a demonstrated level of compliance and high volume. For instance typically guaranteed are waived for railway companies. The general idea is that transit operators (principal) are a special case of authorized economic operators.

The main steps in this extended supply chain include (on the import side; the chain is reversed for exports) port handling, initiation of transit, loading and multimodal operation, control en route, border procedures, and customs clearance at the destination. These activities take place mostly in the transit countries.

For traders, the low reliability of transit supply chain is more worrisome than the average transit time. The many steps, the fragmentation of control and the low quality of services make the supply chain unpredictable, which shows up in the spread in transit times. The system lacks redundancy: if one link fails, few alternatives are readily available. Other factors that make the delivery process unpredictable or unreliable from one end of the chain to the other include: breakdowns of key infrastructure, transport equipment, insecurity and fuel shortages. All these risks give rise to additional inventories, emergency shipments, suspended operations, and lost markets.

Transit systems which govern the movement of goods from origin (or port) to destination have serious implementation issues and require more attention. Transit systems are based on the transit regime, which is the set of rules and regulations that govern the movement of goods from their origin in the transit country (often a seaport) to their destination (such as a clearance center in the destination country). The efficiency of the corridor supply chain depends on its design and above all on its implementation. At the heart of a functioning transit regime is a public-private partnership, a relationship, contractual in some cases, between competent logistics operators and the authorities of the transit country. The principles of working transit procedures are essentially universal and procedures involve a transit document and a guarantee scheme that prevent multiple taxation of the goods in transit, also precluding revenue losses associated with leakage of the goods into the transit country. Several legal instruments aimed at facilitating transit have been developed in the past decades. Despite these efforts, achieving an effective and working transit regime has been elusive in all regions outside Europe.

Common implementation issues include weak information systems and poor guarantee management, lengthy transit initiation procedures in a country of origin (usually port), lax regulation of entry for the operators authorized to participate in transit operations, control mentality and extensive use of convoys to escort the transit vehicle, misconceptions in transit facilitation initiatives (e.g., it is proven that transit does not require a heavy border infrastructure).

Transit Trade is Still Being Overlooked

Along most corridors in developing countries, the time to initiate transit in a port is similar to the time to clear goods for local consumption in a coastal country. In some instances, it can take even longer, despite the fewer procedures and no payments involved. As shown by Raballand (2012), time to clear goods or initiate transit is shorter, but can be still relatively long two to four weeks is the norm is the norm in most African ports today. There is no simple or single explanation for this problem, which affects both large and small transit operators. However, it seems that in many cases, customs does not clearly separate clearance from transit procedures, but applies the same process to both. In reality, transit goods should not be subject to the same risk management and control as locally cleared goods. Document checking classification and valuation should not be sticking points for transit goods. In theory, transit can be initiated in a port using the information already available in the shipping manifest.

There is a high risk of policy makers and development agency to concentrate their efforts on unproductive design and investments associated with transit. The tendency is to overregulate transit and not always address the most pressing issues. It is worth rectifying

some of the most widespread misconceptions. First, transit does not require a heavy border or ICT infrastructure; in fact, transit facilitation reduces the needs for border investment. Since the process at the border should be limited to fairly simple diligence—check the manifest and the seals, no inspection—there is no need for a large transit infrastructure. Transit does not require specific border post arrangements, and transit flows should be separated from the flows cleared at the border. For example, there may be a separate fast lane at a border post with substantial activity (100 trucks a day). Information technology is critical, yet d overreliance on information communications technology (ICT) solutions may be counterproductive. Some simple ideas on where and how to clear, although apparently are common sense, do not work.

An important series of misconception is that there are solutions within regional integration framework that can dispense LLDCs from a transit regime:

- For landlocked developing countries, clearance at the port of entry in the gateway country. Beyond the obvious issues of territorial jurisdiction, the main problem with this idea is that the transit country, to prevent fraud or fiscal loss, still needs a system to make sure that goods are consumed in the destination country. At best there can be preclearance, with the risk of adding a layer of procedures. In rare instances, this is feasible, for example, where there is a very short transit corridor and a dominance of transit trade over domestic trade at the port of entry.
- For a customs union to dispense with transit procedures entirely. In fact, since value-added taxes (VATs) or sales taxes are collected in the country of consumption, some transit mechanism must be maintained with border controls even if a collective mechanism is agreed for the collection of extra-union duty (as in the European Union [EU] and Southern African Customs Union [SACU]).

Regional Transit Systems

Typically transit takes place over at least two territories: one or more transit countries, plus national transit in the destination country. There are obvious advantages in harmonizing the procedures and chaining transit across-countries in the same region, so as not to repeat the paperwork or pay for the costs of several guarantees, one at each border. This integration has begun in Europe first with the TIR (available also in MNA countries and the CIS), and evolved in Western Europe in the more integrated European common transit system. Other have tried to develop regional transit systems, to serve the need of regional trade. However, regional transit regimes have not succeeded, apart from the TIR and the European common transit system.

After World War II, there were two contradictory developments. On the one hand, truly efficient multilateral systems were created in Europe in the reconstruction period, such as the TIR (Transports Internationaux Routiers) system, allowing door-to-door international trucking of goods, which has since become a primary long-distance transportation mode. On the other hand, when newly independent countries emerged from former colonial empires or were formed otherwise, they keenly felt the need for border controls and transit systems where there had been none. Hence, while trade corridors in Europe became more efficient, in the rest of the world, they became more fragmented.

Trucking (TIR and European Transit)

In Europe, the TIR system allows for a unique documentation and guarantee managed by a network of national guarantee association. It evolved from the 1950s, spreading from the Western Europe to the East and is still very active and plays an important role in the former Soviet Union.

The main services involved in supporting trade and logistics are trucking, freight forwarders, customs brokers, and third-party logistics (essentially warehousing in the local context). Only international trucking under TIR is following well established international standards. Most other logistics companies in the region do not offer very sophisticated services, operate under loosely defined regulations and professional standards, and are not integrated into the networks of global logistics companies.

Transit essentially relies on a public-private partnership: the private sector provides financial guarantees and applies operational procedures that make transit trade possible, and in return it obtains freedom of transit under minimal supervision so that customs agencies can trace properly but not intrusively transit

operations. The TIR implements these principles very effectively:

- TIR is universal instrument managed by the International Road Union (IRU), under supervision by the UNECE (TIR convention)
- Operations happens under a TIR carnets, which is a transit declaration distributed by the IRU, with a transit guarantee attached to it.
- Operators must meet minimal international standards, validated by the national association member of the IRU.
- The IRU through its management of the carnet does offer a system of tracing and validation of transit operations. IRU is also responsible for the interoperability of transit guarantees across border, a critical feature difficult to implement.
- TIR trucks offering a better level of security, customs may differentiate depending on the quality of the operators and their vehicles, the sensitivity of the goods carried, or both.
- Although TIR has been designed in the 1950s as a purely manual system, it can benefits from automation: carnets and guarantees are managed in standards customs system, E-TIR is increasingly available and allows for advanced notification of declaration before reaching borders.

From the 1970s, the TIR was progressively replaced within the then-European Economic Community by a Common transit declaration (referred to as a T1), with a unique customs document checked at each border like the TIR, but backed by a common banking guarantee from the country of origin. This was made possible by the integration of the community whereby a bank guarantee could be recognize across border. Since the turn of the millennium, the Common Transit is automated with the introduction of the New Computerized transit system (NCTS). This system covers the EU and the EFTA countries (Norway, Switzerland).

Other Transit Systems

The success of the TIR did inspire other regions to emulate it and create comparable systems to facilitate movement of goods across several borders. Most of these experiments started in the 1980s, and with very few exceptions ended up in purely systems typically lacking key ingredients such as: regulation of entry of the operators, lack of a common information system to trace the transit operations across borders, or a

Box 7: European Transit System

The European common transit system is the term used here for the European Community and common transit systems—systems that apply to goods imported into any of the 27 European Union member states and 4 European Free Trade Association countries from outside that area, as well as to exports in the reverse direction. The Community transit system applies to trade between European Union members and third countries, while the common transit system (in the more restricted sense) to trade between European Union and European Free Trade Association countries under essentially the same rules. The transit manifest is known as T1. Imports are subject to duty in the destination country in accordance with the European Union's common external tariff, and to value added tax (VAT) in accordance with national tax rates. The recently implemented New Computerized Transit System (NCTS) has made the European common transit system even friendlier.

Guarantees can be of three kinds: a cash deposit, guarantee by a guarantor (who vouches for the trader), or a guarantee voucher (a multiple of the standard € 7,000) valid for up to one year. For a regular procedure the guarantee must apply specifically to an individual trip. Authorized transporters (and other principals) may present comprehensive guarantees valid for multiple trips and longer periods, but covering only the total duty expected to be at risk in an average week—the so-called reference amount. The coverage of the comprehensive guarantee or guarantees can be less than 100 percent of the reference amount, and it can even be waived if the principal meets conditions that imply low risk.

The European common transit system represents a very streamlined evolution of regional carnet system. It is now fully computerized, it does not require the soft infrastructure of the TIR (the IRU and national associations), and it allows competition for guarantees. There is also less intermediation by brokers. In essence it is like a national transit system, but expanded into an economically integrated region.

Source: World Bank.
Note: The transit manual in the EU is a huge document of more than 400 pages that contains many details, available at: http://ec.europa.eu/taxation_customs/customs/procedural_aspects/transit/common_community/index_en.htm

single guarantee instrument, the latter two are provided by a single international body the IRU.

Beyond the EU, trade within the SACU is within a customs Union, but less complete than the EU. There is not a single revenue mechanism and some internal borders are maintained. During the period of the Almaty program, two new initiatives were implemented that provide very positive examples of regional initiatives to facilitate transit: the Eurasian Customs Union and the TIM in Central America.

The Eurasian Customs Union (CU) includes Belarus, Kazakhstan and Russia. Beyond the EU,[20] the only example of a full customs union with revenue sharing and suppression of customs control at internal borders. The CU indirectly benefits other Central countries beyond Kazakhstan (Rastogi 2014). However the CU rules in a number of areas including trucking regulations or internal transit regime have not been aligned with the EU, which potentially create conflicts with other provisions such as the TIR.

In connection with SIECA, since 2005 the Inter-American Development Bank has put into effect a regional transit system (TIM), which is one of the best systems operating outside Europe. It is based on an adaptation of the EU's and EFTA's Community Transit (NCTS). It is fully operational in 2012 on the Pan-American Highway and has significantly reduced waiting times at borders. Previously transit implied new procedures on each side of each border, involving customs brokers.

TIM generates a single computerized document from origin to destination, reducing border formalities and controls. The carrier creates the computer-generated TIM declaration either before departure or at the first border, where it is recorded on the TIM regional server and shared among the countries. At the border the driver shows his TIM carnet at the specialized 'transit' window. Its barcode allows the customs officer to automatically identify the truck and the driver, and unless there are problems, he gives immediate approval to proceed. The driver's immigration documents are checked at the same window. The transit seals are community seals attached at the point of departure of the transit, as under the TIR regime. As Under TIR, the driver handles the border formalities without need of brokers

Several lessons emerge from the past problems with implementing transit regime and the lack of success in creating regional systems. First, an efficient transit regime depends on the other components of the transit system, including institutional capacities; private sector capacity, notably in transport services; and other political economy constraints. Second, misconceptions in transit design and implementation have appeared, even in environments that were conducive for a successful transit regime. Third, the conceptual differences between the TIR and the European common transit system are complex and not always fully understood. In most cases (below) the implementation of the regime did not include proper multi-national governance, comparable to the IRU in the TIR, so that the transit operations are properly traced, and guarantees managed across borders.

TABLE 13 ■ Examples of Other Regional Systems

	Area	Implementation	In practice
ECOWAS (TRIE)	ECOWAS countries, in practice only UEMOA countries	Similar to a local TIR Common carnet, with payment to chamber of commerce	No regulation of entry No common guarantee and clearance mechanisms (e.g. IRU) Does not work across border or dispense from national transit
CEMAC	Cameroon, Chad CAR	Not implemented	
COMESA		Common document	So far, no
EAC	Kenya, Tanzania, Uganda, Rwanda	In progress	Concept of clearance of non-regional goods at the port of entry. (untested)
Andean Manifest		Common document	
ATIT	Mercosur	Common	Common guarantee based on truck value
CBTA	Greater Mekong countries	Similar to a local TIR	No implemented so far

[20] and, potentially, the Switzerland-Lichtenstein CU.

Box 8: Comparison of European transit with the Eurasian CU transit

For instance, in Kazakhstan, like in other landlocked developing countries, transit may happen under:

1. The TIR
2. The provision of the customs union for instance for goods coming from the CU border to an internal destination within the customs union (when they are not cleared at the border), or for export from inside the customs union
3. Special provisions for trucks coming from Khorgos to inland depot in Almaty.

From the interviews, the application of a concept of transit operators seems to be much more restrictive in the Eurasian CU when compared to the EU system, at least in its implementation. In application to Kazakhstan, this concept results in an exclusive class of transport customs brokers with a higher level of standing guarantees. Similar to the registration fee of brokers, the guarantee amount is fixed and is not tied to the volume of transit as in the EU or a typical transit guarantee system. In fact, the system should be enhanced to include:

1. Comprehensive guarantees issued to most large logistics and trucking companies, especially those operating under the TIRs;
2. Vouchers for occasional operators, which would still have to register with customs. For instance, this could apply to middle-size transport companies.

Furthermore, the transit guarantees should be computerized under the same conditions as the import customs declarations (paperless trade). Critical to the system is the ability of the customs office at destination or en route to access the transit declaration initiated at the point of entry of the Customs Union. This raises an issue of IT connectivity within the CU, which in current situation is more of a legal/organizational issue rather than a technical one.

Source: World Bank.

Simplification of Procedures: Trade and Transport Facilitation

Trade facilitation is one of the areas, where the most progress has been made during the period of the Almaty Program of Actions. However, this trend is not specific to the LLDCs but can rather be attributed to global awareness on the importance of practical trade facilitation measures to reduce the trade costs at the borders. This global convergence shows in reduction of delays and the trends in convergence in logistics performance (LPI 2014 Report).[21] This trend helps the conclusion of the recent (2013) WTO agreement on trade facilitation, which promote into a now legally binding framework a series of important principles, proven by experience.

Trade facilitation includes the following improvement:

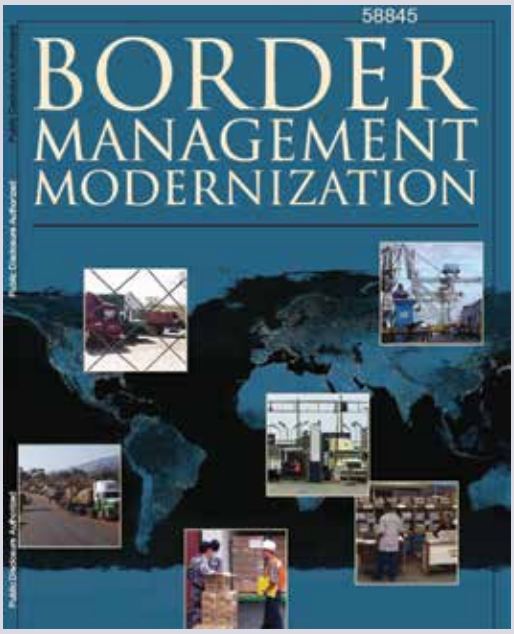
- Reduction of procedures
- Automation of trade procedures
- Improvement of border crossing facilities
- Risk management: selectivity to reduce the rate of physical inspections of goods by customs or other agencies
- Transparency of information of trade rules
- Possibilities to appeal decisions made
- Integrity program to reduce collusions and illegal payments
- Integration of control by different agencies (Integrated border management) to avoid duplication
- Expedited schemes for compliant operators (authorized operators regime)

Below are two examples of areas where some practical progresses relevant to LLDCS: the improvement of land border crossing points and the use of information technology to process trade information, and clear goods. These projects can be relatively complex, but in some respects are the low hanging fruits of facilitation reforms. They rely primarily in investment in technology and physical facilities, not necessarily deep change in institutions and business models. The benefits from those investments are fully reaped only when these changes are implemented.

[21] Connecting to Compete. Trade Logistics in the Global Economy. The Logistics Performance Index and Its Indicators. Word Bank, 2014.

Box 9: Resource Material on Border Management

Border Management Modernization Toolkit provides policymakers, development professionals and reformers with a broad survey of key developments and principles for achieving trade facilitation improvement through the adoption of contemporary approaches to managing cross border trade. In contrast to the traditional border management reform agenda, with its focus specifically on improving customs operations and trade related infrastructure, this book addresses both customs reform and areas well beyond customs—a significant broadening of the traditional scope of reform efforts. It provides practical advice on how to develop a strong business case for reform and how to design and implement comprehensive border modernization programs in developing countries.



Source: World Bank.

WTO Trade Facilitation Agreement (Bali Agreement)

After more than nine years of intense negotiations, WTO members finally reached consensus on a Trade Facilitation Agreement at the Ministerial Conference held in Bali, Indonesia, in December 7th 2013. The final agreement builds on the now 50 year old trade rules covered by Articles V, VIII & X of the General Agreement on Tariffs and Trade (GATT) and contains provisions for faster and more efficient customs and border management procedures.

The key measures covered under the new agreement include commitments on the publication and availability of information for traders, the adoption of modern approaches to customs and border management. The principles include:

1. Operational standards by customs agencies in terms of risk management for clearance post clearance audit,
2. Transparency measures such as: transparence on new legislation, appeals against administrative decisions, advance rulings,
3. Improved cooperation between government agencies including the implementation of national single window systems
4. Guidelines for streamlining international transit procedures.

In effect, the new agreement brings under the formal auspices of the WTO many of the standards and best practices enshrined in other international instruments and in many respects the Bali agreements spells out minimum common standards, and the full benefits of trade facilitation would only be fully realized if countries are prepared to go beyond, for instance in the context or regionally integrated facilitation framework similar to the ones available in the EU.

However the agreement has a catalytic role in two areas. First the standards in the agreement are subject to the WTO's binding trade disciplines, which was not the case in previous conventions. Furthermore, the agreement strengthens the delivery of technical assistance and capacity building support for developing and least developed countries. Indeed, global experience suggests many of the measures contained in the agreement are relatively straightforward to implement while others, such as the introduction of national single window systems, can be quite complex and will require sustained effort from member governments. In recognition of the difficulties some countries may face fully implementing the new agreement many caveats have been incorporated with developing countries and least developed countries afforded a great deal of flexibility on both timing and implementation modalities.

