

NATURAL RESOURCES AND INFRASTRUCTURE

Status of Implementation of the Almaty Programme of Action in South America

Gabriel Pérez-Salas
Ricardo J. Sánchez
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E C L A C

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ECLAC

This document has been prepared by Gabriel Pérez-Salas and Gordon Wilmsmeier, Economic Affairs Officers in the Infrastructure Services Unit of the Natural Resources and Infrastructure Division of the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), under the supervision of Ricardo J. Sánchez, Senior Economic Affairs Officer, with overall coordination provided by Hugo Altomonte, Chief of the Division. The authors wish to thank Azhar Jaimurzina and all members of the Infrastructure Services Unit for their collaboration in this work, and are particularly grateful to José Albrieu, Oscar Medina Mora and David Suárez, consultants with the Division, for their important contributions.

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Background

The Almaty Programme of Action: Addressing the Special Needs of Landlocked Developing Countries within a New Global Framework for Transit Transport Cooperation for Landlocked and Transit Developing Countries (APOA) was adopted in Almaty (Kazakhstan) in 2003 as a response by the United Nations to the particular development needs and problems facing the 31 landlocked developing countries, two of which are located in Latin America and the Caribbean: The Plurinational State of Bolivia and Paraguay.

With implementation of the Programme closing in on the 10-year mark, the United Nations General Assembly, through its resolution A/RES/67/222 of 3 April 2013, called for a comprehensive 10-year Review Conference on the Implementation of the Almaty Programme of Action to be convened in 2014. The resolution also requests that the relevant organizations of the United Nations system provide necessary support and actively contribute to the preparatory process within their respective mandates. In this context, this document prepared by the Economic Commission for Latin America and the Caribbean (ECLAC) analyses the current situation in The Plurinational State of Bolivia and Paraguay, as well as regional progress that has been made during the decade that the Almaty Programme of Action is been in effect. This document gives a continuation to ECLAC's contributions to the analysis of transport system challenges in landlocked countries in South America.¹

¹ Wilmsmeier G. y Sánchez, R.J. (2009), Los desafíos del sistema de transporte en los países sin litoral de América del Sur. LC/L.3019-P/E, Serie Recursos Naturales e Infraestructura, N° 142, 84 pp.

Introduction

The lack of access to the sea is frequently cited as a reason that helps to explain the low growth rate and underdevelopment of landlocked countries. Nevertheless, development is clearly a multidimensional process and therefore cannot be contingent solely upon geographical conditions. Composite indicators based on information linked to the Millennium Development Goals (MDGs) show that on average the development of landlocked countries is 20 per cent below what it would be if they were not landlocked (United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and the Small Island Developing States (UN-OHRLS), 2013).

In this context, this document analyses the various prospects for development, as well as the priorities of the Almaty Programme of Action for Latin America, and concludes with a set of recommendations to improve cooperation in the area of transport among landlocked and transit developing countries.

The Almaty Programme of Action includes five priorities: i) Fundamental transit policy issues; ii) Infrastructure development and maintenance; iii) International trade and trade facilitation; iv) International support measures; and v) Implementation and review.

I. Approach to the socioeconomic development of the Plurinational State of Bolivia and Paraguay

This chapter of the report presents an analysis of the overall performance of landlocked developing countries in South America, including a review of the main macroeconomic variables, as well as progress that has been made in human and social development, with special attention given to achievements tied to the Millennium Development Goals.

In terms of poverty indicators, both Paraguay and the Plurinational State of Bolivia are in last place in regional terms, although significant progress has been made in this area. In 2010, 54 per cent of Paraguay's population had income below the poverty line, while in 2011 this figure had fallen to 49 per cent. As for the Plurinational State of Bolivia, in 2010 approximately 42 per cent of the population had income below the poverty line.²

There is a combination of factors that affect the economic performance of a nation independent of the location and geography of a country, such as human capital, physical capital, social capital, technological innovation, institutional structure and trade openness, among others. For example, Calderón and Servén (2003) argue that a lack of adequate infrastructure services is associated with lower productivity and higher production costs for producers. In the Plurinational State of Bolivia, the infrastructure gap has reduced worker productivity by around 35 per cent, which would have affected long-term growth and growth trends.³ On the other hand, Hanushek and Woessman (2012) argue that the quality of education may be one of the most important variables in explaining long-term economic performance in Latin America, particularly in comparison to Asia, which has experienced huge improvements over the last three decades.⁴

² ECLAC, 2012. Social Panorama of Latin America. www.eclac.cl.

³ Calderón, C. and L. Servén. 2003. "The Output Cost of Latin America's Infrastructure Gap." In W. Easterly and L. Servén, eds., *The Limits of Stabilization: Infrastructure, Public Deficits and Growth in Latin America*. Palo Alto, California, and Washington, D.C.: Stanford University Press and The World Bank.

⁴ Hanushek, E. and Woessmann, L. (2012). Schooling, Educational Achievement, and the Latin America Growth Puzzle. *Journal of Development Economics*. 99 (2012) 497-512.

A. Current macroeconomic context

1. Plurinational State of Bolivia⁵

In 2012 the picture painted by the economic performance and the implementation of fiscal measures in the Plurinational State of Bolivia shows the continuing promotion of “Bolivianization” policies through a series of tax and tariff updates, as well as new state takeovers of service enterprises, accompanied by salary enhancements and economic indicators of a moderately positive trend.

The most significant tariff increases were those directed at the financial and trade sectors, with the latter in particular aimed at encouraging production by local small and medium-sized enterprises faced with the predominance of larger economic conglomerates. The Government imposed a 0.7 per cent tax on dollar sales by banks, and it also raised reserve requirements for foreign currency deposits. Another measure that stood out in 2012 was the significant increase in the minimum wage, which is now at 1,000 Bolivianos per month (representing an increase of 22.6 per cent compared to 2011).

With regard to the fiscal situation of the Plurinational State of Bolivia, in 2012 there was further improvement in the public accounts which, instead of the slight shrinking of the deficit seen in 2011, posted a surplus equal to 1.5 per cent of GDP. The growth in GDP, however, was equal to approximately 5 per cent in 2012, reflecting a slight slowdown compared with the previous year.