Regarding transit, the article 11 of the agreement complement with implementation principle the GATT art V which endorsed the principle of freedom of transit. There is need for clear rules on cross

border charges—infrastructure consumption, axle load controls, insurance (if cross border operations are allowed), etc. Article 11(3) makes it clear that national regulations, bilateral or multilateral arrangements related to regulating transport will continue to play an essential role. Also Clause 5 underscores the importance of proper planning of border facilities, to spate traffic flows into separate lanes. This would also include catering for vehicles carrying fresh produce as provided for in Article 7 (9). Last but not least en-route checkpoints and repeated weighing at weighbridges can be included under "unnecessary delay" mentioned in Article 11(7). These principles endorse many of the practices already implemented on the ground especially with border crossing. However the agreement, because it is focused on unilateral facilitation measures, did not address the main issues with regional transit systems including reference to the TIR or NCTS like mechanism implemented regional to agree operators, manage guarantee or transit documents across several borders.

International Treaties

Many landlocked developing countries negotiated at bilateral, (sub)-regional or global level new treaties or have become parties to existing ones in order to facilitate the access to markets and enhance economic integration. Experience and studies show, however, that signing or ratifying a treaty without proper subsequent enforcement fails to create change and attain treaty's objectives. De Matons (SSATP, 2014) shows that access to and ratification of basic international agreements on trade and transport facilitation remains uneven, with significant discrepancies between legal instruments and their effective enforcement.

They should, therefore, carefully consider the rights and obligations stemming from these international treaties when negotiating and implementing bilateral road transport agreements and when drafting national laws. Although bilateral agreements signed between separate pairs of countries cannot interfere with each other, they should respect multilateral obligations if both countries are also parties to a multilateral convention that covers the same or similar issues. For example, the obligations of bilateral agreements may overlap with the World Trade Organization's General Agreement on Tariffs and Trade (GATT) and/or General Agreement on Trade in Services (GATS), with United Nations Economic Commission for Europe (UNECE) transport agreements, and so forth.

The first condition for granting access to markets is the mutual recognition of documents related to crew, transport means and goods. This recognition is possible only if the documents have been issued based on internationally agreed and mutually accepted norms and standards for training, inspection, examination and certification. Despite significant progress in terms of number of agreements ratified, the level of harmonization of technical standards and norms remains in general very low; consequently the progress in economic integration has been rather slow.

The Role of International Instruments

The advantage relatively to identical measures taken at a purely bilateral or regional level that they constitute a corpus for which the practical experience of the implementation of measures is available from international organizations or private sector institutions, such as the IRU for topics related to road transport. These institutions are also capable of assisting the signatory in the implementation and monitoring.

The principal international conventions relating to international trade facilitation, and notably within the regional framework by land, are the following:

1. The TIR Convention: TIR is the most widely used system for international road transport; it allows the movement of freight in customs transit through several countries (1975)
2. The CMR Convention: covering contracts for international road freight transport (Geneva, 1956)
3. The ATP Agreement: governing international transport of perishable foodstuffs and special vehicles (September 1, 1970)
4. The international convention on the simplification and harmonization of customs procedures, or Kyoto Convention (revised in 1999)
5. The Geneva Convention on harmonization of goods control at borders (1982)
6. Convention on road traffic (1968)
7. Convention on road signs and signals (1968)
8. Agreement Concerning the International Carriage of Dangerous Goods by Road (1957)
9. Customs Convention on the temporary importation of commercial road vehicles (1956)

NB: This list is inspired by the list of conventions deemed essential by the United Nations Economic Commission for Asia Pacific (UNESCAP) in its resolution 48/11 of 1992.

At the other end of the legal infrastructure, bilateral agreements should fulfill a different role, mostly as protocols to define practical details on the functioning of corridors such as layout and schedule of operations at the borders, and organizations of truck flows. General architecture of transit should belong to international or regional instrument. The reality on the ground is that bilateral agreements play a more extensive role in regulating corridors.

Road transport remains a dominant mode of transportation in landlocked developing countries. Bilateral agreements continue to prevail as the main instrument to govern and regulate international road transport services. Few of them have been brought in conformity with liberal principles that are adequate to today's globalization. In addition, there appears to be little consistency in the content of bilateral agreements. For example it is not unusual for a country to have agreements that are very different with each of its neighbors. Also, it is quite common for traffic rights exercised over more than two countries to involve a chain of bilateral agreements, substantially adding to the regulatory burden.

Having a multitude of bilateral agreements puts a burden on both operators and implementing agencies, as they must keep track of all the agreements' provisions; it may create some confusion and operational constraints which may affect the level of integration among road transport markets. In fact, the lack of a bilateral agreement results in a major obstacle to trade by creating a successive unloading and loading operations at each border crossing—this constraint is increasingly rare but still in place in several borders is South Asia and East Asia.

The problem is that bilateral agreements are often quite old and has not been designed as facilitating instrument. Bilateral agreements are guided by principles of reciprocity and territoriality, where the former refers to how parties mirror each other's rights and obligations and the latter to how operators have to abide by the rules and conditions in the other contracting party. In reality unequal treatment of operators, based on their nationality or country of vehicle registration, still exists. As evidenced in (Kunaka 2013), trucking bilateral agreements are primarily freight sharing agreements. The trends is to evolve towards more liberal design and implementation of bilateral treaties.[22] However excessive implementation of freight sharing principle such as in Central Africa is the source of major inefficiencies, where freight is allocated by a public body resulting in additional procedures and delays.

Land Border Crossing Points

Land borders are customarily difficult to cross, and often represent major obstacles to trade, especially for landlocked developing countries. Long queues of trucks clogging borders are a common image throughout the developing world, and whenever drivers and traders are interviewed, crossing times are measured in days, even sometimes in weeks. This time has a cost, and traders are affected both directly and indirectly: directly through excess inventory costs tying up scarce resources and through hedging costs to protect from the consequences of uncertain transport time (the cost of excess stock to avoid disruptions risks caused by fluctuating delivery time, or the cost of lost business opportunities), and indirectly through more expensive logistics services, as idle trucks are not making money (less trips mean less income, and higher fixed costs to cover on each paying trip).

Facilitating land-border crossings has therefore become a priority for governments and Regional Economic Communities (RECs) in their efforts at boosting intra-regional and international transit trade. On the assumption that border delays were caused by border agencies, one of the solutions rapidly gaining momentum in several regions of the world is the one-stop border post (OSBP) approach, in which, border agencies interventions from both countries are combined. This approach has two main variants, the joint model, with common facilities for border agencies procedures at the border or at close proximity in any of the two countries, or, for the second model,

[22] Where bilateral agreements are based on a quota system, the common practice is to fix the number of permits at the same level for both parties. However, if one party has bigger trade volumes or more efficient operators, then it may exhaust its quota faster than the other party. Unless the quota is increased, the party with higher volume must pay for additional permits and access to infrastructure.

specialization of the existing facilities on each side of the border to jointly process import trade. Africa quickly adopted the OSBP as the 'miracle solution', with EAC implementing a regional program to convert internal and external borders in East Africa into OSBP, SADC having included OSBP for its Southern Africa Infrastructure Master Plan, and ECOWAS implanting its Joint Border Post program throughout West Africa.

However, combining two border posts into one is not a simple undertaking: physical facilities are not necessarily adapted, and if this is certainly the most visible obstacle, it is not the most important one. Organizing the cooperation between border management agencies, nationally, between the entire border management agencies represented at the border, and internationally, between the border management agencies on each side of the border, constitutes both a legal and operational challenge not to underestimate.

Compared to relatively high expectations, the results in terms of time savings for the few border posts that have been converted so far appear somehow disappointing. Part of the problem is that the emphasis has been mainly on the physical facilities, whereas most gains can be made through soft reforms, as the East Africa experience with OSBP shows. Also, the diagnosis needs to be nuanced. Border agencies are frequently blamed for delays, but in reality, responsibilities are shared: operating hours play a role, as even if border agencies operate 24/7, agents often do not; trucking operations also accustomed to long stays at the borders, and adjusted the driving pattern to use them as convenient 'rest stops' for truck drivers.

FIGURE 19 ■ Container Trucks in Malaba (Kenya to Uganda

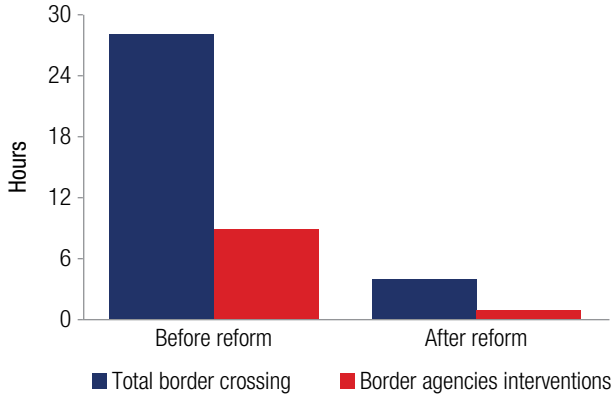
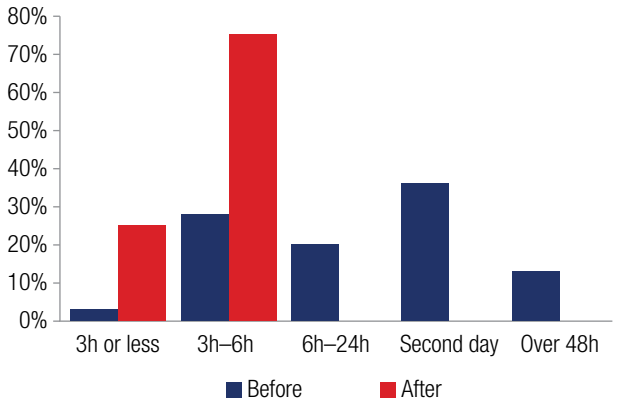


FIGURE 20 ■ Proportion of Containerized Trucks Crossing the Border within Time Range, from Survey Sample



The East Africa experience with OSBP clearly shows that reducing border crossing delays work, enabling same day passage where in the past, delays were counted in days. Critical enablers of that success were the supporting IT and the connectivity between Customs agencies, the culture of cooperation that has been cultivated among the two countries and the effective involvement of the private logistics operators (truckers, drivers and C&F agents).

Information and Communications Technology (ICT) as Trade Enabler

Automation of documentation and electronic submissions are becoming prevalent notably at customs border post and clearance facilities to process the customs and transit declaration. IT software such as the UNCTAD ASYCUDA are widely available and mastered. In fact availability of IT at processing point is no more a major problems. The LPI survey did show that this is an area where LLDC do not lag behind more advanced economies.

Access to and affordability of the ICT infrastructure in many landlocked developing countries does not appear to act as a main impediment to smooth trade. It is rather a quality of services related to the ICT infrastructure/ For instance, landlocked developing countries have relatively accessible ICT systems at customs border crossing points. From the LPI 2014 survey, on a question to evaluate the quality of trade and transport related infrastructure

(telecommunications infrastructure and IT services), the majority of respondents in 7 landlocked developing countries (Bolivia, Kyrgyz Republic, Zimbabwe, Uganda, Zambia, Ethiopia, and Mongolia) rated it as quite low. On the other hand, Burundi, Lao PDR, Tajikistan, Uzbekistan and Nepal rated the quality of the ICT infrastructure as average or slightly above average.

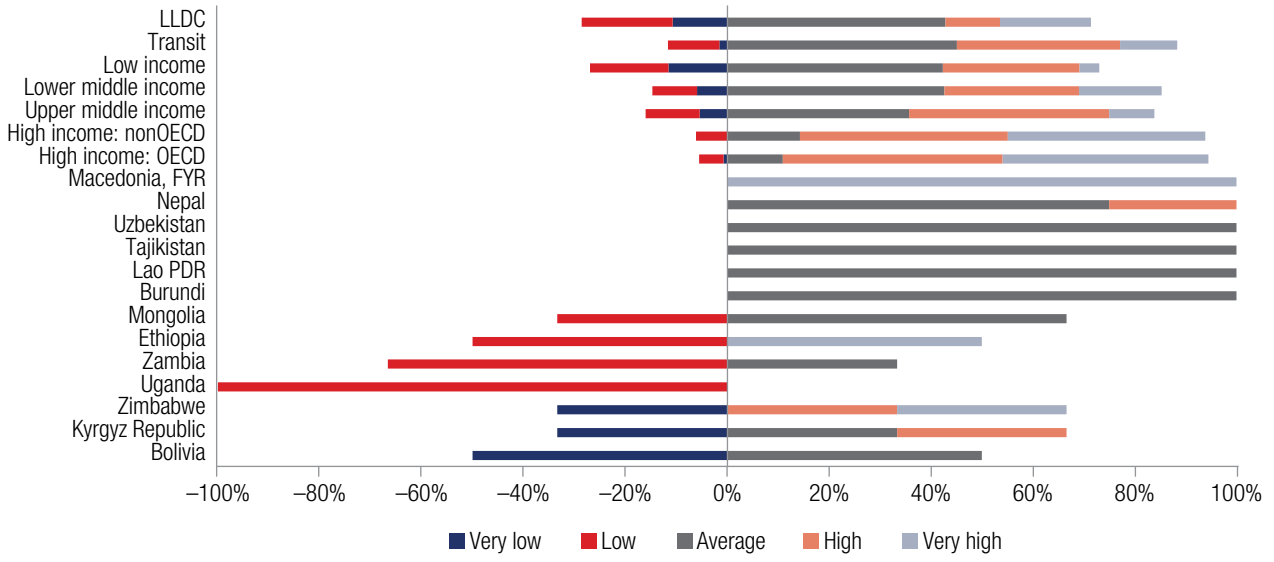
The penetration of ICT in general in LLDCS does help. When compared to the coastal transit countries, LLDCs seem to have a lower access to ICT infrastructure, measured as a number of subscriptions per 100 people for broadband internet, landline and mobile telephones.

Among the LLDCs, Azerbaijan, Kazakhstan, Macedonia, FYR, Turkmenistan, Moldova, and Armenia are characterized by a significantly higher number of subscriptions for wired broadband, landline and mobile telephones per 100 people than the LLDCs or upper-middle income countries on average.

In terms of affordability of ICT, Central African Republic ($1,330 a month), Tajikistan ($363), Rwanda ($112), Lao PDR ($97), Lesotho ($85), and Zambia ($82) demonstrate the highest price for fixed (wired) broadband connection. Sub-Saharan countries such as Lesotho, Malawi, Swaziland and Zimbabwe stand out in terms of higher price for mobile telephones. Such higher prices in these countries may be due to a somewhat monopolistic nature of the market structure for these services.

However there are quite a few issues in actually fully reaping the benefits of IT for trade. As indicated in the LPI 2014 survey, on a question to evaluate the quality of trade and transport related infrastructure (telecommunications infrastructure and IT services), the majority of respondents in 7 landlocked countries (Bolivia, Kyrgyz Republic, Zimbabwe, Uganda, Zambia, Ethiopia, and Mongolia) rated it as quite low (see Figure 20). One of the issues is that in most countries electronic declarations still have to be accompanied by a paper version of it. The second is that most progress in many LLDCs is limited to processing customs declarations, while traders are also required to obtain and process the import license, health, SPS, or veterinary permits, at other border control agencies. These other control agencies can

FIGURE 21 ■ LPI Survey: Quality of ICT Infrastructure



Source: LPI 2014, World Bank. Survey Question: Please evaluate the quality of trade and transport related infrastructure (telecommunications infrastructure and IT services) in your country.[a]

[a] Note: one has to be cautious in interpreting the results as the number of respondents in landlocked developing countries is relatively small when compared to countries with higher income.

Box 10: Improving Border Management in Cambodia

In recent years Cambodia has made real progress in reforming and modernizing its import, export, and transit operations, including by streamlining and harmonizing customs procedures to international standards. These reforms have contributed to Cambodia improving its LPI ranking from 129th in 2010 to 101st in 2012 and to 83rd in 2014. With the introduction of automated customs procedures and much of the hard infrastructure now in place at the Port of Sihanoukville and at border posts around the country, clearance times with physical inspection of cargo have fallen from 5.9 days in 2010 to 1.4 days in 2014. Likewise, the share of consignments selected for physical inspection has fallen from 29 percent in 2010 to 17 percent in 2014, suggesting that customs' risk management capabilities are improving.

Further gains in trade facilitation will require extending the reform program of the General Directorate of Customs and Excise to other border management agencies, because advances made by customs are not being made elsewhere: 2014 LPI data rate the performance of quality/standards inspections and health/SPS agencies lower than customs. More than 120 laws, royal decrees, sub-decrees, and regulations containing formal nontariff measures have been identified in a World Bank project, including various import- or export-related permits, licenses, and approvals needed to trade. Thus with World Bank support, the government is automating application and issuance of certificates of origin, as well as improving transparency through a trade information website where all rules, regulations, fees, and procedures will be available. Other areas of collaboration include developing a blueprint to guide implementation of a national single window through which traders can conduct all their regulatory requirements. This will mean that data are submitted only once, and that processing, risk assessment, and inspection are well coordinated.

Source: Connecting to Compete. Trade Logistics in the Global Economy. The Logistics Performance Index and Its Indicators. Word Bank, 2014.

potentially hamper the progress achieved with the processing of customs declarations. Eventually, processing of all these documents in a trade single window should solve this problem. For instance, among LLDCs, Lao PDR has followed this approach. The introduction of "single windows for trade" required an alignment of several government control agencies and a very detailed and accurate data for policy making and information sharing. Box 9 demonstrates an example of implementation of a national single window and a trade information website in Cambodia.

5 Physical Connectivity, Corridors

In landlocked developing countries, infrastructure is often characterized by insufficient quality, poor maintenance, and missing links, so these issues need to be addressed. This chapter highlights the importance of cooperation among the LLDCs and coastal countries for planning and prioritizing investments towards infrastructure in order to ensure proper interconnectivity and interoperability of services. Investments in infrastructure should seek to maximize the comparative advantage of different modes of transportation, with appropriate and efficient movement of freight from one mode of transport to another. In the long run, maintenance of infrastructure is crucial for LLDCs to avoid the enormous costs associated with making overdue repairs. This requires LLDCs to conduct regular maintenance and maintain an upkeep budget for ongoing repairs and improvements.

The evidence shows there are several constraints to reducing trade costs for LLDCs, and they are: high cost and poor quality of transport and logistics services, regular delays for moving cargo in and out of ports in transit countries, and delays in clearing cargo through land border crossing points.

Investments in infrastructure in LLDCs and coastal countries remain relevant and necessary to increase capacity, connect missing links and enhance quality of transport services. In planning infrastructure investments, the corridor approach can be utilized to prioritize certain investments across borders.

To develop infrastructure connectivity and promote inter-operability of services to better serve the interests of LLDCs, one should look at current condition of existing transport infrastructure, complementarity between various modes of transportation or extent to which corridor connects centers of economic activity (see Table 14). Technical parameters are particularly important in assessing the continuity and homogeneity of infrastructure in a corridor. The parameters should be guided by international (rather than national) transportation standards in order to integrate the corridor into a regional network and avoid missing opportunities from technological development, prevent incompatibility with imported transport equipment, and ensure good safety performance.