During the first half of 2012, the non-financial public sector (NFPS) posted an overall surplus equivalent to 5.6 per cent of GDP. Nonetheless, the Government is projecting that by year-end this surplus will fall to 1.5 per cent, which would mean a deficit during the second half. For the first three quarters of 2012, nominal tax revenue rose by 20.5 per cent over the same period the previous year; revenue from hydrocarbons increased by 31.2 per cent (both the output and the price of gas went up in 2012). Current expenditure expanded by 7.1 per cent in the year to September 2012, compared with the same period the previous year. Capital spending jumped by more than 21.8 per cent, owing to the public investment programme (primarily in infrastructure) which continues to be one of the Government of the Plurinational State of Bolivia’s largest items of expense. Public investment stood at US\$1.407 billion through September 2012, an increase of 32 per cent compared with the same period in 2011. The total investment budget for 2012 was US\$3.253 billion. Although just 43.2 per cent of the amount allocated for public investment had been spent by the end of the third quarter, the pace of investment is expected to speed up in the closing quarter, as it has in previous years, and the Government expects to spend more than 90 per cent of the amount budgeted.

Government domestic debt decreased in nominal and real terms during the first nine months of the year by around 2 percentage points of GDP, while external debt went up only slightly. External debt was equivalent to 11.2 per cent of GDP for the first half of the year; in October 2012, the Plurinational State of Bolivia returned to the international capital market, placing a US\$500 million bond issue at an interest rate of 4.85 per cent.

In the first half of the year 2012, the Central Bank of The Plurinational State of Bolivia (CBB) sought to maintain a balance between measures aimed at keeping inflation low and others geared to spur economic growth. With inflation below target, the central bank opted for a gradual expansionary policy, reducing the supply of securities in open market operations and thus prompting a decline in net placements at lower rates. The drive towards “Bolivianization” of the financial system continued in 2012, with around 70 per cent of deposits and 78 per cent of loans held in national currency as at September – the highest levels ever recorded. This was helped along by changes in reserve requirement regulations, such as higher additional reserve requirements for foreign currency deposits in order to encourage the use of national currency within the financial system. The nominal exchange rate remained unchanged in 2012 while the real effective exchange rate showed a year-on-year appreciation of 5 per cent through September 2012.

⁵ This section has been drawn in part from ECLAC (2012): Preliminary Overview of the Economies of Latin America and the Caribbean. ECLAC, Santiago, Chile.

GDP growth was 5.0 per cent in 2012. The best-performing sectors were oil and natural gas, which grew by 13.9 per cent; construction, which was up 10 per cent; and the financial sector, which expanded by 8.1 per cent. The mining sector, one of the most important in the country, slid 9 per cent in 2012 due to labour problems in some of the largest mines. On the demand side, GDP growth was attributable to an increase in gross fixed capital formation (13 per cent) and public consumption expenditure (7 per cent). ECLAC estimates that the economy of the Plurinational State of Bolivia will grow by approximately 5 per cent in 2013. Between 2000 and 2012 the country experienced an average annual GDP growth of 4%.

Cumulative inflation between January and October 2012 was 3.5 per cent and is expected to close December at about 4.5 per cent. After posting higher rates in early 2011, inflation has remained within the central bank's benchmark range over the past year and a half thanks to stable food and other commodity prices throughout the year.

The National Institute of Statistics stopped publishing data on employment after the second quarter of 2011. However, according to Ministry of Economy estimates, the unemployment rate is slightly under 5 per cent.

In the first half of 2012, the economy of the Plurinational State of Bolivia ran a current account surplus of US\$734 million, which was 53 per cent more than during the same period in 2011. Goods exports continued to expand rapidly, growing by 30 per cent during the period. This increase was due more to higher volume rather than rising prices, although prices did creep up by around 5 per cent. Imports surged by 14.9 per cent. Worker remittances grew little in the first half of 2012. The decline in remittances from Spain (which account for 42.9 per cent of the total) and Argentina (12.7 per cent of the total) compared with the same period in 2011 was offset by the 40.7 per cent rise in remittances from the United States and other countries. Meanwhile, the capital and financial accounts posted a surplus of just US\$63.4 million as of June 2012, which is lower than the figure for 2011 because of the outflow of private capital in the second quarter of the year. However, as of October 2012 net international reserves held by the central bank stood at US\$13.772 billion – a 14.6 per cent increase taking import cover to 21 months.

In the economy of the Plurinational State of Bolivia, exports represent approximately 38 per cent of GDP. Over the past five years imports averaged around 31 per cent. That is, the total trade turnover (which includes exports and imports) accounted for around 69 per cent of GDP, which reflects the openness of the Bolivian economy, as well as the dependence and volatility of external activity.

TABLE 1
PLURINATIONAL STATE OF BOLIVIA, MACROECONOMIC INDICATORS
(In United States dollars, measured in terms of purchasing power parity)

The Plurinational State of Bolivia	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Exports, millions of dollars	1 246	1 226	1 320	1 590	2 195	2 867	4 008	4 822	6 933	5 400	6 966	9 114	10 091
Exports, percentage of GDP	14.8	15.0	16.7	19.6	25.0	30.0	35.5	36.5	41.3	30.9	35.2	36.7	37.6
Increase (percentage)	n.d.	-1.6	7.6	20.5	38.0	30.7	42.6	17.9	43.8	-22.1	29.0	30.8	10.7
Imports, millions of dollars	2 020	1 708	1 832	1 692	1 920	2 440	2 926	3 588	5 100	4 577	5 604	7 673	6 367
Imports, percentage of GDP	24.0	21.0	23.1	20.9	21.9	25.5	25.4	27.2	30.4	26.2	28.3	30.9	21.7
Increase (percentage)	n.d.	-15.4	7.2	-7.6	13.5	27.1	19.9	22.6	42.1	-10.3	22.4	36.9	-17.0
GDP of The Plurinational State of Bolivia, millions of dollars	8 412	8 154	7 917	8 093	8 784	9 574	11 521	13 215	16 790	17 464	19 781	24 857	26 846
Increase in GDP	2.51	1.68	2.49	2.71	4.17	4.42	4.80	4.56	6.15	3.36	4.13	5.17	5.20