Investments in infrastructure should be prioritized across the different core components of corridors, including in ports, roads and highways, railways, intermodal facilities and border crossing points.

Roads and Highways

Road transport is the most dominant mode of transport, as most trade traffic moves by road at some point. It is therefore critical for LLDCs to maintain road infrastructure as roads provide the main connectivity to the sea and for many of these countries, road transport is the only available mode for moving freight. Not surprisingly, road infrastructure is one of the most important factors affecting the performance of trade and transport corridors. Infrastructure investments tend to be a top priority in developing countries, partly based on the assumption that investments would significantly reduce transport costs.

TABLE 14 ■ Main Issues in Assessing Corridor Infrastructure

Parameter	Main issue
Length and condition of core infrastructure (ports, roads, rails, inland waterways)	What is the extent and condition of transport infrastructure in each country, including inland container depots and dry ports? Are there missing links or links in poor condition?
Geographical alignment of core corridor transport infrastructure between economic centers in corridor countries	Are the corridor link alignments optimal in linking existing or planned economic centers (cities, mines, dry ports, sea ports, and so forth)?
Technical parameters (national or international harmonization and interoperability)	What is the degree of technical harmonization of infrastructure standards along the corridor?
Delineation of corridor hinterland, including branches (length, formalization, inclusion in the corridor, priority ranking)	How well is the corridor connected to surrounding regions and offline centers? What is the potential of the corridor to evolve from a transport to an economic and development corridor?
Modal complementarities and competition	Does the corridor infrastructure permit intermodal or multimodal operations? Is there appropriate equipment for the transfer of cargo between modes?
Funding availability (commitment, national budget, joint funds, grants, and so forth)	Do the corridor governments attach the same priority to financing and maintaining the corridor infrastructure?
Border infrastructure	Is there appropriate border-crossing infrastructure along the corridor?
Node and link capacity	What is the capacity of the different components of the corridor? Are there parts of the corridor in which demand exceeds infrastructure capacity? What are the node-related costs and charges?
Road safety performance (road safety audits, parking places and other facilities, and so forth)	How safe is the corridor? Can accident "black spots" be identified and addressed? What health and other infrastructure is available along the corridor?

Source: Trade and Transport Corridor Management Toolkit Kunaka and Carruthers (2014).

The main issues that need to be addressed are:

- harmonization of road design standards,
- standardization of axle load limits, vehicle weights and dimensions
- modalities for infrastructure cost recovery (coupons, carnet, fuel levies, tolls) and
- improving availability and quality of road transport services.

The ultimate test of the impact of improvements in road infrastructure should be on the quality rather than on price of road transportation services. There are numerous examples of where investments in road infrastructure resulted in improved roads and road transportation services. However, end-users have not benefited much from these improvements. The quality of regulation, especially of international road transport services is therefore key to maximizing the impact on investments in infrastructure

Harmonization of Road Design Standards

Roads provide the main transport infrastructure and services linking most landlocked developing countries to their transit neighbors, and for many of them it is the only transport mode available. When developing a transit connection, it is usually helpful if the countries concerned are contracting parties to international multilateral agreements that define technical norms, standards, and parameters for infrastructure. It would allow for a smooth transportation of freight through the transit neighboring countries to LLDCs. An alternative is for the parties to agree on specific technical parameters at the corridor level. If this path is taken, the parameters should be at least at the level of the international ones, in order to integrate the corridor into a regional network and avoid missing opportunities from technological development, prevent incompatibility with imported transport equipment, and ensure good safety performance. Currently, none of the bilateral agreements containing route restrictions

along certain corridors (particularly, in Sub-Saharan Africa) stipulate mandatory technical parameters or design standards of designated roads. Normally, these parameters should comply with those of the regional transport infrastructure networks in order to ensure interconnectivity and interoperability.

Standardization of Axle Load Limits, Vehicle Weights and Dimensions

Differences in technical standards for axle load limits, vehicle weights and dimensions, set by each country along the corridor can be a major impediment to the smooth movement of trucks along corridors. The types of trucks that are allowed may be determined by regional standards that relate to vehicle dimensions and axle loads. However, as new countries join the corridor, the vehicle standards in these adjoining members are not always harmonized to that of existing members. For instance, in East Africa, the standards of new members of the East African Community (Burundi and Rwanda) are different from standards of the older members (Kenya, Tanzania, and Uganda).

The modalities of taxation for overloaded vehicles can also differ across countries along the corridor, creating confusion and opportunities for arbitrary enforcement and corrupt practices. Overloading is most common in markets lacking predictability and stability (fewer runs for higher profits) and in environments with weak enforcement of regulations. Vehicle weighing is an important operation, as overloading impedes competition, puts road safety at risk, and damages road infrastructure. At the same time, successive and abusive weighing may slow traffic flow and add to transport inefficiencies. For all these reasons, overloading of trucks needs to be prevented. It is common practice to fine drivers for failure to comply with weight standards and to impose user charges proportional to the damage produced to infrastructure. This practice does not solve the problem, however. In Central Asia, for example, truck operators express their discontent with truck weighting procedure claiming that scales are not always consistent (especially mobile ones, which may not have been properly calibrated). Also, truck weight has to be distributed by axles and if merchandise moves during transportation, it usually results in higher penalties. Another issue is that truck companies are forced to reduce axle load in the winter season by a factor of two.

Across the world, there are numerous examples of effective axle-load limit controls for trucks. The Sub-Saharan Africa Transport Policy Program (SSATP) has documented good practices in East and Southern Africa, including a system at the border between Botswana and South Africa where the weighbridge is linked to customs. Customs authorities can use information on the weight of trucks to verify loads. In fact, it is routine practice for trucks engaged in international transport to be weighed at border-crossing points. If they are not, a border or port weight certificate (or certificate issued at initiation of the journey) should be used to avoid intermediate en-route checks. For such a system to work, authorities along the corridor have to have confidence in the integrity of the systems in place elsewhere for vehicle checks. On corridors where standards are harmonized and the level of enforcement is good, successive weighing operations could be avoided by introducing a mutually recognized unified weighing certificate, as recommended in Appendix 2 to Annex 8 to the International Convention on the Harmonization of Frontier Controls of Goods of 1982. In South Africa, the authorities have introduced self-regulation for approved operators. Trucks belonging to such operators do not have to stop at all weighbridges; instead, they are subject to random checks. In Zambia, advocacy by one of the regional corridor groups was instrumental to a review of national axle-load limits, leading to their standardization with neighboring countries.

Another possibility is to deploy new technologies, including weigh-in-motion devices, to screen trucks without bringing them to a complete stop. The SSATP has documented the importance of countries implementing holistic vehicle overload control programs and has developed guidelines for the cross-border management of vehicle overload controls (Pinard, 2010). International standards for the weights and dimensions of vehicles have been defined in connection with the standards for road infrastructure or in various other forums, such as UNECE. Best practices of harmonization exist at regional levels, notably in highly integrated regions (the European Union).

Governments of LLDCs and transit countries are thus advised to refrain from imposing new barriers to trade in the form of technical, inspection-related, and other documentary requirements for international haulage. They should draw on existing international

best practices covering the technical requirements for the vehicle, the driver, and the cargo, and simplify technical documentation requirements.[23]

Modalities for Infrastructure Cost Recovery (coupons, carnet, fuel levies, and tolls)

Clearly, a reform agenda for the road trucking sector needs to be multifaceted, covering a number of regulatory and economic issues. In addition to describing the types of vehicles that can be operated, the ways they can be licensed and financed, driver qualifications, institutional arrangements for oversight of the sector, safety and environmental protection, it should also account for consumption of infrastructure and cost recovery measures. Infrastructure institutions governing road funding and maintenance, such as road fund agencies, focus primarily on cost recovery for the corridor infrastructure to ensure maintenance and continuity of service.

Unless roads are tolled, it is a common practice to require foreign trucks to pay infrastructure usage fees on crossing the border. For example, the Common Market for Eastern and Southern Africa (COMESA) adopted a standard and simple fee of $10 per 100 kilometers for all member countries. Such standardization is particularly important if the tariffs are very high (increasing transport cost) or benefit domestic operators over foreign registered fleets (reducing competition). In the SADC, the types of charges payable by vehicle operators when entering a country and using its roads vary considerably. There are two types of charges: (1) compulsory access fees, which are all charges payable at border posts upon entering a country and (2) other fees, including charges payable on toll roads, fuel levies, and fuel taxes.[24]

Another alternative is to levy a charge on traffic passing through a corridor. Such traffic is expected to benefit from improved performance. Therefore, the argument can be made that users should collectively contribute to the funding of management functions. A traffic linked usage levy ensures sustainability of the corridor management arrangement while at the same time maintaining pressure on the corridor group to continue delivering benefits. Contributions should ideally reflect the proportion by which users benefit from handling the corridor tonnage. A levy based on the tonnage and distance that the traffic will move along the corridor can be introduced based on a rate per ton-kilometer. Such a levy can be collected at a major gateway, such as a port of entry or some other intermediate point. The main advantage of the usage levy system is that it is directly linked to traffic volumes along the corridor. The more traffic there is and the more efficiently it is moved, the lower the levy. The weakness is that the levy can become complex and add to the cross-border charges that some stakeholders are seeking to eliminate or at least minimize.

In addition, it is not unusual for there to be a time lag between making an investment in capacity and realizing the benefits. Still, if it is linked to demonstrated benefits accruing to the stakeholder group in general and economies at large, a usage levy is a sustainable way of generating funding for corridor management groups. It is the preferred mode of funding for corridor groups, as it achieves the twin objectives of ensuring sustainability of the trade facilitation interventions and providing funding for the corridor management institution.

While a conventional toll is easier to implement and enforce, a vignette toll system is arguably a better instrument for cost recovery because adheres to two main principles of payment collection: non-cash payment system and non-discrimination. The vignette toll system allows collecting payments in advance avoiding payments in cash en route and is enforced on everyone using the road system, including foreign vehicles. National net benefits in the case of the vignette toll system are high regardless of whether the taxes and fees are paid into the Central treasury or earmarked to a road fund.

Reviving Railway Systems

There is growing interest in railways as they have great potential which is presently not fully exploited for LLDCs. Rail transport can have an advantage over

[23] Quantitative Analysis of Road Transport Agreements. A World Bank Study. Kunaka, C., Tanase, V., Latrille, P., Krausz, P. 2013.

[24] SADC member states are Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, Zambia, and Zimbabwe.

Box 11: Instruments for Charging Transit Traffic for Road Use

A **transit fee** is generally collected at the border by vehicles entering or transiting a country. Member countries of the United Nations Conference on Trade and Development may charge transit fees only if they are fair, reasonable, and nondiscriminatory, that is, related to the cost of providing the infrastructure service and without discrimination on the basis of nationality.

Road tolls specific to each highway and each journey can be collected from transit traffic at a toll barrier just inside the country. Revenue leakage may be a problem.

A **vignette** is a form of toll paid in advance: a permit giving the right to use a country's roads (motorways and expressways or the main transit corridors) once, a specified number of times, or an unlimited number of times within a defined period (a week, a month, or a year). In the 1990s, Switzerland became one of the first countries to introduce this payment instrument, which has now been adopted by several European countries. All users of these roads must pay; foreign vehicles purchase a vignette upon entry at the border. Rates vary depending on the vehicle's size or weight. Enforcement is by traffic police on the road, which may be problematic where such capacity is limited.

A **fuel tax** is paid by all trucks in transit, independent of the roads they use, unless high local fuel prices compel truck owners to carry with them all the fuel they will need, at least for short trips. Fuel taxes can be either a fixed charge per liter or a percentage of the pump price; in the latter case, revenues will rise or fall with the underlying price of oil.

Annual vehicle license fees can complement fuel taxes and offer the advantage that they can penalize trucks with the most damaging axle configurations. Since the fees are not payable by foreign trucks, they would mainly interest countries where domestic trucks perform much of the transit traffic (as in Tanzania and Thailand).

Source: Arvis, J-F., Carruthers, R., Smith, G., Willoughby, C. (2011).

road transport on long-distance or high-volume corridors. For LLDCs which export mainly high-volume, low-value bulk goods (such as minerals, cotton, and timber in Africa and soy in Bolivia and Paraguay), and freight along corridors can be served by well-run railways at lower cost than road transport. Railways also offer other potential benefits: lower carbon emissions, congestion, accidents, reduced cost of road infrastructure. However, landlocked developing countries are highly dependent on infrastructure investments in neighboring transit countries.

Also, railways face significant challenges:

- International interconnectivity including gauge interoperability
- Small volumes of traffic—lack economies of scale
- Stiff competition from road transport
- Management and operation of railways, especially international border crossings
- Availability of backhaul loads
- Ownership of containers
- Investments to connect missing links.

International Interconnectivity Including Gauge Interoperability

The interconnectivity of railway tracks across boundaries is fundamental to the seamless movement of trains across international borders. The same gauge must be used along the corridor or technical solutions provided to effect efficient interchanges. In Central Asia, rail transport has long dominated passenger and freight transport, where long distances between centers and the movement of predominantly bulk commodities make railway a competitive and preferred mode. Given their large railway stock, countries in the Central Asia region also continue to favor railway transport as a matter of strategic preference. However, operations of trains crossing through the territory of the former Soviet Union requires change of standard rail gauge (1435 mm) fitting platforms into Russian gauge platforms (1520 mm) and back to standard gauge platforms at the EU or China borders. At the border between Kazakhstan and China (Dostyk and Alashankou), goods have to be transshipped and the operation can take several hours. At the border between Poland/Lithuania and Poland/Ukraine, the variable gauge system allows for through-operation as railway wagons can travel across a break of gauge by changing a gauge in a special gauge changing facility.

Even where trains can physically cross borders, delays may be experienced as a result of several operational practices, including the following:

- Transferring cargo or wagons at the border
- Carrying inspections on both sides of the border
- Congestion at border stations due to poor synchronization of the movement of freight trains

- Breaking up of shipments in order to accommodate differences in power of locomotives used by different railway administrations.

Small Volumes of Traffic—Lack of Economies of Scale, Availability of Backhaul Loads

There are chronic imbalances in trade patterns of the economies in Sub-Saharan Africa and Central Asia that have significant implications for flows along transport routes. There is a greater volume of inbound loaded containers than outbound, although there are many notable exceptions with a large imbalance in the other direction. Where the imbalance is large, the charge in the direction with less demand can be a small fraction of that with greater demand, as the containers would otherwise have to be transported empty back to their origin. In Sub-Saharan Africa, certain commodities appear to be priced higher or lower than others: in particular, commodities with high value such as oil and containers are charged tariffs that are 10–60% higher than average. Imports of high value commodities are charged with higher tariffs. On the other hand, agricultural commodities that have low value are enjoying the tariffs well below the average (anywhere between 10–40% less).

Also, there is a low compatibility between containers and bulk products. In Central Asia, imports are brought by trucks or containers via rail, exports (bulk commodities such as oil or grain) are sent by rail. Such imbalances make efficient operations in both modes very difficult, because little opportunity exists for backhaul freight. As containers must be backhauled anyway, it may be operationally feasible and financially viable to load grain and minerals into them, at least for rail transport to the deep water port, as it has been done in Zambia.

Traffic volume and transport distance are the two factors that determine whether railways can compete with road freight transportation. Arvis et. al (2011) establish a threshold of 250,000 net tons per year for railways to be financially viable (e.g. revenues covering operational costs). However, in the long run, railway freight traffic should exceed 1 mln net tons per year for railways to be able to invest in railway infrastructure renewal and maintenance. There is also a minimum distance threshold for railways to compete with road transport. Regardless the lower en-route costs, railways have high terminal costs (with exception of a few instances where railways have a direct link to the final destination). In recent years, as a result of use of unit container trains and efficient loading and unloading of container wagons that distance have been reduced. However, it still remains around 400–500km. In most LLDC countries the distance to the nearest seaport exceeds that threshold, except in Bolivia, where distance from La Paz to Arica, Chile is 470 km. The container service has been suspended as the distance was too short to sustain a railway service.

Stiff Competition from Road Transport

The data presented in the rail market analysis of the Economic and Sector Work (ESW) in Sub-Saharan Africa strongly suggest that the actual or potential competition from road operators drastically limits railway pricing power, even in situations where they do enjoy commanding market shares. The impact of road-rail competition appears, nevertheless, to differ noticeably from one corridor to another (see Table 15) as the

TABLE 15 ■ Road vs. Rail Tariffs in Sub-Saharan Africa

Corridor	Rail operator	Average tariffs per ton-km (US cents)		Road vs. rail price surcharge
		Road	Rail	
Senegal-Mali	Transrail	7.9	5.3	+ 49%
Cote d'Ivoire – Burkina/Mali	Sitarail	7.9	5.5	+ 44%
Cameroon – Chad	Camrail	11.2	6.3	+ 81%
Mozambique	CCFB/CFM	10.0	5.5	+ 82%
Tanzania – Great Lakes	TRC	13.5	4.3	+ 213%

Source: World Bank, 2006. Report No. 36491. Sub-Saharan Africa: Review of Selected Railway Concessions.

spread between average road and rail tariffs varied in 2003 from a low point of 44% (e.g., Sitarail) to a high point of 213% (i.e., TRC).

Interestingly, 74% of the modal difference in transport tariffs on all corridors appears attributable to variation in road tariffs as rail operators charged average tariffs to their customers within a maximum range of US Cents 2.0 of each other versus US Cents 5.6 for their truck transport counterparts. Such findings seems to indicate that when it comes to road/rail competition, railways, despite being more reliable and less expensive, cannot charge abusive tariffs to their customers and may raise their tariffs up to a certain point before users will switch to road transport. In addition to that, unlike road transport, railways are slower and require complex multi-modal solutions. Therefore, the railway mode will be used less frequently unless improved infrastructure and structural reforms it more attractive. Within the ECA region situated between Western Europe and Asia, road transport has become increasingly competitive, gaining market shares in both freight and passenger traffic from the traditionally predominant rail sector. Comparatively low labor costs and shorter border handling and control times are important factors working in favor of road transport. Railways seem to be able to preserve their market share only on very long routes (over 3,000 km) and in the northern territories of Kazakhstan and the Russian Federation where the harsh climate makes the construction and operation of all-weather road networks extremely expensive.[25]

Management and Operation of Railways across Borders

While in most countries in the East Asia and Pacific region and the Middle East and North Africa railway system is publically operated, in Latin America and the Caribbean and Sub-Saharan Africa, most railways are now run by the private sector under long-term concessions. A typical approach followed in many countries is for the state to continue to own some or all railway assets (typically infrastructure) and transfer other assets (normally the rolling stock) as well as responsibility for operating and maintaining the railway to a concessionaire under the terms and conditions stipulated in a concession agreement. There are two types of concessionary operators: one category that is interested in a vertical integration of the transport distribution chain and the second category that specializes in a single transport activity and services non-vertically integrated enterprises.

In many countries, following the concession, the traffic volume carried by railways has increased. The railway operators' ability to charge abusive tariffs, regardless of their market share, seems to be limited due to the threat of transport mode substitution (that is, from rail to road). In Sub-Saharan Africa, increasing rail competitiveness appears to benefit transport users primarily through lower road rather than lower rail transport costs. Until recently, participation in railway concessions appears to have been driven more by the desire of firms to control logistical distribution chains than by the desire to earn substantial direct returns on their investment. However, private sector operators should be allowed to operate their own locomotives and rolling stock on the track by purchasing licenses (Pearson and Giersing, 2012).

In Uganda and Kenya (which used to be a part of a regional system until 1970s together with Tanzania) operation of the railways has been given to a single private operator (Rift Valley Railways, or RVR) in 2005. The joint concession, which granted exclusive rights to RVR, enabled the railway company to exceed the minimum potential traffic thresholds for viability and compete with road transport by offering lower prices. However, in other African countries, national railways, that used to be a part of integrated networks, are being concessioned without involving the neighboring countries. It often leads to decline in traffic capacity, an overall performance, and inability to maintain infrastructure. As a result, traditional railway traffic switches to road transport, which puts pressure of road infrastructure as well.

Overall, concessionaires are reluctant to spend more on infrastructure than is required for day-to-day maintenance. Thus, the funding of long-term asset renewal and upgrading remains an important issue for the railway network in many countries. Railways still offer the most economical solution to transporting non-time sensitive bulk freight on distances of at least 400 kilometers. As such, their revival through

[25] Joint study on developing Euro-Asian transport linkages, UNECE, 2008.

concessioning is warranted where business fundamentals are sound. At the same time, better solutions must be found to ensure that host governments continue to benefit from substantial economic rates of return from these concessions and private operators' financial returns are high enough to entice broader and more competitive investor participation.

International Border Crossings

Railways usually have shorter border delays than trucks, for four reasons. First, railway border stations are usually located at major railway stations/ junctions and marshalling yards, not necessarily on the border. They therefore facilitate processing without the space constraints often found at border-crossing points. Second, rail traffic at border stations is usually cleared or inspected during scheduled stopping times, when other needed technical operations (such as locomotive changes, shunting, maintenance, and gauge changes) take place. If border control fits in with the train's scheduled stopping time, there need be no additional time-consuming delays. Third, rail transport avoids the informal checkpoints that hinder and add to the cost of road freight. Fourth, rail has lighter and faster transit arrangements, as there is often greater security during transit, with few opportunities for cargo to be tampered with in movement. However, cross border railway services can still experience delays.

Documentation and other border-crossing requirements for international rail freight movements may be complicated and costly. Rail border crossings can entail operational procedures that typically include inspections, break-of-gauge operations (as at the China/Kazakhstan border), marshalling (the classification and separation of railcars and the transfer and acceptance of railway documents on the rolling stock and the freight), checks by customs agencies (railway bills of lading against wagon lists and cargo documents), and physical inspections on plant and animal controls. A broken seal or documentation problem could delay a whole trainload of consignments, compared with just the truckload for road freight. As a result, although rail freight delays are less frequent, incidents can be more costly. In addition to that, unnecessary or incompatible train inspections may be a source of border delays. Receiving railways usually carry out mechanical inspections of trains. The objective of such inspections is to reject wagons in poor conditions that might cause safety problems or require repairs. If a wagon is rejected, it must be shunted out of the train and the train must be remarshaled. Where inspections are inconsistent, a wagon authorized to proceed in one country may be rejected in another country. High variability in border-processing times combined with variations in train running performance can result in bunched trains and longer waits at borders for processing. These problems can be self-amplifying: unpredictable processing time at borders may itself be a major cause of service disruptions.

To avoid such delays, new container block trains in Europe and Central Asia servicing routes between China and Germany ("Chongqing—Duisburg") have been launched in April of 2011. In October 2012, that container train started services with common CIM/SMGS consignment note. Common CIM/SMGS consignment helps reduce time on the Customs Union—EU border, because it eliminates transition from the SMGS railway consignment note, used in Russia, Belarus and China to the CIM consignment note, used in the EU. That required close cooperation between railway companies of transit countries, freight forwarders, clients and border control authorities, including Belorussian, Russian, Kazakh, and Polish Railways, Ministry of Railways of China and DB Schenker Rail (Germany). The formation of the Eurasian Customs Union in 2010 between Kazakhstan, Russian Federation and Belarus also had a positive effect as it led to a reduction in a number of border crossings and required paperwork.

Key customers for this service are Original Equipment Manufacturers such as Hewlett-Packard, Asus and Acer, who are less sensitive to cost of transportation, but require short lead times and cargo security. The container block train was assembled in Chongqing by YuXinOu (Chongqing) Logistics Co., Ltd., which was registered as a Joint Venture between Chongqing Transportation Holding Co. Ltd. (41.1%), RZhD Logistics (16.3%), KazTransService (16.3%), DB Schenker China (16.3%) and China Railway International Multimodal Transport Co. Ltd (10%).[26] On its route from China to Germany, the train crosses 2 main customs borders—between China and the Customs Union (Kazakhstan, Russia and Belarus), and between the Customs Union and the European Union. Since the

[26] Kazakh Railways. http://www.railways.kz/ru/node/3544

launch of this container block train operation, lead time was reduced from 18 to 15 days, due to continuous optimization of border crossing procedures and paperwork. Currently, there are 14 block trains that KTZ has been operating, including 11 from China to Europe, 1 from China to Uzbekistan, 1 from Russia to Uzbekistan, and 1 from Baltics to Uzbekistan.[27]

The pilots of block trains are mostly full trains organized by a single shipper. Typically, the shipper, with a help of international freight forwarders, organizes the long distance logistics by himself, dealing directly with train operators, customs, local customs representatives and forwarders. Unfortunately, this model is not scalable and should evolve further to introduce scheduled trains that would allow consolidating cargo from several or many shippers. To avoid the problem with a lack of economies of scale and delays with forming block trains small countries could, for example, benefit from cooperation with the neighboring transit countries. Nepal, for instance, as a country with a limited number of container trains to operate, may "piggyback" on container trains going through India.

Ownership of Containers

Despite efforts to increase compatibility between forward and backhaul loads, the high volume of imports compared with exports for most landlocked developing countries imposes another type of cost across corridors: demurrage charges for overdue containers. The international shipping lines that own many of the containers in circulation impose time limits, enforced by financial penalties, on how long a container may remain inland before being returned to the port. The limit is often as little as 15 days, and the daily penalty often increases with the number of over-limit days incurred. To avoid long delays, it is often less expensive for the importer to incur the cost of returning the container to the port empty than to incur the penalties associated with waiting for a return load. Use of block trains (trains in which all wagons start from and end at the same point) and multiparty negotiations among the railways of countries along a trade corridor, customs and border police of the transit country, and the shipping lines that own the containers can help ensure that containers are returned to the port within the deadline. For single-wagon railway consignments and road freight, such negotiations are more difficult; as a result, these forms of transport are more likely to incur high demurrage charges.

In Central Asia, for example, since containers have to be sent back empty most of the time, not all shippers are sending them back. Thus, the risk for a shipping line to lose them is high. The deposit per container is about 3,500 USD. In fact, some consignees may prefer buying the container because it can be used for various purposes, including non-transport usage, which is quite common.

Infrastructure Investments to Connect Missing Links

The analysis below shows the potential benefits from connecting missing links in landlocked developing countries. For instance, with construction of domestic missing railway links in Kazakhstan (Zhezkazgan-Beyneu) the route from China (Dostyk) and Aktau port (Kazakhstan) in the Caspian Sea is estimated to be shortened by 1,200 km[28] and thus impact transit time and costs of transporting from China to the Caucasus region.[29]

However, that route has been suffering from the lack of transit traffic and not so competitive railway tariffs.[30] In 2012, most of cargo in a form of exports of steel, grains and containers handled in Aktau port has been transported via the North-South corridor to Iran and Persian Gulf countries.[31] Therefore, the investments in infrastructure to connect the missing link (Zhezkazgan-Beineu) may not be economically justified in the short-term due to the lack of economies of scale (benefits of reducing lead transportation time by 2 days may not justify the cost of constructing

[27] KTZ materials. For comparison, Russia currently operates about 1,000 block trains.

[28] Infrastructure Projects for Development of Transport Logistics, MoTC of Kazakhstan. http://mtc.gov.kz/index.php/en/komitet-avtomobilnykh-dorog/npa/166-press-tsentr/informatsionnye-spravki/1137-zhezkazgan-beineu-and-arkalyk-shubarkol

[29] That route caters to a major metallurgy company ArcelorMittal to transport rolled steel by wagons from Karaganda oblast to Aktau in order to manufacture pipes at its own plant in Aktau and supply oil companies in Western Kazakhstan.

[30] http://kazakhstan.news-city.info/docs/sistemsr/dok_ieryhb/.

[31] http://ru.government.kz/docs/p060916~2.htm.

FIGURE 23 ■ Construction of Missing Railway Link in Kazakhstan

Source: KazakhstanTemirZholy, MoTC.

988km of railways). In the long run, the construction of this railway link may allow increasing freight transportation from China and Kazakhstan (coal and metal products) to the Caucasus region.

To conclude, revival of railways is possible:

- Link railway development to other interventions, especially large scale mining. This is particularly the case for Greenfield developments, which should be linked to and bundled with mining or industrial development. Large-scale extractive companies have the ability to guarantee the demand for potential infrastructure and raise the required capital. Apart from that, the extractive companies are likely to insist on competitive transport prices and timely deliveries (Columbia Center on Sustainable Development, 2014).
- For many countries the required investments are far beyond their financial capabilities and the business climate is not satisfactory for attracting private capital. One popular solution has been to issue concessions; however, it has been implemented with mixed results. Pearson and Giersing (2012) find that challenges governments face in making concessions operate effectively and efficiently have more to do with the way the concessions were negotiated and the text of the final agreement, rather than with the act of concessioning. Initially, concessions have been given to companies with a limited capital base and once projected positive cash flows did not materialize, these companies have experienced financial problems. Participation in railway concessions appears to have been driven more by the desire of firms to control logistical distribution chains. Also, in some African countries, national railways, that used to be a part of integrated networks, are being concessioned without involving the neighboring countries. Developing concession solutions in cooperation with the members of a regional railway network would allow surpassing a minimum threshold

for economies of scale required to achieve financial viability. In addition to that, offering separate concessions to companies to either own/operate a track network or to operate trains on a track network concessioned to other companies (that is, non-exclusive track usage rights) would allow for more efficient railway use. With the exception of United Kingdom, ownership of fixed infrastructure has remained with the state, although concessions typically involve some private investment in parts of the infrastructure as well as privately operated services.

Intermodal Facilities

Until now, productivity problems in the state-controlled rail sector, heterogeneous infrastructure and documentation standards as well as poor cooperation between diverse mode operators have hindered the development of overland multimodal transport. It is important to develop multi-modal networks (rail, road, air, and pipeline infrastructure projects). Delays are often experienced at modal interfaces (areas freight is being moved from one mode of transport to another)—so it is important to make sure that intermodal facilities are appropriately located in order to reduce costs. Currently, intermodal facilities take the form of inland container depots and dry ports.

Landlocked countries face a special problem when importing goods. The goods arrive at a port in a neighboring country—or even a neighbor of a neighbor—and need to transit toward the destination country, where full customs clearance must take place. A well-functioning transit system could deal with this problem easily, but transit systems do not function well in low-income countries. These difficulties could be reduced if the landlocked country were to conduct some or all customs clearance procedures at the first port of call on the foreign territory. This is the practice in Djibouti, where since 1950 Ethiopian customs has been based to facilitate the transit of goods destined for Ethiopia. (Bhutan customs is based in the Port of Kolkata, in India, for the same purpose.) Transit through the territory of Djibouti is unencumbered by the escort services and traffic-sharing obligations that characterize transit trade in some countries. Final clearance then takes place on Ethiopian territory.

Several ICDs in Africa are transfer nodes between road and rail transport. ICDs can be managed by either the public or the private sector.

Addressing the Challenge of Infrastructure Maintenance

Investments are required to maintain old infrastructure and to build new infrastructure to connect missing links. However, the decision on building new infrastructure has to be strategic, and take into consideration the potential savings in transit time and costs of transporting before attempting to connect missing links. While adding infrastructure links enhances the resilience of existing supply chains, the infrastructure building efforts have to be realistic in terms of existing or projected demand for transportation services and examine the future demand trends. Investments in infrastructure should seek to maximize the comparative advantage of different modes of transportation, with appropriate and efficient movement of freight from one mode of transport to another. Investment efforts should also take into consideration potential economies of scales, and ideally be coordinated with infrastructure development and improvements in neighboring countries.

Building infrastructure is good but timely maintenance is paramount. In the long run, maintenance of infrastructure is crucial for LLDCs to avoid the enormous costs associated with making overdue repairs. This requires LLDCs to conduct regular maintenance and maintain an upkeep budget for ongoing repairs and improvements.

Historically, railways in LLDCs have suffered from underinvestment in track and asset replacement, renewal and maintenance, and in some countries, assets have been damaged or destroyed by war or other conflicts. Stiff competition from road transport leads to decline in railway revenue and deferred maintenance.

6 Conclusion

The Almaty Programme of Actions recognized the special needs of landlocked developing countries in reducing their trade costs and promoting growth. The Programme and its implementation, including with the support of international agencies like the World Bank, have been very much focused on connecting LLDCs to markets and the promotion of infrastructure complemented by investment in "soft" measures facilitating trade, transportation, and transit.

Since 2003, there has been incremental progress in structural transformation of LLDCs. With little diversification in exports composition, LLDC countries are more vulnerable than their coastal transit neighbors. In the period after 2000, resource-rich LLDCs outperformed their resource-scarce peers in terms of real income and exports per capita. However, most of that growth was based on a surge in commodity prices in the last decade. Trade costs experienced by landlocked countries remain still very much above those of transit countries. These costs seriously constrain the transformation of the economies of the LLDCs.

However, there have been many positive developments during the implementation of the Programme. First, there has been a priority given to investment in access infrastructure during the period. For instance, the World Bank has more than doubled its share of projects contributing to the Almaty PoA objectives. Furthermore, raising awareness of trade facilitation issues resulted in significant reduction in lead time to import and export on most corridors. Dwell time in ports or at the borders has been reduced significantly, as shown by the example of East Africa for instance. Facilitation and logistics indicators such as the LPI or the Doing Business show that, although LLDCs remain at a deficit of performance, they (slowly) converge to their transit neighbors. LLDCs have also made important progress in related dimensions of connectivity such as the development of ICT.

However, progress has been slower in other areas. Such is the case, for instance, for implementation of regional cooperation schemes to facilitate transit of goods, or reform of the services sector such as trucking. LLDCs are involved in many bilateral, regional, or even multi-lateral agreements. However, quite often, many transit agreements are written very loosely and do not always specify the ways governments can implement and administer them. Some agreements such as bilateral treaties tend to be protectionist, and not conducive to the development of quality services.

For the next decade policy makers and development practitioners need to maintain focus in several areas to reduce trade costs and promote growth.

In terms of infrastructure cost recovery and maintenance of roads, LLDCs are recommended to adopt a "vignette" toll system. For the railway system – one of the potential solutions is to connect railway infrastructure efforts with the extractive industry and require mining companies to raise capital for infrastructure buildings and maintenance. This would help LLDCs to achieve greater economies of scale. Also, scheduled maintenance is highly desirable to prevent higher costs of deferring repairs. It is important to explore innovative means to mobilize additional funds to build and maintain existing transport infrastructure, e.g. concessions, or cross-border investment packages. Overall, LLDCs are recommended to make investments only when traffic is expected to achieve economies of scale to cover the operating costs.

Despite significant progress in trade facilitation, many challenges remain, especially to better integrate border management and facilitation of procedure beyond customs (interventions of other control agencies). The Bali Trade Facilitation Agreement offers help to LLDCs that rely on transit through third countries to access ports. However, it offers a partial solution because its main focus is on customs administration, use of an IT system and access to information. The Bali TF Agreement describes some aspects of the governance mechanism including establishment of a new Trade Facilitation Committee and possible subsidiary institutions, but much of it still needs to be finalized. The actual benefits of this FTA package will depend on the swift ratification of the agreement.

Finally, a push is overdue in two related areas, which are by nature regional and cross-border: reform of the trucking sector and the implementation of transit regime. In most LLDCs, trucking remains a main mode of freight transportation so a TIR-like system would benefit many LLDCs. There have been some reforms on improving transit regime, including initiatives to govern the cross-border movement of transport vehicles, albeit with a partial success. The new efforts should focus on improving transit regime, reforming transport market regulation, and optimizing multi-modal and railroad potential and exploring air cargo transportation.

More decisive action is needed to seriously address implementation barriers and to improve efficiency of transit systems, following the TIR or European transit principles. These should include I) removing market distortions for international trucking and promote incentive for quality and compliance (such measures can be complemented by capacity building), ii) implement a single international transit document ("carnet") within a region, without resubmission at each border, iii) develop a proper regional IT system that allows initiation, tracing, and termination across border of transit operation (Central America has implemented such as system recently, the TIM), and iv) a common guarantee system, the details of which depend on the regional architecture of financial services.