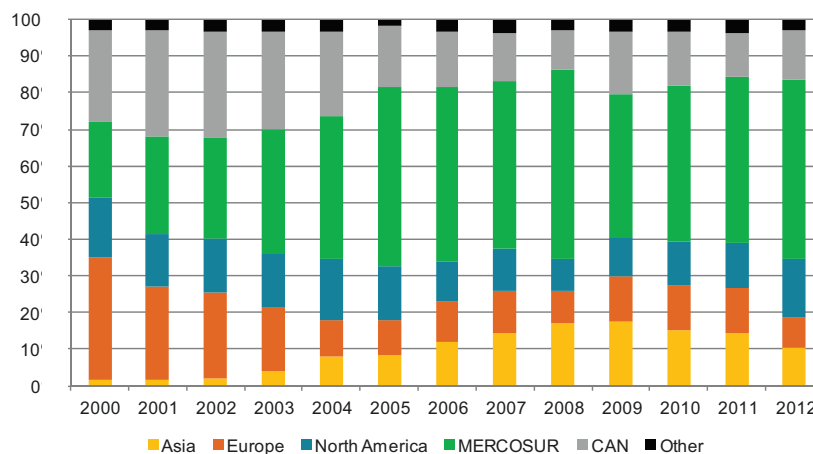
Source: ECLAC-NRID, based on data from the National Institute of Statistics (NIS) of The Plurinational State of Bolivia and ECLAC (BADECEL).

With regard to the principal destination markets for Bolivian exports, as one can see from Figure 1, MERCOSUR is the principal market for export products. During the period 2000–2005 this bloc absorbed 33 per cent of external sales, while its share rose to 46 per cent in 2006–2012. It is important to note that natural gas sold to Brazil and Argentina accounted for 95 per cent of the exports to MERCOSUR.

In contrast, other economic zones such as NAFTA and the EU saw a decline in their share during the period 2000 to 2012. In the case of NAFTA, its share of total exports fell from 15 per cent to 12 per cent, while the share of the EU dropped from 20 per cent to 11 per cent.

Another economic region that gained ground in terms of Bolivian exports was Asia, which went from a share of 4 per cent to 14 per cent, which was due primarily to mineral exports to the Republic of Korea and Japan.

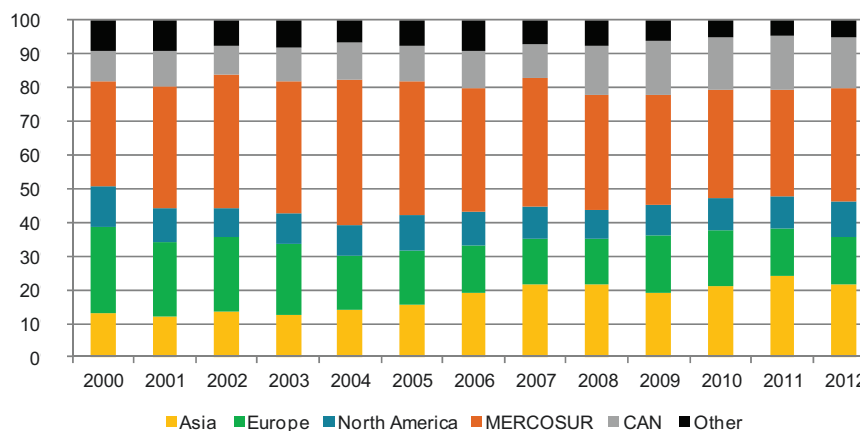
FIGURE 1
VALUE OF BOLIVIAN EXPORTS BY ECONOMIC ZONE
(Percentages)



Source: ECLAC-NRID, based on data from the National Institute of Statistics of the Plurinational State of Bolivia.

On the import side, MERCOSUR is also the principal supplier, accounting for an average of 38 per cent of imports in the decade between 1995 and 2005, falling to 34 per cent during the period 2006–2012. The other economic zones such as NAFTA and the EU saw a decline in their share from an average of 30 per cent in 2000–2005 to 25 per cent in the period 2006–2012. The economic region that gained ground was Asia, which went from a share of 13 per cent to around 20 per cent, with Japan, the Republic of Korea and China serving as major sources for Bolivian imports.

FIGURE 2
VALUE OF BOLIVIAN IMPORTS BY ECONOMIC ZONE
(Percentages)



Source: ECLAC-NRID, based on data from the National Institute of Statistics of The Plurinational State of Bolivia.

2. Paraguay⁶

With regard to the Paraguayan economy, the year 2012 was marked by the implementation of strong countercyclical measures by the Government and the central bank and, consequently, by a significant expansion of public spending. This situation arose from a series of contingencies and setbacks related to health and the environment, which had a negative impact on exports from the agricultural and livestock production sector. In this connection, special mention must be made of the implementation of countercyclical policies that helped to mitigate the impacts and avoid a more serious and detrimental cooling of economic activities through, for example, promoting the active involvement of other sectors not linked to the cultivation and sowing of crops. While the year-on-year variation in the inflation index was lower in 2012 (declining from 5.6 per cent in 2011 to 3.4 per cent in 2012), another upturn in this figure can be foreseen, given that the expected economic revival, with a projected growth rate of close to 8.5 per cent, could lead to an increase in food prices in the local market, particularly prices for products from the livestock sector.

On the legislative front, the personal income tax bill was approved after being shelved for the past four years. The new law entered into force on 1 August 2012. However, it will not increase public revenue by much over the short run because during the first few years it will only apply to a limited number of taxpayers. It will have an indirect impact on value added tax (VAT) revenue since it encourages the formalization of certain transactions. As for financial regulations, measures were adopted to increase the capital held by financial institutions in the face of financial market-related risks. Similarly, changes to reserve requirements on foreign currency deposits and, to a lesser extent, local currency deposits were implemented to minimize the financial system's exposure to deposits and liabilities currency mismatches.

There was a fiscal deficit of 2.8 per cent of gross domestic product (GDP) in 2012 – the first public account deficit since 2003. Flagging economic activity in the agricultural sector caused by the drought prompted the Government to implement an expansionary fiscal policy with a significant increase in current expenditure. Much of the spending was on a 30 per cent wage hike for public employees. Total central government spending therefore rose by 33 per cent compared with 2011. Public revenue collections grew by 11 per cent owing to a considerable rise in non-tax revenues. Tax revenues recorded a more moderate increase during the period, mainly due to a slight fall in taxes on foreign trade. The decline in the agricultural sector did not have a marked impact on public revenue because it accounts for a very small share of the government tax take. Between 2000 and 2012 Paraguay's GDP had a compound annual growth rate of 3.2 per cent.