TABLE 16 ■ Priorities by Regions

	Europe and Central Asia (incl. Afghanistan, Azerbaijan, Mongolia)	Sub-Saharan Africa	Latin America	South Asia	East Asia and Pacific
Improving Transit Regime					
Development of Authorized Economic Operators and Traders	X			X	X
Customs guarantee system for transit traffic: financial integration	X	X			X
Facilitate transit and cross-border trade through interconnections of the transit IT systems in the regional countries	X	X	X	X	X
Road transport:					
Phase out existing obstacles to transit by trucks: bilateral truck permits	X	X		X	
Prevent trans-loading at border				X	
Rail transport:					
Alliances with international freight forwarders and railways to set up consolidated block container trains	X				
Infrastructure maintenance, concessions		X			

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Annexes

Annex 1: List of LLDCs and Transit Countries

Country name	Code	Region	Income group	Transit countries	Resource-rich
Afghanistan	AFG	South Asia	Low	Pakistan, Iran	Yes
Armenia	ARM	Europe & Central Asia	Lower-middle	Georgia, Iran	
Azerbaijan	AZE	Europe & Central Asia	Upper-middle	Georgia, Turkey, Russia, Iran	Yes
Bhutan	BTN	South Asia	Lower-middle	India	
Bolivia	BOL	Latin America & the Caribbean	Lower-middle	Chile, Argentina, Brazil, Peru	Yes
Botswana	BWA	Sub-Saharan Africa	Upper-middle	South Africa, Namibia	Yes
Burkina Faso	BFA	Sub-Saharan Africa	Low	Côte d'Ivoire, Togo, Ghana	
Burundi	BDI	Sub-Saharan Africa	Low	Kenya, Tanzania, Uganda, Rwanda	
Central African Republic	CAF	Sub-Saharan Africa	Low	Cameroon	Yes
Chad	TCD	Sub-Saharan Africa	Low	Cameroon	Yes
Ethiopia	ETH	Sub-Saharan Africa	Low	Djibouti	
Kazakhstan	KAZ	Europe & Central Asia	Upper-middle	Russia, China	Yes
Kyrgyzstan	KGZ	Europe & Central Asia	Lower-middle	Russia, Kazakhstan, China	Yes
Laos	LAO	East Asia and Pacific	Lower-middle	Thailand, Vietnam	Yes
Lesotho	LSO	Sub-Saharan Africa	Lower-middle	South Africa	
Macedonia, FYR	MKD	Europe & Central Asia	Upper-middle	Albania, Greece	Yes
Malawi	MWI	Sub-Saharan Africa	Low	South Africa, Mozambique, Tanzania	
Mali	MLI	Sub-Saharan Africa	Low	Côte d'Ivoire, Togo, Ghana, Senegal	
Moldova	MDA	Europe & Central Asia	Lower-middle	Ukraine, Romania, Bulgaria	
Mongolia	MNG	East Asia and Pacific	Lower-middle	China, Russia	Yes
Nepal	NPL	South Asia	Low	India	
Niger	NER	Sub-Saharan Africa	Low	Togo, Benin	Yes
Paraguay	PRY	Latin America & the Caribbean	Lower-middle	Argentina, Brazil	
Rwanda	RWA	Sub-Saharan Africa	Low	Kenya, Tanzania, Uganda	
South Sudan	SSD	Sub-Saharan Africa	Lower-middle	Kenya	Yes
Swaziland	SWZ	Sub-Saharan Africa	Lower-middle	South Africa, Mozambique	Yes
Tajikistan	TJK	Europe & Central Asia	Low	Russia, Kazakhstan, Uzbekistan, China, Afghanistan, Iran	
Turkmenistan	TKM	Europe & Central Asia	Upper-middle	Russia, Kazakhstan, Uzbekistan, Iran	
Uganda	UGA	Sub-Saharan Africa	Low	Kenya	Yes
Uzbekistan	UZB	Europe & Central Asia	Lower-middle	Russia, Kazakhstan	Yes
Zambia	ZMB	Sub-Saharan Africa	Lower middle	Mozambique, Tanzania	Yes
Zimbabwe	ZWE	Sub-Saharan Africa	Low	South Africa, Mozambique	Yes

Source: UN-OHRLLS.

Annex 2: LLDCs: Economic and Social Context

	Population (Millions)		Urban population		GNI per capita, Atlas method ($)		GDP growth (avg. annual %)		Adult literacy rate, (%, ages 15 and older)	
	2000–01	2012–13	2000–01	2012–13	2000–01	2012–13	2000–2008	2009–2013	2000–01	2012–13
Afghanistan	21	30	21	24		695	7.3	10.8		
Armenia	3	3	65	64	685	3,780	11.2	0.7	99	100
Azerbaijan	8	9	51	54	635	6,820	16.6	4.5		100
Bhutan	1	1	26	37	800	2,440	8.4	7.3		
Bolivia	9	11	62	67	960	2,385	3.7	4.9	87	95
Botswana	2	2	54	63	3,015	7,690	4.5	3.4		87
Burkina Faso	12	17	18	28	245	670	5.6	6.2		
Burundi	7	10	8	11	125	260	2.8	4.0	59	
Central African Republic	4	5	38	39	260	405	3.0	–2.6	51	
Chad	8	13	22	22	160	995	10.2	6.1	26	37
Ethiopia	67	93	15	17	120	440	8.0	10.3		
Kazakhstan	15	17	56	54	1,305	10,590	9.4	5.4		
Kyrgyz Republic	5	6	35	35	280	1,120	4.9	3.8		
Lao PDR	5	7	22	36	290	1,365	6.8	8.1	69	
Lesotho	2	2	20	29	610	1,515	3.8	5.1	86	
Macedonia, FYR	2	2	59	59	1,740	4,755	3.2	1.5		98
Malawi	12	16	15	16	145	295	3.5	2.1		
Mali	11	15	28	36	245	665	5.9	2.9		
Moldova	4	4	44	49	385	2,305	5.9	3.2	97	99
Mongolia	2	3	58	70	475	3,425	6.8	9.3	98	
Nepal	24	28	14	17	235	715	4.0	4.3	49	
Niger	11	18	16	18	170	400	4.1	4.9	14	16
Paraguay	5	7	56	63	1,315	3,680	2.7	5.2		
Rwanda	9	12	14	19	220	610	8.4	6.4	65	
South Sudan	7	11	17	18		980		–2.4		
Swaziland	1	1	23	21	1,500	3,090	2.4	1.4	82	
Tajikistan	6	8	27	27	165	935	8.9	6.5	100	100
Turkmenistan	5	5	46	49	625	6,145	7.6	10.3		100
Uganda	25	37	12	16	250	495	7.2	5.8		
Uzbekistan	25	30	37	36	595	1,800	6.3	8.2	99	100
Zambia	10	14	35	40	315	1,445	5.1	6.8		

(continued on next page)

Annex 2: LLDCs: Economic and Social Context *(continued)*

	Population (Millions)		Urban population		GNI per capita, Atlas method ($)		GDP growth (avg. annual %)		Adult literacy rate, (%, ages 15 and older)	
	2000–01	2012–13	2000–01	2012–13	2000–01	2012–13	2000–2008	2009–2013	2000–01	2012–13
Zimbabwe	13	14			500	810				
LLDC	11	14	25	28	612	2,304	4.3	4.6	70	84
Transit coastal	110	130	42	48	1,904	5,133	3.8	3.6	82	89
High income: OECD	33	35	76	83	23,542	42,848	3.5	0.8	99	99
High income: non-OECD	2	2	87	90	18,628	29,283	4.6	2.6	93	96
Upper middle income	10	11	70	77	3,203	7,185	2.7	3.9	87	93
Lower middle income	25	31	44	52	1,109	2,704	3.5	3.9	75	80
Low income	19	23	29	34	302	619	6.2	5.8	55	64

Source: World Bank.

Annex 3: LLDCs: Share of Top Five Products in Total Goods Exports, HS1996, 2-digit

Country	2000	2006	2012	Description, 2012	Resource-rich
Afghanistan*	83.1	61.5	66.0	8-Edible fruits and nuts (19.5%), 52-Cotton (15%), 27-Mineral fuels (13.1%), 72-Iron and steel (10.4%), 99-Unspec (7.9%)	Yes
Armenia	59.3	78.0	65.4	26-Copper ore (22%), 22-Alcoholic bev (14.6%), 71-Pearls/gems (11.1%), 72-Iron and steel (9.3%)	
Azerbaijan	91.6	91.3	96.6	27-Mineral fuels (93.4%), 15-Animal fats (0.9%), 17-Sugar (0.9%), 8-Fruit/nuts (0.9%), 39-Plastics (0.5%)	Yes
Bhutan*	82.4	89.6	93.9	72-iron and steel (63.4%), 28-Inorgn chem (13.5%), 74-Copper and copper products (11.6%), 44-Wood (2.8%)	
Bolivia	59.9	81.5	86.6	27-Mineral fuels: natural gas (50.1%), 26-Ores (17%), 71-Pearls/gems (11.5%), 23-Residue food industry (4.5%), 15-Animal fats (3.5%)	Yes
Botswana	93.4	93.3	90.7	71-Pearls/gems (80.9%), 75-Nickel ores (5.6%), 26-Ores (1.6%), 87-Tramway vehicles (1.4%), 85-Electrical machinery parts (2%)	Yes
Burkina Faso*	78.9	87.6	88.9	52-Raw Cotton (45.9%), 71-Natural/cultured pearls, prec stone (34.6%), 12-Other Oily Seeds (3.4%), 8-Edible fruit and nuts (2.6%), 27-Mineral fuels (2.4%)	
Burundi*	95.6	82.0	91.9	9-Coffee, tea (71%), 26-Ores (10.6%), 34-soap, organic surface-active agents (5.8%)	
Central African Republic	96.9	93.0	93.8	44-Wood products (39.8%), 71-Natural/cultured pearls, prec stone (34.5%), 52-Cotton (14%), 76-Aluminium and articles thereof (34.8%)	Yes
Chad*	95.5	99.7	99.7	27-Mineral fuels (97%), 52-Cotton (1.5%), 13-Lac; gums, resins & other vegetable (0.8%), 12-Oil seed (0.3%), 39-Plastics and articles thereof (0.1%)	Yes
Ethiopia (excludes Eritrea)*	86.9	78.3	83.3	9-Coffee, tea (39.9%), 12-Oil seed (21%), 7-Edible vegetables (17%), 6-Live tree and bulbs (11.3%), 7-Edible vegetables and certain roots (6.9%), 41-Raw hides and skins (4.3%)	
Kazakhstan	84.6	88.2	88.5	27-Mineral fuels (69.9%), 72-Iron and steel (6.4%), 26-Ores (4.3%), 74-Copper (4.1%), 28-Inorganic chemicals (3.8%)	Yes
Kyrgyz Republic	72.6	58.8	69.8	71-Pearls/gems: gold (39.5%), 27-Mineral fuels (12.2%), 62-Apparel (8%), 7-Edible vegetables (6.2%)	Yes
Lao PDR*	90.7	86.5	76.6	74-Refined Copper (21.3%), 44-Wood products (18.8%), 27-Mineral fuels (16.1%), 26-Ores (15.8%) (6.2%), 62-Art of apparel & clothing access (4.5%)	Yes
Lesotho*	87.0		67.1	71-Natural/cultured pearls, prec stone (46.2%), 61-Art of apparel & clothing access (30.9%), 62-Art of apparel & clothing access (19.4%), Cotton (0.6%)	
Macedonia, FYR	56.6	62.3	55.1	72-Iron and steel (18.9%), 38-Miscellaneous chemical products (12.5%), 62-Art of apparel & clothing access (12%), 27-Mineral fuels (6.4%), 84-Nuclear reactors, boilers, mchy (4.9%)	
Malawi	87.6	83.5	30.0	24-Tobacco, raw (52.4%), 28-Inorgn chem (9.7%), 17-Sugar (8.2%), 9-Coffee, Tea (6.9%), 12-Oil seeds (5.8%)	
Mali	98.0	96.1	95.5	71-Natural/cultured pearls (70%), 52-Cotton (15.8%), 1-Live animals ex fish (4.7%), 31-Fertilisers (4.2%), 41-Raw hides (0.8%)	Yes
Moldova	58.5	50.4	52.0	22-Alcoholic bev (15.3%), 85-Elecl machinery parts (11.7%), 8-Edible fruits (11.3%), 12-Oil seeds (7.1%), 15-Animal fats (6.4%)	
Mongolia	84.9	86.4	92.9	27-Mineral fuels (48.5%), 26-Ores (38.4%), 71-Natural/cultured pearls, prec stone (3.7%), 51-Wool/other (3.1%), 25-Salt, sulphur (2.2%)	Yes
Nepal	80.3		74.8	57-Carpets and other textile floor (15.4%), 62- Art of apparel & clothing access (8.1%), 39-Plastics (6.9%), 22-Beverages, spirits and vinegar (6.9%)	

(continued on next page)

Annex 3: LLDCs: Share of Top Five Products in Total Goods Exports, HS1996, 2-digit *(continued)*

Country	2000	2006	2012	Description, 2012	Resource-rich
Niger	83.7	74.9	89.1	26-Ores (56.2%), 27-Mineral fuels (19.4%), Unspec (7.5%), 63 -other textile (3.1%), 1-Live animals (2.1%)	Yes
Paraguay	70.5	72.8	82.2	27-Mineral fuels (21.2%), 12-Oil seed (22.9%), 10-Cereals (14.1%), 2-Meat (10.9%), 23-Residue food industry (3.1%)	
Rwanda	98.5	95.6	83.5	9-Coffee, tea (38%), 26-Ores (32.6%), 11- Prod.mill.indust; malt; starches (5.5%), 87-Vehicles of tramway (4.3%); 22-Beverages, spirits and vinegar (3%)	
South Sudan*	n.a.	n.a.	99.9	27-Mineral fuels (99.6%), Raw hides and skins (0.3%), Scrap Iron (0.023%), 7-Edible vegetables and certain roots (0.1%), 72-Iron and steel (0.01%)	Yes
Swaziland*	63.6	58.7	60.2	17-Sugars and sugar confectionery (20.6%), 33-Essential oils & resinoids (16.1%), 26-Ores (11.1%), 71-Natural/cultured pearls, prec stone (7.9%), Food products (20%)	
Tajikistan*	91.4	93.2	93.2	76-Aluminium and articles thereof (62.8%), 52-Cotton (13.2%), 26-Ores (11.8%), 8-Edible fruit and nuts (3.8%), 62-Art of apparel & clothing access (1.6%)	
Turkmenistan*	88.8	98.0	98.8	27-Mineral fuels (93.4%), 52-Cotton (3.4%), 39-Plastics (1.3%), 63-Other made up textile articles (0.4%)	Yes
Uganda	77.2	63.3	43.3	9-Coffee (19.2%), 85-Electrical machinery (7.5%), 27-Mineral fuels (6.6%), 99-unspec. (5.1%), 25-Salt, sulphur (4.9%)	Yes
Uzbekistan*	76.3	74.7	64.1	52-Cotton (22.6%), 87-Vehicles (14.7%), 74-Copper and articles thereof (12.5%), 27-Mineral Fuels (7.1%), 8-Edible fruit and nuts (7.1%)	Yes
Zambia	80.9	88.9	79.5	74-Copper (68.1%), 10-Cereals (4.4%), 71-Natural/cultured pearls (3%), 81-Other base metals (2.3%), 28-Inorganic chemicals (1.7%)	Yes
Zimbabwe	61.7	67.3	83.0	71-Natural pearls (36.9%), 24-Tobacco (21.3%), 26-Ores (9.5%), 75-Nickel (9.2%), 52-Cotton (6%)	
High income: OECD	56.4	56.1	55.5	Lower-middle income	78.9	75.9	74.6	
High income: non-OECD	77.2	81.2	79.4	Low income	86.8	85.2	75.6	
Upper-middle income	77.3	76.1	71.8	World	75.3	74.9	71.4	

Source: WITS, World Bank.

Note: *=mirror data used. South Sudan - special case.

Annex 4: LLDCs: Share of Top Five Export and Import Partners

	Share of top 5 exporters		Share of top 5 importers		HH Market Concentration Index**			
Country	2000	2012	2000	2012	2000	2012	Top 5 export partners, 2012	Top 5 import partners, 2012
Afghanistan	87.1	99.2	57.3*	93.4	0.14	0.30	Pakistan (46.9%), Unspecified (28.7%), India (16.3%), Iran (6.2%), China (1.1%)	Unspecified (50%), Pakistan (14.2%), China (11.5%), Japan (9.7%), Iran (8%)
Armenia	69.1	54.8	53.2	49.3	0.13	0.12	Russian Federation (19.5%), Germany (10.7%), Bulgaria (9%), Belgium (8.9%), Iran (6.6%)	Russian Federation (24.7%), China (9.3%), Iran (5.1%), Ukraine (5.1%), Turkey (4.9%)
Azerbaijan	74.8	53.1	53.1	52.1	0.14	0.13	Italy (23.3%), India (7.9%), France (7.5%), Indonesia (7.4%), Israel (6.9%)	Turkey (15.8%), Russian Federation (14.3%), Germany (8.1%), United States (7.4%), China (6.6%)
Bhutan*	85.4	94.7	95.1	82.6	0.72	0.76	India (84.8%), Nigeria (6.4%), Italy (1.7%), Japan (1.1%), Germany (0.7%)	India (55.5%), Greece (14.5%), China (5.1%), Thailand (4.9%), Austria (2.6%)
Bolivia	71.4	72.8	64.5	62.5	0.11	0.18	Brazil (31.1%), Argentina (17.9%), United States (14.8%), Peru (5.3%), Japan (3.8%)	Brazil (18.4%), China (13.1%), Argentina (13.1%), United States (10.9%), Peru (6.7%)
Botswana	97.1	89.1	88.9	89.9	0.65	0.50	United Kingdom (60.7%), South Africa (13.1%), Israel (5.4%), Norway (4.9%), Belgium (4.4%)	South Africa (62.8%), United Kingdom (16.7%), Namibia (5.6%), China (2.8%), United States (1.9%)
Burkina Faso	74.1	88.7	63.3	41.3	0.08	0.11	Switzerland (69.2%), South Africa (10.3%), Singapore (4.7%), France (2.4%), Belgium (2.2%)	France (12.1%), Cote d'Ivoire (10.7%), China (9.8%), United Kingdom (4.4%), United States (4.3%)
Burundi	75.3	95.8	56.3	49.3	0.08	0.10	Unspecified (76.9%), UAE (16.3%), France (1.1%), Tanzania (0.9%), Japan (0.6%)	Italy (17.6%), Saudi Arabia (8.2%), Belgium (7.9%), China (7.8%), India (7.8%)
Central African Republic*	47.3	54.4	81.2	66.3	0.53	0.16	Belgium (23.7%), China (20.9%), Indonesia (3.9%), France (3.5%), Saudi Arabia (2.3%)	Netherlands (31.5%), France (14.5%), Korea, Rep (13.4%), Cameroon (10.1%), China (5.4%)
Chad*	37.3	96.1	71.8	64.2	n.a.	n.a.	United States (81.8%), China (6.7%), Canada (3.5%), Other Asia, nes (2.9%), Japan (1.1%)	China (23.1%), France (21.5%), Cameroon (10.5%), United States (4.6%), Italy (4.5%)
Ethiopia (excl. Eritrea)	56.7	40.6	48.9	55.1	0.10	0.06	China (11.1%), Germany (10.8%), Saudi Arabia (6.6%), Switzerland (6.1%), Netherlands (6%)	China (21.6%), Saudi Arabia (14.1%), India (8.4%), Kuwait (6.2%), Italy (4.8%)
Kazakhstan	56.4	56.2	67.6	71.7	0.09	0.09	China (17.9%), Italy (16.7%), Netherlands (8.1%), Russian Federation (7.3%), France (6.1%)	Russian Federation (38.4%), China (16.8%), Ukraine (6.6%), Germany (5.1%), United States (4.7%)
Kyrgyz Republic	74.8	84.6	64.1	74.1	0.18	0.25	Switzerland (32%), Kazakhstan (24.1%), Russian Federation (13%), Uzbekistan (11.3%), China (3.6%)	Russian Federation (33.2%), China (22.6%), Kazakhstan (9.7%), United States (4.7%), Japan (4%)