The nominal exchange rate of the guaraní against the United States dollar posted a year-on-year depreciation of 6.6 per cent to October 2012. With regard to the real effective exchange rate, the guaraní depreciated against the dollar (by 6.8 per cent), the euro (1.0 per cent) and the Argentine peso (3.3 per cent), and appreciated against the Brazilian real (3.1 per cent). The depreciation of the guaraní was due primarily to the widening current account deficit in 2012.

After growing at a moderate 4.3 per cent in 2011, GDP dropped by 1.8 per cent in 2012 due to the decline in the key sector of Paraguay's economy – agriculture, which represented 20 per cent of GDP in 2011. This was the result of the severe drought which affected the country between December 2011 and February 2012. According to Ministry of Agriculture and Livestock estimates, production of soybeans (the country's main export) dropped by 48 per cent and total agricultural output fell by 28 per cent. However, moderate growth in the non-agricultural sector meant that the fall in GDP was relatively small considering the sharp decline in the agricultural sector and the importance of this sector in the economy. On the spending front, the sharp jump in public expenditure, especially current expenditure, shored up domestic demand in 2012 and helped boost non-agricultural sector growth.

⁶ This section has been drawn in part from ECLAC (2012): Preliminary Overview of the Economies of Latin America and the Caribbean. ECLAC, Santiago, Chile.

According to the findings of the continuous employment survey, unemployment stood at 6.9 per cent (7.1 per cent for men and 6.7 per cent for women) in the third quarter of 2012, close to the rate for the same period in 2011. The central bank's wage and salary index showed a year-on-year variation of 4.9 per cent to June 2012.

Until October 2013, year-on-year inflation stood at 3.4 per cent, below the midpoint of the target range set by the central bank (5 per cent plus or minus 2.5 percentage points). The inflation rate had declined in 2012 due to the slowing economy and falling livestock sector product prices as a consequence of restrictions on meat exports to certain markets in response to the foot-and-mouth outbreak detected in 2011. Year-on-year core inflation, which excludes the most volatile items in the basket (fruits and vegetables), stood at 3.3 per cent to October 2012. Year-on-year X1 core inflation (which excludes not only fruits and vegetables but also regulated services and fuels), was 3.0 per cent to October 2012.

The external sector performed particularly poorly in 2012. Agricultural export value and volume declined owing to the drought, pushing exports down by around 11 per cent. Despite the outbreak of foot-and-mouth disease that was detected in late 2011 and led to the suspension of Paraguay's status as a foot-and-mouth-free country where vaccination is practised, meat exports were up slightly in 2012 as they were redirected to new international markets throughout the year. Imports contracted by 8 per cent, which was less than the decline in exports, due to a sharp drop in imports of capital goods. The current account is expected to post a deficit of 2.1 per cent of GDP at year-end 2012, compared with 1.2 per cent in 2011.

Paraguay's GDP is expected to grow by 8.5 per cent in 2013, fuelled mainly by an upturn in the agricultural sector. Exports (especially soybean exports) are expected to pick up, which should narrow the current account deficit. On the public spending front, despite the countercyclical fiscal policy implemented in 2012, government outlays are not expected to slow significantly next year. This is due to several factors: (i) the 30 per cent public wage hike implemented in 2012, which is a rigid expenditure and therefore involves a permanent change to the central government's spending structure; (ii) Ministry of Finance plans to widen capital spending significantly; and (iii) the presidential elections scheduled for March 2013. The Government issued a sovereign bond issue of about US\$550 million in 2013; it was Paraguay's first bond issue since 2000.

In the Paraguayan economy, exports account for approximately 20 per cent of GDP. Imports have averaged around 50 per cent over the past five years. That is, foreign trade represents close to 70 per cent of GDP, which reflects the openness of the Paraguayan economy, as well as the dependence and volatility of external activity.

Paraguay had a trade deficit during the years 2000–2012, which was the result of the value of imports increasing more than the value of exports. When analysing trade by Paraguay, one must take into consideration recorded trade and re-exports, both in terms of exports and imports. That is, a large proportion of Paraguay's imports are re-exported to neighbouring countries, which explains the economy's constant trade imbalance.

As one can see from Figure 1, the Southern Common Market (MERCOSUR) is the main destination market for Paraguay's export products. In 2000–2005 this trade bloc accounted for 57 per cent of Paraguay's external sales, although its share dropped to 50 per cent in 2006–2012. It is important to note that soybeans exported to Uruguay and Argentina account for 72 per cent of exports to MERCOSUR, as transit goods which are stored for subsequent transfer to bulk carriers that are destined for the European Union (EU) for final consumption or re-export; the EU accounts for approximately 60 per cent of the soybean exports. The other major destination for exports within MERCOSUR is Brazil, where most of the corn and wheat is shipped.

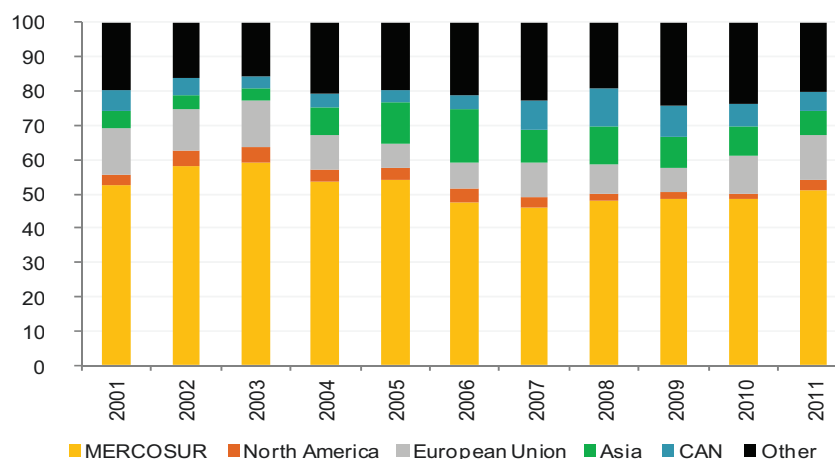
TABLE 2
PARAGUAY, MACROECONOMIC INDICATORS
(United States dollars, measured in terms of purchasing power parity)