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Annex 4: LLDCs: Share of Top Five Export and Import Partners *(continued)*

	Share of top 5 exporters		Share of top 5 importers		HH Market Concentration Index**			
Country	2000	2012	2000	2012	2000	2012	Top 5 export partners, 2012	Top 5 import partners, 2012
Lao PDR*	53.6	77.3	89.5	92	n.a.	n.a.	Thailand (34.3%), China (22.5%), Vietnam (12.9%), India (4.1%), Japan (3.5%)	Thailand (62.5%), China (16.2%), Vietnam (7.5%), Korea, Rep. (2.9%), Germany (2.9%)
Lesotho*	86.9	67.1	95.6	84.2	0.66	0.50	United States (34.3%), Belgium (29.9%), Botswana (1.3%), Canada (0.9%), China (0.6%)	China (36.1%), Other Asia, nes (28.8%), India (6.9%), United States (6.3%), Vietnam (6.1%)
Macedonia, FYR	70.6	65.4	49.8	44.8	0.09	0.11	Germany (29.4%), Serbia (17.2%), Bulgaria (7.3%), Italy (6.9%), Greece (4.7%)	Greece (12.3%), Germany (9.7%), United Kingdom (8.6%), Serbia (7.8%), Bulgaria (6.3%)
Malawi*	38.1	29.9	68.7	71.8	0.06	0.04	Canada (7.8%), Germany (7.1%), Russia (5.3%), United States (4.9%), South Africa (4.8%)	South Africa (28.5%), China (16.1%), Zambia (12.1%), India (8.4%), Tanzania (6.7%)
Mali	94.7	80.5	60.9	59.8	0.05	0.34	South Africa (56.8%), Switzerland (11.8%), Senegal (4.5%), Burkina Faso (4.2%), China (3.6%)	Senegal (21.4%), China (10.7%), France (10.3%), Cote d'Ivoire (8.1%), Benin (7.6%)
Moldova	75.3	65.7	61.9	54.4	0.18	0.10	Russian Federation (30.3%), Romania (16.5%), Italy (9.4%), Ukraine (5.7%), United Kingdom (3.9%)	Russian Federation (15.7%), Romania (11.9%), Ukraine (11.4%), China (7.9%), Turkey (7.5%)
Mongolia*	83.4	91.9	77.2	83.8	0.30	0.54	China (84.8%), Canada (3.6%), Russian Federation (1.4%), Korea, Rep. (1.2%), Italy (0.9%)	China (37.8%), Russian Federation (26.4%), United States (8.5%), Korea, Rep. (6.2%), Japan (4.9%)
Nepal*	70.6	66.3	71.9	93.3	0.24	0.40	India (41.8%), United States (12.7%), Germany (5.4%), China (4.0%), United Kingdom (2.9%)	India (50.6%), China (38.5%), Singapore (2.1%), Thailand (1.2%), Japan (0.9%)
Niger	86.9	68.8	57.9	51.6	0.48	0.38	France (39.2%), Nigeria (9.1%), Mali (8.7%), Switzerland (6.8%), Japan (4.9%)	China (21.2%), France (11.8%), United States (6.7%), Nigeria (6.1%), Japan (5.9%)
Paraguay	76.3	66.4	72.1	78.2	0.18	0.08	Brazil (39.2%), Russian Federation (9.7%), Argentina (8.3%), Germany (5.9%), Italy (3.2%)	China (27.6%), Brazil (23.5%), Argentina (16.4%), United States (8.1%), Japan (2.7%)
Rwanda*	91.5	56.1	60.7	57.6	0.09	0.11	China (18.2%),Malaysia (16.1%), United States (8.7%), Burundi (7.6%), Pakistan (5.5%)	Uganda (23.7%), Tanzania (11.1%), China (9.5%), India (7.4%), Belgium (5.9%)
Swaziland (2007)	82.3	95.9	96.9	91	0.08	0.05	China (79.8%), United States (13.8%), India (1.8%), Nigeria (0.3%), Italy (0.2%)	South Africa (81.4%), China (4%), Japan (2.3%), Other Asia, nes (1.9%), United States (1.4%)
Tajikistan*	55.7	56.2	68.1	84.7	n.a.	n.a.	Turkey (28.8%), China (9.1%), Other Asia, nes (6.9%), Greece (5.8%), Kazakhstan (5.7%)	China (44.9%), Russian Federation (17.4%), Kazakhstan (13.7%), Turkey (6.1%), Ukraine (2.6%)

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Annex 4: LLDCs: Share of Top Five Export and Import Partners *(continued)*

	Share of top 5 exporters		Share of top 5 importers		HH Market Concentration Index**			
Country	2000	2012	2000	2012	2000	2012	Top 5 export partners, 2012	Top 5 import partners, 2012
Turkmenistan*	80.8	82.3	57.4	68.7	0.29	n.a.	China (72.3%), Italy (4.5%), Turkey (2.5%), Russia (1.5%), Kazakhstan (1.49%)	China (21.8%), Turkey (18.9%), Russian Federation (15.5%), Ukraine (6.8%), United Kingdom (5.7%)
Uganda	65.9	55.3	58.5	54.9	0.05	0.06	Sudan (17.3%), Kenya (10.8%), Congo, Dem. Rep. (10.2%), Rwanda (9.6%), UAE (7.5%)	India (20.9%), China (11.3%), Kenya (9.8%), UAE (7.5%), Japan (5.4%)
Uzbekistan*	45.2	80.8	55.1	73.2	n.a.	n.a.	Russian Federation (26.4%), China (20.8%), Kazakhstan (15.4%), Turkey (15.3%), France (2.9%)	Russian Federation (22.1%), China (16.9%), Korea, Rep. (16.7%), Kazakhstan (12.7%), Germany (4.8%)
Zambia (2011)	85.1	85.2	79.4	72.2	0.07	0.16	Switzerland (48.9%), China (16.7%), South Africa (9.3%), Congo, Dem. Rep. (6.5%), United Kingdom (3.7%)	South Africa (35.7%), Congo, Dem. Rep. (18.5%), China (9.8%), Kuwait (4.7%), India (3.5%)
Zimbabwe (2001)	52.2	93.3	72.9	78.5	0.04	0.13	South Africa (68.9%), UAE (12.4%), Mozambique (7.3%), Zambia (2.5%), China (2.2%)	South Africa (42.2%), United Kingdom (17.2%), United States (7.6%), Zambia (6.7%), China (4.8%)

Source: WITS, World Bank.
Note: * = mirror data, ** = 2012 or latest year.

Annex 5: Logistics Performance of Landlocked Developing Countries (1 = low to 5 = high)

	2007		2010		2012		2014	
Country Name	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Afghanistan	1.21	150	2.24	143	2.30	135	2.07	158
Armenia	2.14	131	2.52	111	2.56	100	2.67	92
Azerbaijan	2.29	111	2.64	89	2.48	116	2.45	125
Bhutan	2.16		2.38	128	2.52	107	2.29	143
Bolivia	2.31	107	2.51	112	2.61	90	2.48	121
Botswana			2.32	134	2.84	68	2.49	120
Burkina Faso	2.24	121	2.23	145	2.32	134	2.64	98
Burundi	2.29	113			1.61	155	2.57	107
Central African Republic					2.57	98	2.36	134
Chad	1.98	142	2.49	115	2.03	152	2.53	113
Ethiopia	2.33	104	2.41	123	2.24	141	2.59	104
Kazakhstan	2.12	133	2.83	62	2.69	86	2.70	88
Kyrgyz Republic	2.35	103	2.62	91	2.35	130	2.21	149
Lao PDR	2.25	117	2.46	118	2.50	109	2.39	131
Lesotho	2.30	108			2.24	142	2.37	133
Macedonia, FYR	2.43	90	2.77	73	2.56	99	2.50	117
Malawi	2.42	91			2.81	73	2.81	73
Mali	2.29	109	2.27	139			2.50	119
Moldova	2.31	106	2.57	104	2.33	132	2.65	94
Mongolia	2.08	136	2.25	141	2.25	140	2.36	135
Nepal	2.14	130	2.20	147	2.04	151	2.59	105
Niger	1.97	143	2.54	106	2.69	87	2.39	130
Paraguay	2.57	71	2.75	76	2.48	113	2.78	78
Rwanda	1.77	148	2.04	151	2.27	139	2.76	80
South Sudan								
Swaziland								
Tajikistan	1.93	146	2.35	131	2.28	136	2.53	114
Turkmenistan			2.49	114			2.30	140
Uganda	2.49	83	2.82	66				
Uzbekistan	2.16	129	2.79	68	2.46	117	2.39	129
Zambia	2.37	100	2.28	138			2.46	123
Zimbabwe	2.29	114			2.55	103	2.34	137
By Income Group:								
High income: OECD	3.64		3.66		3.63		3.70	
High income: non-OECD	3.13		3.19		3.21		3.18	

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Annex 5: Logistics Performance of Landlocked Developing Countries (1 = low to 5 = high) *(continued)*

	2007		2010		2012		2014	
Country Name	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Upper middle income	2.64		2.74		2.78		2.82	
Lower middle income	2.39		2.58		2.57		2.59	
Low income	2.22		2.37		2.37		2.41	
World	2.74		2.87		2.87		2.89	
By Region:								
East Asia & Pacific	2.58		2.73		2.77		2.85	
Europe & Central Asia	2.45		2.68		2.73		2.76	
Latin America & Caribbean	2.53		2.72		2.67		2.74	
Middle east & North Africa	2.36		2.60		2.58		2.50	
South Asia	2.30		2.49		2.58		2.61	
Sub-Saharan Africa	2.35		2.43		2.46		2.46	

Source: World Bank.

Annex 6: Doing Business Indicators "Trading Across Borders"

	Documents to export (number)		Time to export (days)		Cost to export (US$ per container)		Documents to import (number)		Time to import (days)		Cost to import (US$ per container)	
Country	2006	2012	2006	2012	2006	2012	2006	2012	2006	2012	2006	2012
Afghanistan	10	10	67	74	2,180	3,545	10	10	80	77	2,100	3,830
Armenia	6	5	37	16	1,670	1,885	6	8	37	18	1,860	2,175
Azerbaijan	9	9	34	29	3,155	3,345	11	11	36	26	2,945	3,405
Bhutan	9	9	38	38	1,150	2,230	12	12	38	38	1,780	2,505
Bolivia	7	7	24	19	1,425	1,425	6	6	36	23	1,452	1,747
Botswana	6	6	33	28	2,088	2,945	7	7	43	41	2,595	3,420
Burkina Faso	11	10	45	41	2,226	2,412	10	9	54	49	3,722	4,030
Burundi	9	9	47	35	2,287	2,905	11	11	71	54	4,035	4,520
Central African Republic	8	9	57	54	4,581	5,491	17	17	66	62	4,534	5,554
Chad	7	7	78	75	4,867	5,902	10	10	102	101	5,715	8,525
Ethiopia	7	7	47	44	2,037	2,180	10	10	41	44	2,790	2,660
Kazakhstan	11	10	89	76	2,730	3,130	13	12	76	62	2,780	3,290
Lesotho	8	8	44	31	1,188	1,680	8	8	49	35	1,210	1,665
Malawi	11	10	45	41	1,623	1,675	11	11	54	51	2,500	2,570
Mali	7	6	44	26	1,752	2,202	11	10	66	32	2,740	3,127
Moldova	7	7	32	32	1,415	1,545	8	8	35	35	1,740	1,870
Mongolia	11	11	49	46	1,807	2,265	13	13	49	47	2,274	2,400
Nepal	11	11	43	41	1,600	1,960	11	11	35	35	1,725	2,095
Niger	8	8	59	59	2,743	3,343	10	10	66	66	2,946	3,333
Paraguay	7	7	36	34	1,220	1,440	9	9	33	33	1,400	1,750
Rwanda	13	7	60	29	3,840	3,275	21	9	95	31	4,000	4,990
South Sudan	...	...	...	...	...	...	...	...	...	...	...	...
Swaziland	8	8	21	18	1,798	1,855	7	7	30	25	1,820	2,030
Tajikistan	12	12	71	71	3,200	3,850	13	12	65	65	4,500	4,550
Uganda	12	7	38	33	1,050	2,880	20	10	64	31	2,945	3,015
Uzbekistan	13	13	86	77	3,685	4,285	15	15	104	92	4,050	4,650
Zambia	7	7	53	44	2,098	2,678	9	8	59	51	2,840	3,315
Zimbabwe	7	7	52	53	1,879	3,280	9	9	67	73	2,420	5,101
By Income Group:												
High income: OECD	4	4	12	11	773	764	5	4	11	10	713	795
High income: non-OECD	6	5	17	14	640	733	7	7	19	14	638	773
Upper middle income	6	6	26	21	719	750	8	7	29	23	761	734
Lower middle income	8	7	33	26	731	711	9	8	39	29	709	777
Low income	8	8	45	37	770	888	11	10	55	42	858	879

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Annex 6: Doing Business Indicators "Trading Across Borders" *(continued)*

	Documents to export (number)		Time to export (days)		Cost to export (US$ per container)		Documents to import (number)		Time to import (days)		Cost to import (US$ per container)	
Country	2006	2012	2006	2012	2006	2012	2006	2012	2006	2012	2006	2012
By Region:												
East Asia & Pacific	6	6	23	19	671	657	8	7	25	21	656	697
Europe & Central Asia	6	6	24	19	778	794	7	6	24	19	778	833
Latin America & Caribbean	6	6	22	17	656	789	7	7	26	19	761	834
Middle East & North Africa	7	6	25	19	744	766	9	8	31	23	711	822
South Asia	8	8	36	32	821	738	10	10	42	33	478	725
Sub-Saharan Africa	8	8	39	32	769	857	10	9	49	38	836	817

Source: World Bank.

Annex 7: The Trade Enabling Index

		2008		2014		
Country	Region	rank	score	rank	score	Resource-rich
Afghanistan	South Asia					Yes
Armenia	Europe & Central Asia	61	3.9	53	4.3	
Azerbaijan	Europe & Central Asia	76	3.68	77	3.9	Yes
Bhutan	South Asia			107	3.5	
Bolivia	Latin America & the Caribbean	94	3.36	87	3.7	Yes
Botswana	Sub-Saharan Africa			88	3.7	Yes
Burkina Faso	Sub-Saharan Africa	99	3.33	133	2.9	
Burundi	Sub-Saharan Africa	117	2.7	132	3	
Central African Republic	Sub-Saharan Africa					Yes
Chad	Sub-Saharan Africa	118	2.6	138	2.5	Yes
Ethiopia	Sub-Saharan Africa	106	3.06	118	3.2	
Kazakhstan	Europe & Central Asia	72	3.73	94	3.7	Yes
Kyrgyzstan	Europe & Central Asia	109	3.03	109	3.5	Yes
Laos	East Asia			98	3.6	Yes
Lesotho	Sub-Saharan Africa	95	3.36	108	3.5	
Macedonia, FYR	Europe & Central Asia	81	3.58	61	4.1	
Malawi	Sub-Saharan Africa			112	3.5	
Mali	Sub-Saharan Africa	90	3.42	123	3.1	Yes
Moldova	Europe & Central Asia	62	3.88	92	3.7	
Mongolia	East Asia	93	3.38	130	3	Yes
Nepal	South Asia	116	2.7	116	3.3	
Niger	Sub-Saharan Africa					Yes
Paraguay	Latin America & the Caribbean	83	3.54	113	3.5	
Rwanda	Sub-Saharan Africa			66	4.1	
South Sudan	Sub-Saharan Africa					
Swaziland	Sub-Saharan Africa					
Tajikistan	Europe & Central Asia	104	3.13			
Turkmenistan	Europe & Central Asia					Yes
Uganda	Sub-Saharan Africa	79	3.63	101	3.6	Yes
Uzbekistan	Europe & Central Asia	105	3.06			Yes
Zambia	Sub-Saharan Africa	85	3.52	91	3.7	Yes
Zimbabwe	Sub-Saharan Africa	112	2.98	134	2.9	

Source: World Economic Forum.

Annex 8: LLDCs: Access to ICT Infrastructure

	Access: subscriptions (per 100 people)						Affordability: sub-basket ($ a month)		
	Fixed telephone		Mobile-cellular telephone		Fixed (wired)—broadband		Fixed telephone	Mobile-cellular telephone	Fixed (wired)—broadband
Country	2000–01	2012–13	2000–01	2012–13	2000–01	2012–13	2012	2012	2012
Afghanistan	0	0	0	68	0	0	2	10	54
Armenia	17	20	1	112	0	7	3	9	12
Azerbaijan	10	19	7	109	0	15	3	10	13
Bhutan	3	4	0	74	0	3	2	4	11
Bolivia	6	8	8	94	0	1	24	12	25
Botswana	8	8	16	158	0	1	18	13	57
Burkina Faso	1	1	0	64	0	0	15	12	47
Burundi	0	0	0	24	0	0			
Central African Republic	0	0	0	27	0	0	10	13	1330
Chad	0	0	0	36	0	0	17	15	12
Ethiopia	0	1	0	25	0	0	1	4	24
Kazakhstan	13	27	3	184	0	11	3	11	13
Kyrgyz Republic	8	9	0	123		1	1	6	13
Lao PDR	1	8	0	65	0	0	5	6	97
Lesotho	1	3	2	81	0	0	14	20	85
Macedonia, FYR	25	19	8	106		15	9	13	14
Malawi	0	1	1	31	0	0	22	21	48
Mali	0	1	0	114	0	0	8	16	50
Moldova	15	35	5	104	0	13	1	13	13
Mongolia	5	6	7	123	0	4	1	6	10
Nepal	1	3	0	66	0	1	3	4	8
Niger	0	1	0	35	0	0	12	17	60
Paraguay	5	6	18	103	0	1	9	9	22
Rwanda	0	0	1	53	0	0	9	15	112
South Sudan		0		23		0			
Swaziland	3	4	4	68	0	0	7	23	76
Tajikistan	4	5	0	87	0	0	1	9	363
Turkmenistan	8	11	0	116		0			
Uganda	0	1	1	45	0	0	9	9	14
Uzbekistan	7	7	0	73	0	1	1	2	12
Zambia	1	1	1	73	0	0	7	17	82

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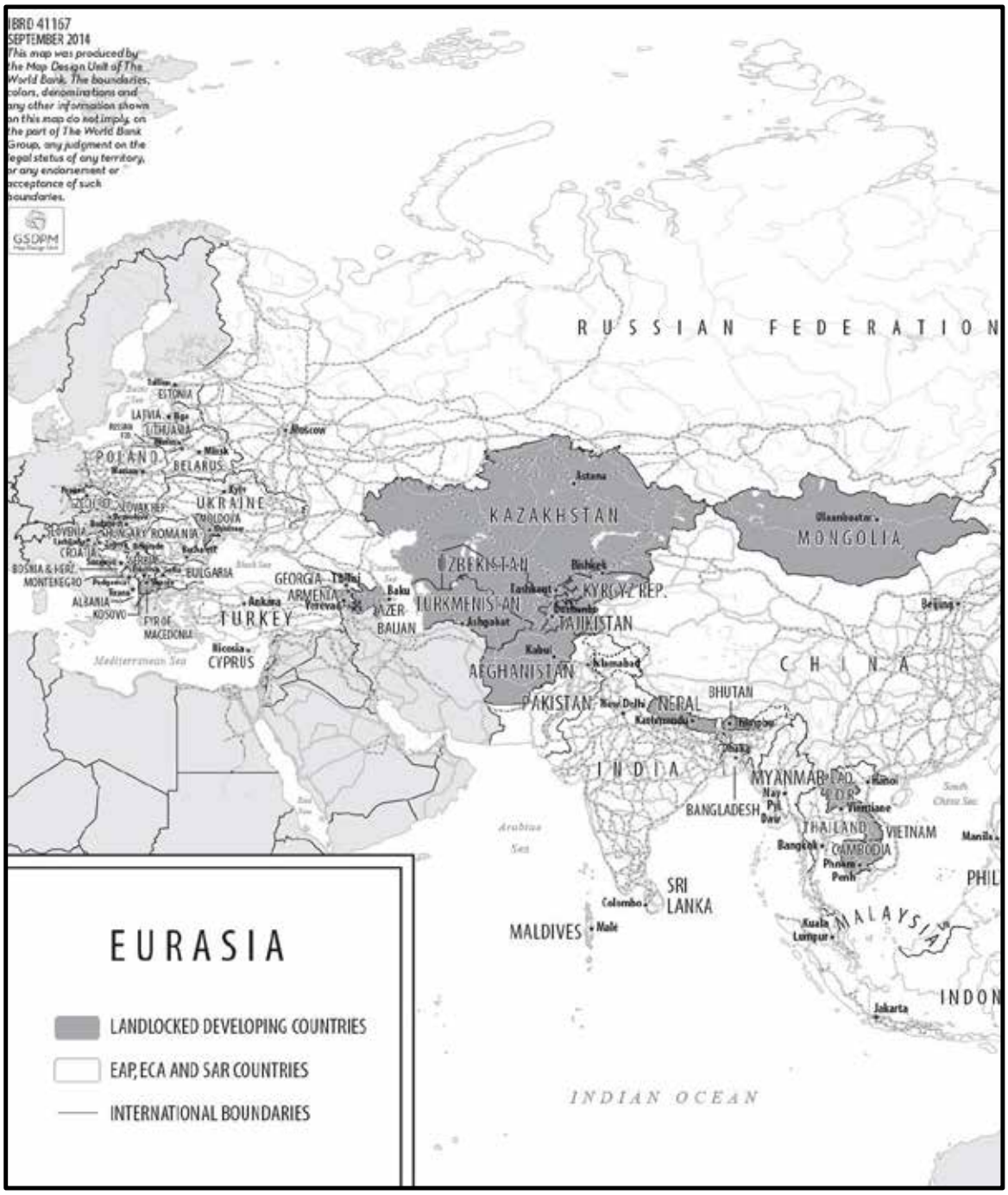
Annex 8: LLDCs: Access to ICT Infrastructure *(continued)*

	Access: subscriptions (per 100 people)						Affordability: sub-basket ($ a month)		
	Fixed telephone		Mobile-cellular telephone		Fixed (wired)—broadband		Fixed telephone	Mobile-cellular telephone	Fixed (wired)—broadband
Country	2000–01	2012–13	2000–01	2012–13	2000–01	2012–13	2012	2012	2012
Zimbabwe	2	2	2	94	0	1	10	21	30
LLDC	5	7	3	80	0	2	8	12	93
Transit	11	13	8	99	0	6			
High income: OECD	53	42	63	122	2	29	25.2	20.6	29.2
High income: non-OECD	42	38	30	135	1	19			
Upper middle income	16	18	10	110	0	8	9	15	18
Lower middle income	5	8	4	85	0	2	5	11	21
Low income	1	1	1	51	0	0	9	12	47

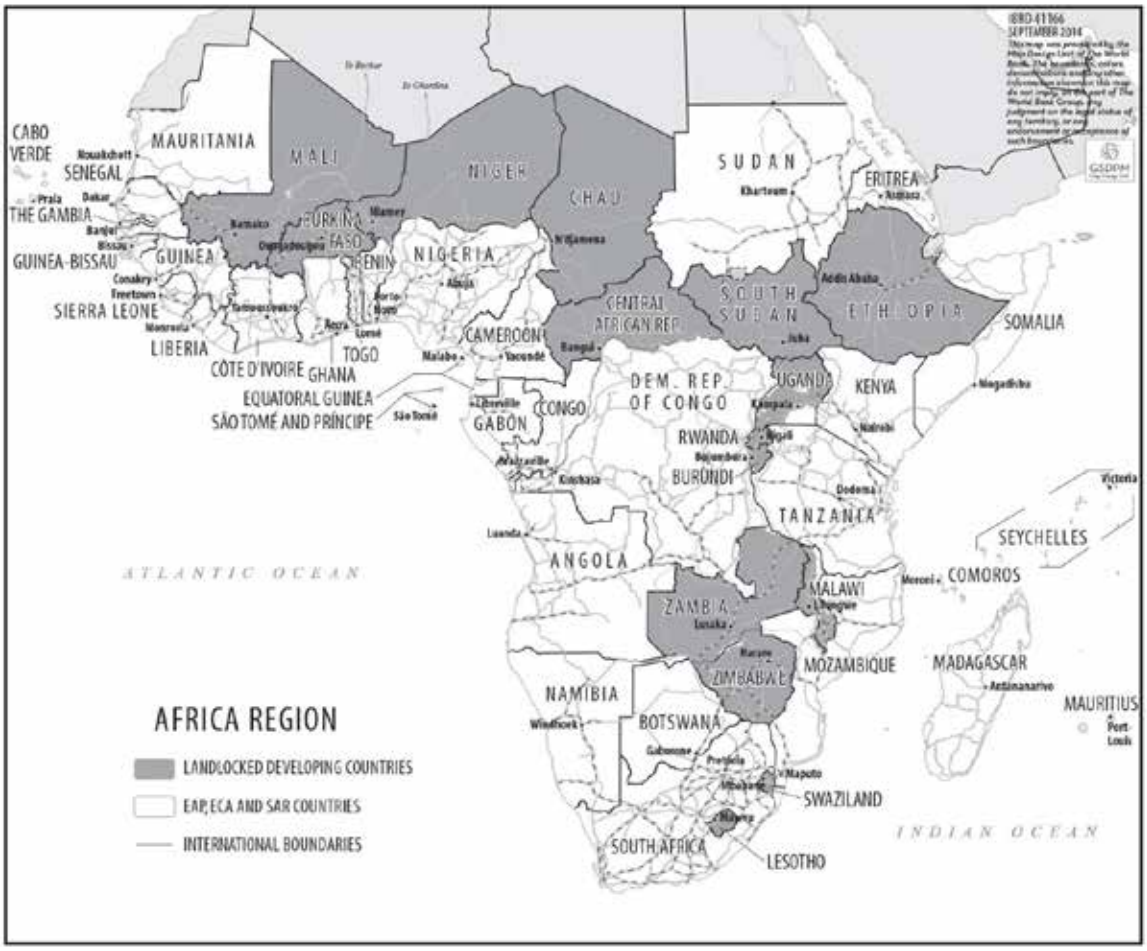
Source: The Little Data Book on Information and Communications Technology, 2014. World Bank.

Annex 9: Maps of Landlocked Developing Countries

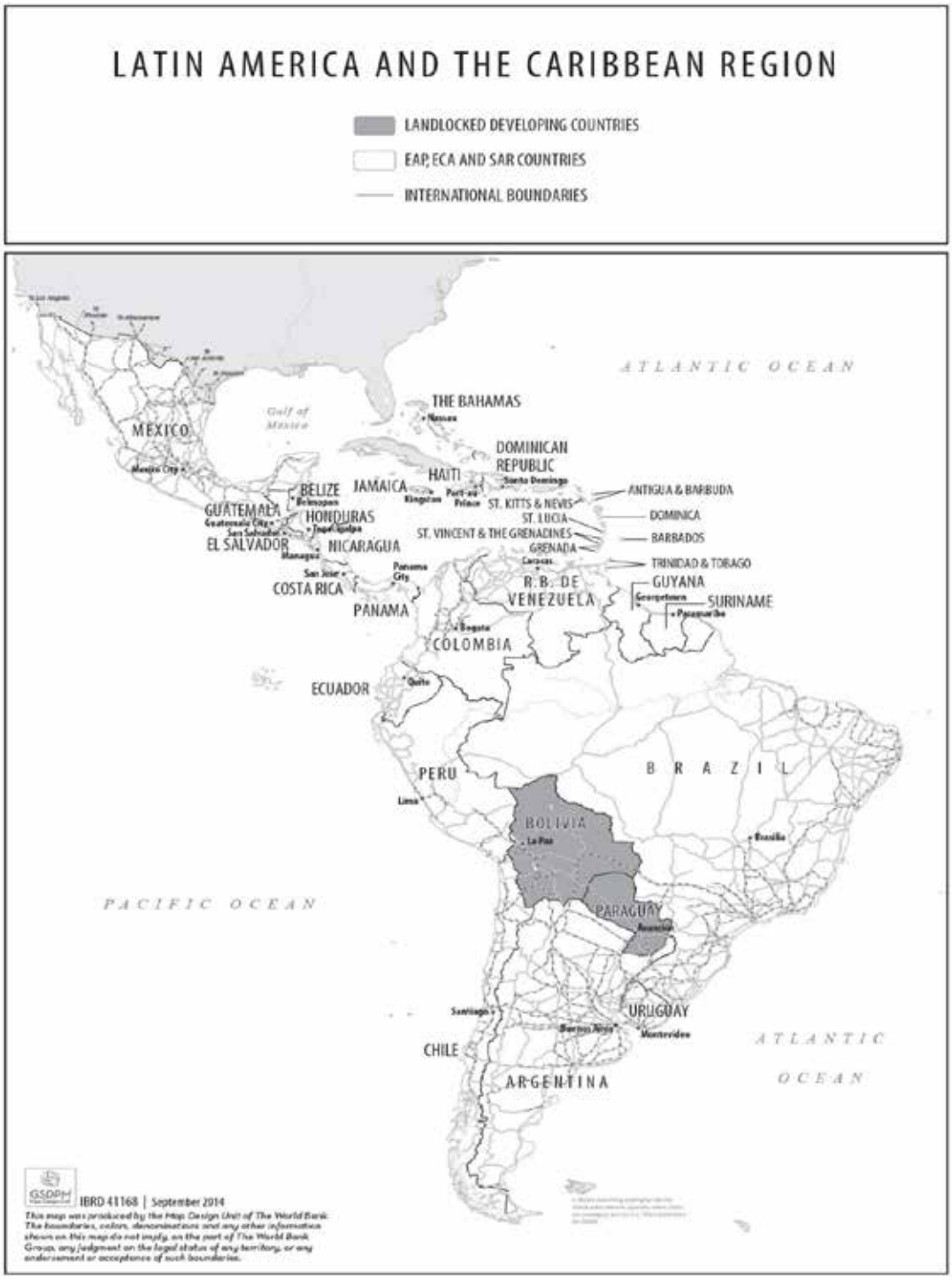
MAP A9.1 ■ Europe and Asia Regions



MAP A9.2 ■ Africa Region



MAP A9.3 ■ Latin American Region



Annex 10: Institutional Support to LLDCs

World Bank projects contributing to the APoA include many trade facilitation, connectivity, corridor and regional integration projects. These projects increasingly combine the hard (transport, ICT, customs infrastructure) and the soft (technical assistance to reforms) components in the same project package, as the experience shows that this comprehensive approach has the most impact on the ground.

Regional ICT Infrastructure Projects in East, Southern and West Africa

East & Southern Africa

Up until 2007, Eastern and South Africa (E&SA)[32] has been the only part of Africa that has not been connected to the global optical fiber broadband infrastructure and accounted for only 0.07 percent of the world's international bandwidth capacity. Twenty countries of the region did not have direct terrestrial access to global Information and Communications Infrastructure (ICI) and networks and relied on expensive and poor quality satellite connectivity to link up with each other and the rest of the world. Submarine cable backbone projects for the region have been proposed in the past, but none have materialized due to a combination of factors including poor regulatory, policy and investment climates in the region, the complexity of a multi-country investment project and related concerns about financial sustainability. The lack of modern backbone infrastructure[33] limited citizens' access to broadband communication services at affordable prices.

The World Bank Operation under the Regional Communications Infrastructure Program (RCIP) has been assisting East and Southern Africa (E&SA) countries to implement a strategy of effective regional connectivity and increased government efficiency through the use of this connectivity, by (i) offering technical assistance to promote further sector liberalization, (ii) leveraging private investment in the deployment of regional and national backbone infrastructure, as well as rural networks through public private partnership (PPP) arrangements and capacity purchase, and (iii) leveraging the infrastructure to increase government efficiency and transparency through the selective deployment of key e-Government services. The Regional Communications Infrastructure Program (RCIP) operation financed by the World Bank is focused on the terrestrial elements of the overall regional communications infrastructure and on activities generating demand for the infrastructure being put in place. The IFC project is focused on the EASSy (Eastern Africa Submarine System) submarine cable. While the IFC and World Bank initiatives are highly complementary, RCIP's viability is not dependent solely on the EASSy cable.

RCIP Phase I was approved by the Board of the World Bank on March 29, 2007 and includes operations in Burundi, Kenya and Madagascar. Preparation work has started for operations in RCIP II countries. The Program is open to 25 countries: Angola, Botswana, Burundi, Comoros, DRC, Djibouti, Eritrea, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, Somalia, South Africa, Sudan, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe, provided these countries are eligible for IDA or IBRD financing at the time of their application for IDA/IBRD support under the Program. A public website has been developed to facilitate this process (www.worldbank.org/rcip). By the end of the program, all capitals and major cities in E&SA would be linked to the Global Information and Communications Network through competitively priced high-bandwidth connectivity. Traffic in the region is expected to increase by at least 36 percent annually and bandwidth costs projected to fall to under US$1,000 per

[32] Eastern and Southern Africa (E&SA) is defined to include the following 25 countries: Angola, Botswana, Burundi, Comoros, DRC, Djibouti, Eritrea, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, Somalia, South Africa, Sudan, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

[33] For the purposes of this project, backbone infrastructure refers to a collection of high-capacity fiber optic or point-to-point wireless (e.g., microwave) links between main populated areas, both within countries and between countries, which serve as the basis on which telecom operators provide voice and data services. The text at some points will make the distinction between: national backbone networks (within countries), regional backhaul networks (between neighboring countries, terrestrial networks), and regional backbone networks (between the region and the rest of the world, e.g., undersea cables).

Mbit/s per month by 2010, which should translate into end-user broadband access at under US$150/month and rapidly decline further. This in turn should lead to lower prices for telephone services and better access to the Internet that will significantly improve foreign and local private investment opportunities in the region, decrease the cost of doing business and increase the prospects for job creation and wealth generation while enabling countries to reap the benefits of ICT as a platform to deliver services to their citizens.

West Africa

Infrastructure has been critical to the West Africa region's growth. It is estimated that between 1995 and 2005, infrastructure improvements boosted West Africa's growth by about one percentage point per capita per year. The positive growth was almost entirely attributed to the Information and Communication Technology (ICT) revolution while deficient power infrastructure held back economic growth by about 0.1 percentage point per capita per year. It is estimated that if infrastructure could be upgraded to the level of the best performing country in Africa (Mauritius), the impact on per capita economic growth would be in the order of 5 percent.

The World Bank's response and support to the region's efforts is underpinned by a comprehensive Regional Integration Assistance Strategy, 2008 (RIAS) for the continent and Implementation Action Plan for West Africa (2011–2015). The purpose of the West Africa Regional Communications Infrastructure Project is to increase the geographical reach of broadband networks and reducing the cost of communications services in West Africa. Landlocked countries such as Burkina Faso, Mali and Niger have always depended on their neighbors for international access, often at high risk and uncompetitive prices. These countries, however, can benefit from advantageous geographic positions in the center of West Africa, and could play a key route for a number of the large telecom groups in the region. Burkina Faso for example has six neighboring countries (Mali, Niger, Benin, Ghana, Togo, and Cote d'Ivoire) and could provide opportunity for such regional players to complete their international connections and regional rings. There is, therefore, a significant potential international demand provided Burkina and the other landlocked counties can offer robust national and international network capacity. The team is reviewing the most viable options for reducing the cost of international bandwidth to landlocked countries and possibly providing financing for the backhaul transmission infrastructure. One of the options is to develop backhaul transmission infrastructure from landlocked countries to landing points in coastal countries using either buried or aerial cable; another option would be to establish virtual landing points which would be managed jointly by all the operators.

There is more urgency for Burkina Faso, which is not associated with ACE (Africa Coast to Europe). For Mali and Niger, although they are landlocked, they are expected to gain access to the ACE cable through their Orange subsidiaries who are members of the ACE cable consortium. Subsequent phases of the program will assess more effective connectivity solutions for these countries.

Taking a Multi-Pronged Approach to Project Design: The Example of the Nepal-India Regional Trade and Transport Project

Over the past decade, the World Bank added to its already significant portfolio of trade and transport facilitation projects with a focus on landlocked developing countries. Recent projects have become progressively more complex reflecting the multi-sectoral nature of the issues that have to be dealt with, which encompass technical issues concerning infrastructure, policies and regulations governing transport and logistics services provision, and cooperation and collaboration between countries and agencies that handle these aspects. One example of a project that takes a comprehensive approach is the Nepal-India Regional Trade and Transport Project.

Nepal is a landlocked country in South Asia, and is among the landlocked countries with high trade costs. Over the past decade and a half in particular, Nepal has invested in several initiatives to reduce these costs, especially along the main corridor linking it to the Kolkata/Haldia port complex in India. In the late 1990s, with support from the World Bank, among other improvements Nepal constructed three Inland Container Depots at the major border crossing points with India. One of the three ICDs has a rail connection to Kolkata, and has since emerged as the largest trans-loading node for Nepal's international trade.