Paraguay	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Exports, millions of dollars	871	990	951	1 241	1 626	1 811	1 906	2 745	4 390	3 167	4 534	5 517	5 146
Exports, percentage of GDP	11.3	14.5	17.0	22.3	23.3	24.1	20.5	22.4	26.0	22.1	24.8	23.0	20.1
Increase (percentage)	n.d.	13.7	-4.0	30.6	31.0	11.3	5.3	44.0	59.9	-27.9	43.2	21.7	-6.7
Imports, millions of dollars	2 192	2 181	1 671	2 227	3 129	3 742	5 757	5 840	9 017	7 448	10 289	12 320	11 418
Imports, percentage of GDP	28.4	31.8	29.9	40.1	44.9	49.9	62.0	47.6	53.4	52.1	56.2	51.3	44.6
Increase (percentage)	n.d.	-0.5	-23.4	33.2	40.5	19.6	53.8	1.4	54.4	-17.4	38.1	19.7	-7.3
Paraguay's GDP, millions of dollars	7 727	6 850	5 595	5 560	6 973	7 505	9 289	12 260	16 888	14 310	18 314	24 033	25 603
Increase in GDP	-0.40	2.06	-2.30	3.84	4.14	2.86	4.34	6.76	5.83	-3.85	15.05	3.80	-0.10

Source: ECLAC-NRID, based on data from the Central Bank of Paraguay and ECLAC (BADECEL – Statistical database on foreign trade in Latin America and the Caribbean).

Direct sales to the EU declined gradually from 27 per cent in 1995-999, to 14 per cent in 2000-005 and then to 9.5 per cent in 2006-012. Exports to North American Free Trade Agreement (NAFTA) countries —primarily to the United States market— saw a further decline in their already small share, from 6 per cent in 1995-999, to 4 per cent in 2000-2005 and then to 2.5 per cent in the most recent period from 2006 to 2012. The region that gained considerable ground was Asia, which went from a share of 7 per cent to around 13 per cent in 2012. Another region of interest is Russia, which has become a significant market for Paraguayan meat.

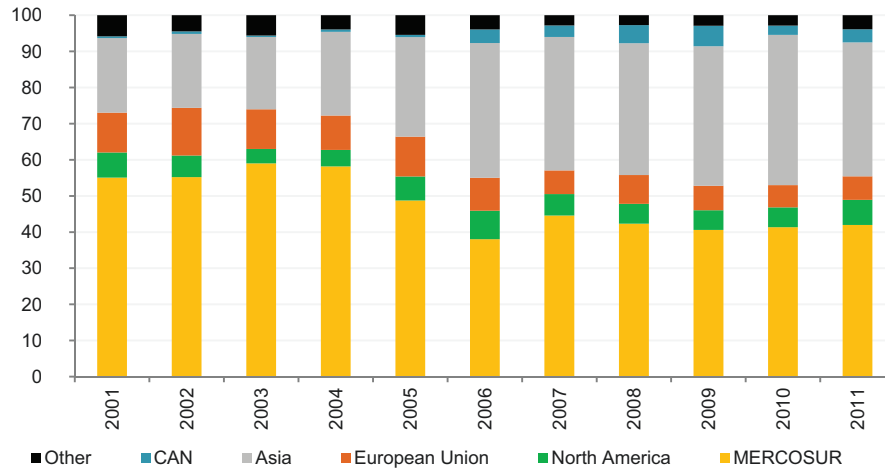
FIGURE 3
PARAGUAYAN EXPORTS BY ECONOMIC ZONE
(Percentage)



Source: ECLAC-NRID, based on Trademap data (www.trademap.org).

In terms of imports, MERCOSUR is also the major supplier, accounting for an average of 54 per cent of total imports during the decade from 1995 to 2005. This figure fell to 42 per cent in the period 2006–2012. The other economic zones, such as NAFTA and the EU, saw their average share decline from 12 per cent in 1995–1999 to 8 per cent in 2000–2005, but it then rebounded to levels similar to those of the past decade between 2006 and 2012. The economic region that gained prominence was Asia, which went from a share of 20 per cent to a share of around 35 per cent, with China being the major trading partner in terms of imports, and Japan in fifth place as a supplier of Paraguayan imports.

FIGURE 4
PARAGUAYAN IMPORTS BY ECONOMIC ZONE
(Percentages)



Source: ECLAC-NRID, based on Trademap data (www.trademap.org).

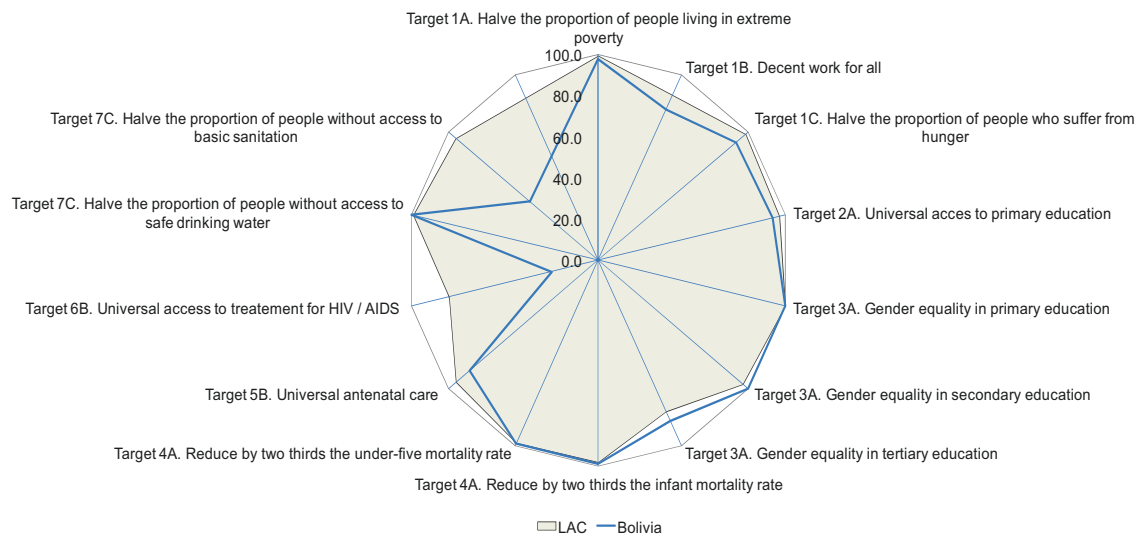
B. Human development and level of achievement of the Millennium Development Goals (MDG)

1. Progress by the countries towards achievement of the MDG

The figures appearing below illustrate the progress by the landlocked countries in South America towards the fulfilment of the Millennium Development Goals. In both cases, the progress that has been made is shown with a comparison to the corresponding average data for Latin America and the Caribbean.