Trade traffic coming or going through Indian ports is moved by rail between the port and the ICD, where it is then transferred between road and rail transport. Shippers prefer the railway because it is cheaper than road transport, while Indian authorities prefer it as they can implement a more secure transit regime than is the case with road transport. However, while the railway now handles more than 60 percent of Nepal's containerized third-country trade traffic, operations are hampered by the requirement to run block trains carrying only Nepalese traffic, which due to limited cargo volumes increase headway between trains and cargo dwell time in the port. At the same time, road transport, which is the alternative mode, offers poor quality services with high costs, partly due to informal cartels active in the market. As a result, trade flows and transit times for Nepal are characterized by a high degree of uncertainty, which increases logistics costs.

In an effort to address the continuing challenges, the government of Nepal has worked with the World Bank Group to prepare a new comprehensive project to improve trade facilitation especially along its main trade corridor. Total financing is US$ 101 million, a third in grants, which fund the soft trade facilitation components, and the remainder in credits funding the trade-related infrastructure. The project seeks to decrease the time and cost of moving goods between Nepal and its main seaport gateway in India. The project has three main components: the first seeks to improve selected trade-related infrastructure, mainly though improving a section of the road in Nepal that handles more than two thirds of the country's international goods trade flow, the construction of a new ICD in Kathmandu, and the improvement of two existing ICDs. The second component focuses on modernizing transport and transit arrangements between Nepal and India. The component has three main activities: i) introducing a modern and effective transit regime, including technical assistance in enhancing the capacity to negotiate trade and transit treaties; ii) simplifying and harmonizing customs and border management procedures, processes and systems, especially to provide for electronic interchange of transit data between Nepal and India; and iii) strengthening and modernizing the regulation of national and international trucking services. The third component seeks to strengthen trade-related institutional capacity in Nepal, mainly through to introduction of a trade portal and electronic national single window. The latter will allow traders to submit and have processed all required import, export, and transit documentation electronically via a single gateway, instead of submitting essentially the same information numerous times to different government entities, as is the case at the moment.

The design of the project builds on available evidence gathered by the World Bank that suggests that reducing trade and transport costs for landlocked countries requires a multi-pronged approach. In fact, the analysis of the likely impacts of the project clearly points to most of the benefits flowing from the non-infrastructure elements. Yet, these can only be unlocked if the core infrastructure is strengthened. There are, as such, synergies between the components that are fundamental to the project meeting its objectives.

South-West roads—Western Europe–Western China International Transit Corridor

The geography, population, economy, and trade flows of Central Asia have an important bearing on transportation challenges in Kazakhstan. Within the region, distances are substantial (2,000 km from the Kyrgyz Republic to Russia) and access to major markets involves very long travel distances. There are also significant non-physical barriers to trade, including inefficiencies at border crossings, unofficial payments, and the lack of harmonization of basic transit documents and regulations, all of which have been subjects of discussion at the Central Asia Regional Economic Cooperation (CAREC). For the region, trade with Russia continues to be important mainly due to historical reasons, with much of this trade transiting through Kazakhstan due to the availability of transport infrastructure. China is growing in importance as a trading partner for Central Asia, with Kazakhstan taking the largest share. Other significant trading partners of the CAREC countries include Japan, Korea, Turkey, and increasingly, the EU countries. The CAREC countries have designated six major transport corridors, four of which transit through Kazakhstan. Although current trade movements are relatively low, the trade directions indicate significant potential for trade with Europe, China, and South Asia in addition to current trade with Russia. This perceived trade potential is the main reason for the establishment of the six CAREC

corridors. While rail transport accounts for more than 75 percent of the combined ton-km of freight carried in Kazakhstan, past trends show a ten percent increase in road freight per annum since 2002.

Roads are a key element of the Kazakhstan transport system, playing an important role in the provision of basic access to rural areas, and providing essential transit corridors for trade. The key issues facing the management of the Republican road network are: a) outdated organizational structure and weak institutional capacity to plan and manage the road network, mainly because the Committee has few trained personnel; b) inefficient allocation of funds; c) poor condition of the network, with over 50 percent of roads requiring major maintenance or full rehabilitation; d) inappropriate maintenance practices that are reactive rather than preventive (i.e., repairs are done once defects appear), resulting in higher costs; e) poor quality of construction; f) very poor road safety record, with indications that this will increase; g) unsatisfactory condition of local road networks, thereby limiting access for rural communities to essential social services and work opportunities; h) lack of services to transporters along the transit corridors; and i) non-physical barriers in the form of unofficial payments and unscheduled inspections for transit traffic. The overall objective of the government's WE-WC Corridor development program is to improve transport efficiency and safety, and promote development along one of Kazakhstan's main strategic road transport corridors. Transport and trade efficiency will be improved through provision of better infrastructure and services along the entire corridor to reduce transport costs, and through gradual reform of the entities responsible for all categories of roads.

Proposed Central Asia Road Links (CARs) Program

Initiated by governments in respective Central Asian countries, the proposed Central Asia Road Links (CARs) Program is currently being considered for financing by the World Bank. Realizing the necessity for collective action, the proposed CARs Program will address some of the development challenges which have come about with the recent 'disruptive' breakup of the Former Soviet Union, the emergence of new markets, and the growing disparities between capital cities and peripheral regions. At the core of these challenges is the need to re-build a framework across national borders, including a regionally and locally integrated trans-border road transport network capable of connecting people and businesses to local and global services and markets across borders. The objective of the proposed Program is to increase cross-border connectivity and enhance regional economic development, which can be achieved by rehabilitating priority road links and improving transport operations and maintenance practices. Financing activities proposed under this Program are expected to have substantial positive regional spill-over effects and promote positive change in the region. In line with the overall objective of the Program, sequential entry of countries is proposed, initially starting with the Kyrgyz Republic and Tajikistan. The financing requirements for this transformational Program are estimated to be at least US$ 400 million.

Regional Trade Facilitation and Competitiveness Development (Burkina Faso and Cote d'Ivoire)

The Regional Development Policy Operation (RDPO) is aimed to support regionally oriented reforms in the transport sector and more generally regional cooperation in Burkina Faso and Cote d'Ivoire. WAEMU (West African Economic and Monetary Union) and ECOWAS (Economic Community of West African Countries) have taken the lead in steering a regional transport facilitation agenda, including through regional directives. Ministers of all eight WAEMU member countries meet regularly and have convened national stakeholder workshops to build consensus around these directives. Based on this framework, both Cote d'Ivoire and Burkina Faso have developed ambitious reform programs of the transport sector aimed at liberalizing the industry and significantly reducing transport costs. However, in the past, implementation of reforms has been hampered by lack of instruments needed to foster the required simultaneous actions by all relevant actors and to deal with the complicated political economy of the industry. The renewed reform impetus in Cote d'Ivoire following the end of the civil war and the close partnership with Burkina Faso, manifested in regular high-level government consultations, have favored the development—in consultation with major stakeholders—of a comprehensive program of reforms of the transport sector that offer better prospects of

implementation, especially if supported by the Bank through a regional Development Policy Operation.

Reducing transport prices is not only important to facilitate the much-needed structural transformation, but has also direct poverty-reducing impacts through better regional integration. Notably, lower prices of transport and more efficient logistics services for food staples will enhance food security by avoiding loss of crops during transport, while it also helps to strengthen the competitiveness of traditional exports of landlocked countries in the Sahel, such as cattle.

In early 2014, highlighting their renewed reform commitment, Cote d'Ivoire and Burkina Faso have requested support from the Bank through a regional Development Policy Operation (regional DPO).

- First, a number of reforms detailed further below—many of them requiring significant political commitment—can only become fully effective if implemented by both countries. Hence, one country will only implement reforms, if it has assurances that the other will do the same. A DPO will provide a platform for agreeing on such joint actions as well as assurances that they will be implemented, as disbursement will only take place after both countries have implemented the action.
- Second, past efforts of the Bank to support reform in this sector through investment lending operations, including trade, transit and transport facilitation projects throughout Africa, have only had mitigated progress.[34] The authorities argue that DPOs designed in a regionally coordinated manner may provide for more effective support towards the implementation of joint and politically difficult reforms, in view of the incentives implicit in much-needed concessional financing of the budget to (i) catalyze reforms in multiple policy areas at the same time; and (ii) raise the profile of required policy measures vis-a-vis senior policymakers.
- Third, the authorities consider the support and the role of the Bank to be vital, in view of its convening power and credibility with the government and donors, as well as its technical expertise.

It is the first in a planned programmatic series of four DPOs designed to facilitate trade and enhance competitiveness by reducing transport prices along the Abidjan-Ouagadougou corridor. To this end, the operation spells out a programmatic set of reforms in the areas of (i) trucking industry and organization of the road transport market; (ii) competitiveness of the gateway and inland platform; and (iii) border management and customs. Reforms of the railway which could play a critical role in improving the transport corridor could be included in future operations, as soon as there is greater clarity on the direction the governments intend to take in this area. The set of measures for each pillar was discussed in a series of consultations with stakeholders in each country, as well as with the regional economic communities (RECs), and other donors. These national stakeholders and the RECs were also consulted at a workshop in Abidjan in end-September 2013 with participation of key stakeholders from Burkina Faso and Cote d'Ivoire and benefits from a variety of studies that have been undertaken in the transport sector. Demonstrating client engagement, the majority of measures are already part of the governments' programs for the next years.

Other Projects by the World Bank Trade & Competitiveness Global Practice

The trade policy agenda within the Trade and Competitiveness Global Practice (T&C GP) supports the design of commercial policies that affect market access and trade in goods and services. The focus goes beyond traditional policies such as import tariffs to cover also behind-the-border policies—such as non-tariff measures (NTMs) and regulations in services industries—that can affect trade patterns and the allocation of factors of production across industries within a country. These reforms have increased the productivity of developing countries and allowed them to take better advantage of global trade opportunities. Today, developing countries account for more than 30 percent of global trade, up from just 10 percent in the mid-1990s.

Multilateral and Regional Trade Agreements

Multilateral trade agreements and regional integration efforts can be important mechanisms for intensifying and accelerating domestic policy reforms. In Belarus,

[34] For example, the Abidjan-Lagos corridor project is currently rated marginally unsatisfactory for implementation progress.

Nepal and Turkmenistan we have provided guidance and assessed the economic rationale for joining the WTO, the likely impact on tariffs as a result of WTO accession, and the regulatory reforms needed for trade in both goods and services. Following an agreement with ASEAN, we are undertaking NTM surveys in Lao PDR, Cambodia and Myanmar, which has led to several positive avenues for streamlining NTMs.

In **Southern Africa**, the T&C GP is supporting an Accelerated Program of Economic Integration (APEI) which is providing technical inputs to the preparation of a regional DPO to assist the countries involved—Malawi, Mauritius, Mozambique, Seychelles and Zambia—in implementing their commitments to liberalize regional trade and improve the business climate for trade and investment. In **West Africa**, T&C is providing Support for West Africa Regional Integration (SWARIP) by informing and supporting the dialogue between the regional economic communities (ECOWAS, WAEMU and MRU), member governments and private sector and civil society stakeholders, and by influencing country and regional engagement programs by the Bank and other donors to address the real bottlenecks to regional integration.

Reducing Poverty and Creating Jobs through Increased Trade and Competitiveness

A key role of Trade & Competitiveness Global Practice is to identify the transmission channels through which trade and competitiveness affect poverty and the well-being of the bottom 40 percent of the income distribution in developing countries, measure the size of these impacts, and use the findings to develop policies, projects, technical assistance and other interventions that foster increased trade and competitiveness and reduce barriers harmful to poorer income groups. Trade affects welfare through various channels. For individuals and households at the lower end of the income distribution, the main channels of direct influence in the short run are through: consumption of final goods, especially food; consumption of inputs to household production; and employment links to the tradable sectors. For trade policies that translate into a change in the relative price of traded goods, the short-term response of consumers and producers will determine whether the trade-related shock is welfare improving for the poor and the bottom 40 percent.

T&C's ongoing work in **Lao PDR** addresses the labor market challenges associated with the small, low-productivity garment industry and the impact of mining and hydro-electric exports on incomes through welfare effects rather than direct job creation (through a programmatic AAA and through TA for capacity-building under the Lao PDR Trade Development Facility II project). T&C's recent work on **South Sudan** looked at the poverty effects of the border closure with Sudan and the poverty impact of increased domestic market integration (for the recent South Sudan AAA on trade integration and the ongoing CEM). Additional ongoing work includes analysis of the labor content of exports in **South Africa** and **Botswana** for the programmatic AAA on GVCs in Southern Africa.

Customs and Border Management

The World Bank Group is involved in helping over 50 countries to improve their customs and border management regimes. Results to date are impressive and demonstrate the Bank group's capacity to support meaningful reform in an important and complex area. The Bank has active customs and border management reform projects in Lao PDR, Cambodia, Nepal, Kazakhstan, and is assisting client countries to adopt WTO and WCO reform initiatives in all World Bank Group regions.

The Trade Development Facility and Customs and Trade Facilitation projects in **Lao PDR** helped to develop a National Trade Facilitation Strategy and establish a Secretariat, supported implementation of an automated Trade Information Portal and an automated processing system covering all key checkpoints and 90 percent of all import and export transactions, reviewed NTMs and implemented an NTM rationalization process, established a Trade and Private Sector Working Group, developed a blueprint for a National Single Window, and supported WTO accession, with membership achieved in 2013.

Under the Trade Development Support Facility in **Cambodia**, T&C support has helped: improve the Logistics Performance Index (LPI) overall ranking by 46 places since 2010; reform, simplify and automate procedures for issuing and applying Certificates of Origin; implement a Customs IT system rolled out to 21 checkpoints; and develop a blueprint for a National

Single Window. Positive results include a drop in customs clearance time from 5.9 days (2010) to 1.4 days (2014) and a reduction in physical inspections from 29% (2010) to 17% (2014).

A US$101 million Trade and Transport Facilitation project in **Nepal** covers both the hardware of trade (roads and storage facilities) and the software components of trade (customs and border management reform and ICT). Immediate results achieved include the establishment of a National Trade and Transport Facilitation Committee and the preparation of a blueprint for the National Trade Portal and Single Window system.

Streamlining Non-Tariff Measures

The NTM agenda can be addressed through a range of Bank tools including diagnostic toolkits, databases, country-specific analyses (AAAs), Systematic Country Diagnostics (SCDs), technical assistance to client governments, and development policy loans (DPLs) that address competitiveness issues.

The NTM toolkit has been implemented to varying degrees in **Indonesia, Mauritius, Kazakhstan**, and the **Central America** region. Current engagements include **Lao PDR, Cambodia, Myanmar, Tajikistan, and Nepal**. Employing this general framework, the Bank supported ASEAN in drafting its "Work Programme on Streamlined ASEAN Non-Tariff Measures for 2013-14", which was adopted by its member states in 2012. The application of the toolkit has resulted in **four modules** of technical assistance, which can be applied together or separately according to the specific client needs. In **Lao PDR,** the MDTF-TD2 has assisted in implementing and developing the NTM technical assistance component of the Trade Development Facility II program.

Trade Logistics & Supply Chains

T&C support for improved trade logistics and more efficient supply chains focuses on both the software and hardware components of trade.

Software refers to the reengineering of systems and procedures, reducing red tape, improving the competitiveness of transport and logistics markets, institutional development of trade-related agencies, and increasing the professionalism of logistics service providers. **Hardware**, on the other hand, deals with trade-supporting infrastructure investments such as roads, ports, cargo handling facilities, and ICT systems. T&C works closely with other practices, especially Transport & ICT, on elements of the above topics

Examples of advisory services and technical assistance (TA) include:

- Reimbursable Advisory Services on Improvements of Freight Logistics and Supply Chains: Kazakhstan;
- Regional flagship reports: SAR (City linkages), and ECA (Eurasian Connection and Diversification);
- Other regional reports: AFR (West Africa Logistics Costs, East Africa Comparative Assessment of Uganda Corridors, West Africa Regional Food Staples Trade, West African Regional Trade Solutions);
- Trade and Transport Facilitation Assessments and Supply Chain Analysis: AFR (Zimbabwe TTFA), EAP (Cambodia, Lao PDR), ECA (Kazakhstan, Republic of Tajikistan, Uzbekistan, Kyrgyz Republic, Republic of Turkmenistan, Belarus, Georgia), LAC (Nicaragua).

Examples of investment projects and development policy loans (DPLs) include:

- Great Lakes Region Trade Facilitation Project (regional);
- Central Asia Road Links Program (regional);
- Nepal-India Regional Trade and Transport Project (regional);
- Regional Trade Facilitation and Competitiveness Project (regional);
- APEI Regional DPO (regional);
- Armenia Competitiveness and Connectivity DPO.

Annex 11: LLDCs' Participation by Instrument

LLDC country	TIR Convention (Convention on International Transport of Goods Under Cover of TIR Carnets) 1975	CMR Convention (Convention on the Contract for the International Carriage of Goods by Road) 1956	ATP Agreement (Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for Such Carriage) 1970	Kyoto Convention 1999	Geneva Convention on Harmonization of Goods Control at Borders 1982	Convention on Road Traffic 1968	Convention on Road Signs and Signals 1968	Agreement Concerning the International Carriage of Dangerous Goods by Road 1957	Customs Convention on the Temporary Importation of Commercial Road Vehicles 1956
Afghanistan	x								x
Armenia	x	x		x	x	x			
Azerbaijan	x	x	x	x	x	x	x	x	x
Bhutan									
Bolivia									
Botswana				x					
Burkina Faso									
Burundi									
Central African Republic						x	x		
Chad									
Ethiopia									
Kazakhstan	x	x	x	x	x	x	x	x	
Kyrgyz Republic	x	x	x		x	x	x		x
Lao PDR					x				
Lesotho				x	x				
Macedonia, FYR	x	x	x	x	x	x	x	x	x

(continued on next page)

Annex 11: LLDCs' Participation by Instrument *(continued)*

LLDC country	TIR Convention (Convention on International Transport of Goods Under Cover of TIR Carnets) 1975	CMR Convention (Convention on the Contract for the International Carriage of Goods by Road) 1956	ATP Agreement (Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for Such Carriage) 1970	Kyoto Convention 1999	Geneva Convention on Harmonization of Goods Control at Borders 1982	Convention on Road Traffic 1968	Convention on Road Signs and Signals 1968	Agreement Concerning the International Carriage of Dangerous Goods by Road 1957	Customs Convention on the Temporary Importation of Commercial Road Vehicles 1956
Malawi				x					
Mali				x					
Moldova	x	x	x		x	x		x	x
Mongolia	x	x		x	x	x	x		
Nepal									
Niger						x			
Paraguay									
Rwanda				x					
South Sudan									
Swaziland				x					
Tajikistan	x	x	x		x	x	x	x	
Turkmenistan	x	x				x	x		
Uganda				x					
Uzbekistan	x	x	x		x	x	x		x
Zambia				x					
Zimbabwe				x		x			

Source: UN Treaty Collection, UNECE, WCO.

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