The Plurinational State of Bolivia, with the exception of targets 1A, 3A, 4A and 7C, has made less progress than Latin America and the Caribbean (LAC) as a whole.

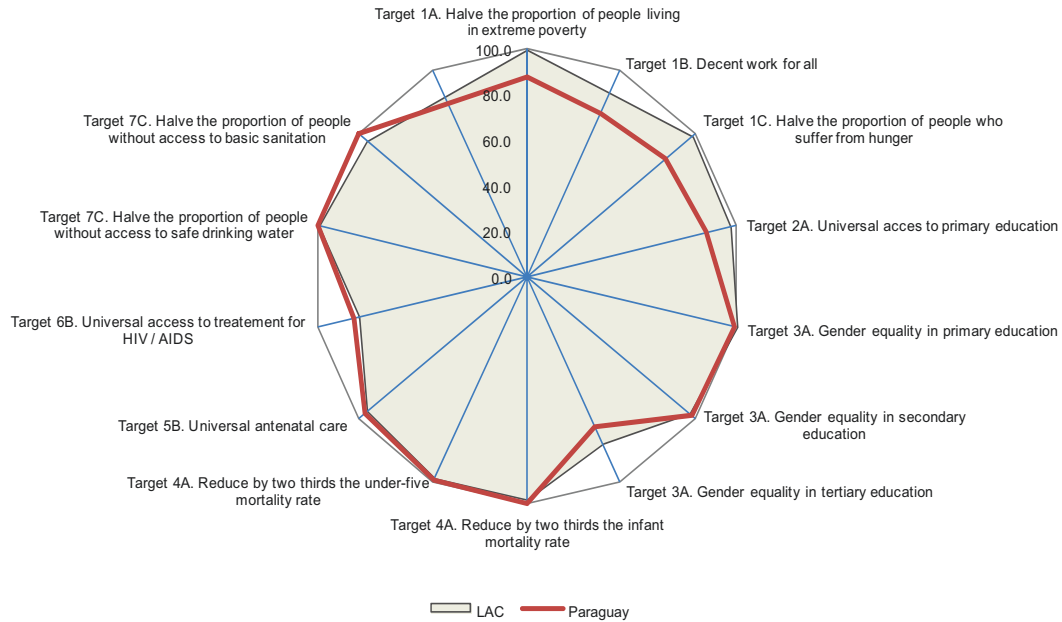
FIGURE 5
PROGRESS TOWARDS ACHIEVEMENT OF THE MILLENNIUM DEVELOPMENT GOALS:
PLURINATIONAL STATE OF BOLIVIA



Source: ECLAC-NRID, according to CEPALSTAT (www.eclac.org), accessed on 24 May 2013.

Paraguay, with the exception of targets 3A and 4A, also has made less progress than Latin America and the Caribbean as a whole, although its progress towards targets 6B and 7C has exceeded that of the region as a whole.

FIGURE 6
PROGRESS TOWARDS ACHIEVEMENT OF THE MILLENNIUM DEVELOPMENT GOALS: PARAGUAY

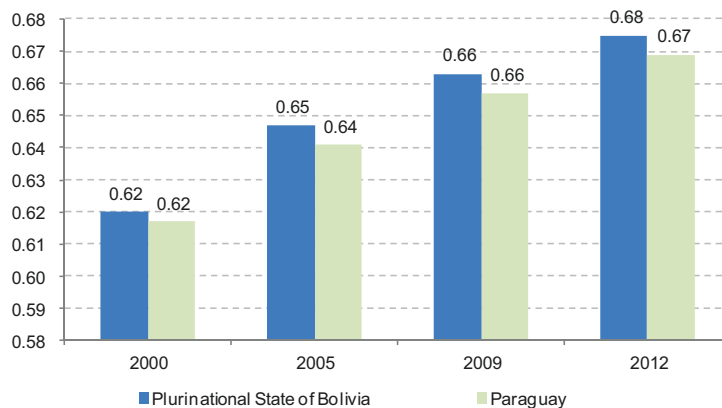


Source: ECLAC-NRID, according to CEPALSTAT (www.eclac.org), accessed on 24 May 2013.

2. Human development and poverty eradication

The most recent Human Development Report, prepared in 2012, indicates that Paraguay remains in 111th place and the Plurinational State of Bolivia in 108th place, among a total of 187 countries, with the Human Development Index (HDI) calculated for these two countries for the year 2012 at 0.67 and 0.68, respectively. The HDI is equal to 1, and with an index of 0.943, Norway posted the best indicator for 2012. In spite of these figures, the study highlighted the progress that has been made in both countries since the year 2000.

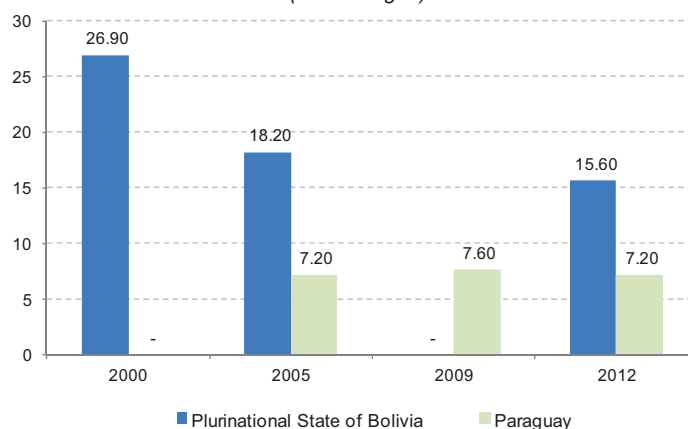
FIGURE 7
HUMAN DEVELOPMENT INDEX



Source: ECLAC-NRID, based on United Nations Development Programme (UNDP) data (<http://hdr.undp.org/es/>), accessed on 5 June 2013.

With regard to the measurement of poverty, in 2012 Paraguay had an index of 7.2 per cent of the total population living below the poverty line, while the figure for the Plurinational State of Bolivia was 15.6 per cent. The Plurinational State of Bolivia has made substantial progress in this area during the current decade, as the following figure shows.

FIGURE 8
POPULATION LIVING BELOW THE POVERTY LINE
(Percentages)

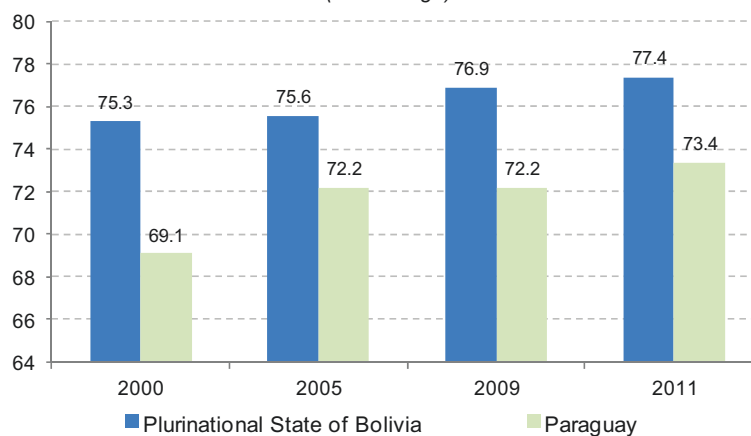


Source: ECLAC-NRID, based on UNDP data (<http://hdr.undp.org/es/>), accessed on 5 June 2013.

Achievement of full employment

In the Plurinational State of Bolivia the activity ratio for the population 25 years of age and older rose by 2.1 percentage points during the period from 2000 to 2011, rising from 75.3 per cent to 77.4 per cent. As for Paraguay, this ratio also improved during the same period by 4.3 percentage points, rising from 69.1 per cent to 73.4 per cent. Progress can be seen in both cases, but there is still considerable room for improvement.

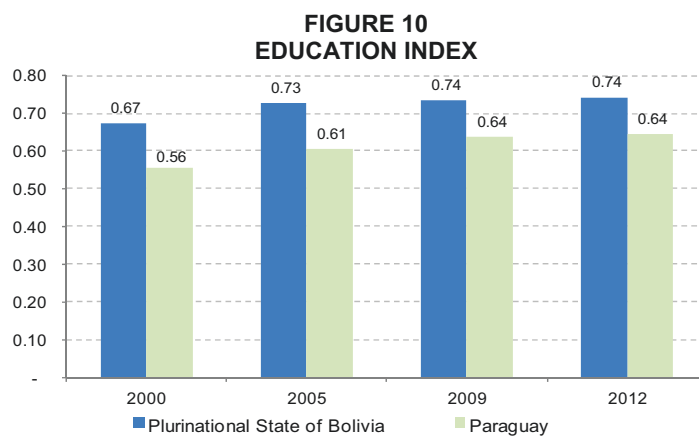
FIGURE 9
EMPLOYMENT RATE AMONG PERSONS OVER 25 YEARS OF AGE
(Percentage)



Source: ECLAC-NRID, based on UNDP data (<http://hdr.undp.org/es/>), accessed on 5 June 2013.

Universal education

According to the Human Development Report Office, the Education Index is one of the three indices on which the Human Development Index is based, and it consists of the average number of years of education (for adults) and the expected years of instruction (for children). In the case of the Plurinational State of Bolivia and Paraguay, there have been some slight variations in this index between the years 2000 and 2012, although they have been positive. During this period, the Plurinational State of Bolivia saw an increase from 0.67 in 2000 to 0.74 in 2012, while Paraguay reported levels that were considerably lower, although it did see a positive upward trend from 0.56 in 2000 to 0.64 in 2012.

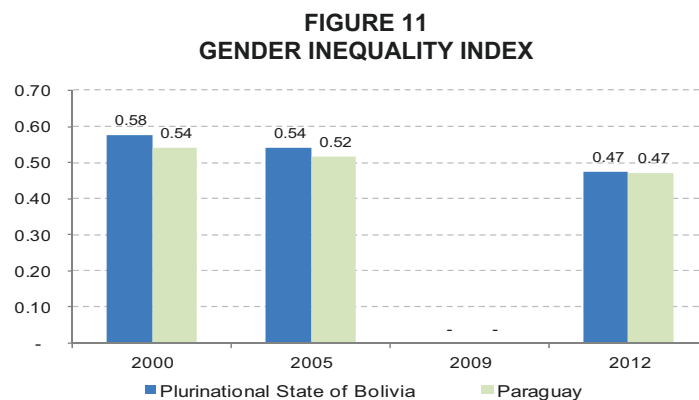


Source: ECLAC-NRID, based on UNDP data (<http://hdr.undp.org/es/>), accessed on 5 June 2013.

Gender inequality

According to data from the Human Development Report Office, the Gender Inequality Index (GII) reflects women's disadvantage in three dimensions, namely reproductive health, empowerment and the labour market, for those countries where data of reasonable quality is available. The index shows the loss in human development due to inequality between female and male in the three dimensions described above. It ranges from 0, which indicates that women and men fare equally, to 1, which indicates that women fare as poorly as possible in all measured dimensions.

In the case of the Plurinational State of Bolivia and Paraguay, one can see some improvement between 2000 and 2012. The Gender Inequality Index in the Plurinational State of Bolivia went from 0.58 in 2000 to 0.47 in 2012, while in Paraguay the index dropped from 0.54 to 0.47 in the same period. This shows that although there is still considerable room for improvement, the efforts aimed at narrowing the gap have borne some fruit over the past decade.



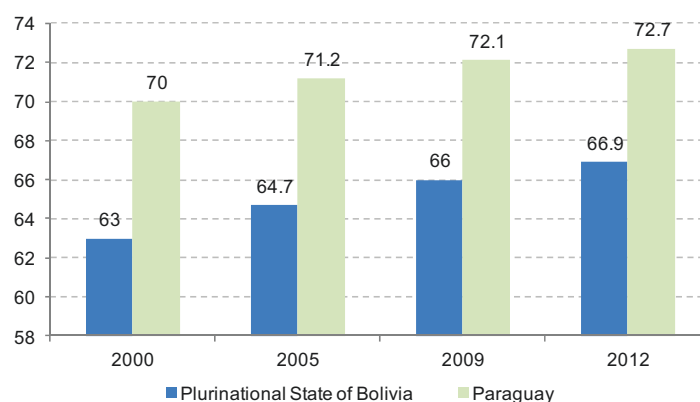
Source: ECLAC-NRID, based on UNDP data (<http://hdr.undp.org/es/>), accessed on 5 June 2013. Data for 2009 n.a.

Health and life expectancy indicators

According to the Human Development Report Office, the Health Index consists of a measurement of life expectancy at birth expressed as an index using a minimum value of 20 years and the observed maximum value over 1980–2010. For this report the data available for the period between 2000 and 2012 were considered for both life expectancy at birth (in number of years) and the Health Index.

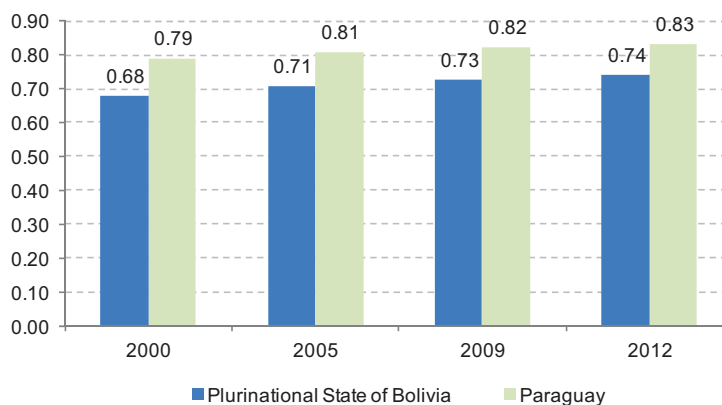
In the case of the Plurinational State of Bolivia, life expectancy at birth increased by a total of 3.9 years during the period in question, rising from 63 in 2000 to 66.9 in 2012, while the Health Index in that country rose from 0.68 to 0.74 during the same period. In Paraguay, life expectancy increased by a total of 2.7 years, from 70 in 2000 to 72.7 in 2012. This indicates that while the change was not as pronounced in Paraguay, its indicators continue to be more positive than those of the Plurinational State of Bolivia, and while in both cases significant progress has been made, there is still work to be done to reach the standards that have been achieved globally.

FIGURE 12
LIFE EXPECTANCY AT BIRTH
(in years)



Source: ECLAC-NRID, based on United Nations Department of Economic and Social Affairs (UNDESA) data (2011): 2010 Revision of World Population Prospects.

FIGURE 13
HEALTH INDEX



Source: ECLAC-NRID, based on UNDP data (<http://hdr.undp.org/es/>), accessed on 5 June 2013.

Addressing the countries' public debt problem

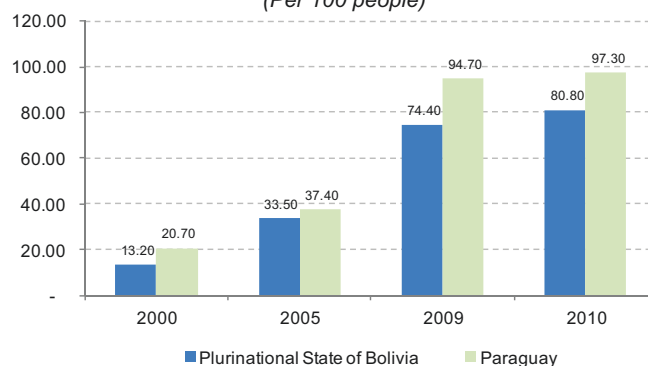
Plurinational State of Bolivia: in 2012 domestic public debt declined in nominal and real terms during the first nine months of the year, dropping by 2 percentage points of GDP, while there was only a slight increase in external public debt. In the first half of the year, foreign borrowing was equivalent to 11.2 per cent of GDP.

Paraguay: public debt declined during the period from 2007 to 2011, falling from 18.5 per cent of GDP in 2007 to 10.7 per cent of GDP in 2011. A public debt balance on the order of 12.3 per cent of GDP is projected for the end of 2012.

3. Access to the benefits of new technologies

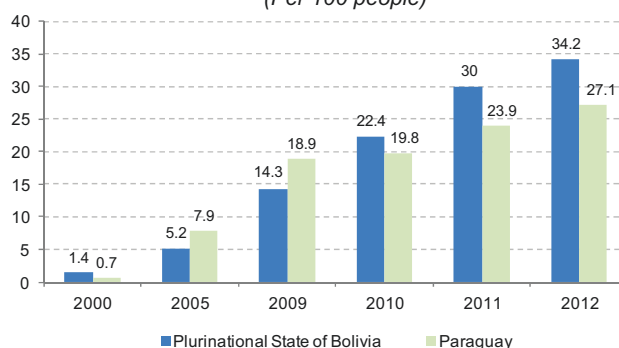
With the aim of evaluating the level of access to communication technologies in the landlocked countries studied in this report, three indicators were used as reference points: fixed-line or mobile telephone subscribers, Internet users, and fixed broadband Internet subscribers (per 100 inhabitants, in each case), which allows one to gain a fairly clear picture of the level of penetration of these technologies. With respect to the first indicator mentioned, in the Plurinational State of Bolivia the index of fixed-line or mobile telephone subscribers between 2000 and 2010 went from 13.20 in 2000 to 80.80 in 2009, while Paraguay reported an even greater increase during the same period, going from 20.70 to 97.30.

FIGURE 14
FIXED-LINE OR MOBILE TELEPHONE SUBSCRIBERS
(Per 100 people)



Source: ECLAC-NRID, based on UNDP data (<http://hdr.undp.org/es/>), accessed on 5 June 2013.

FIGURE 15
INTERNET USERS
(Per 100 people)

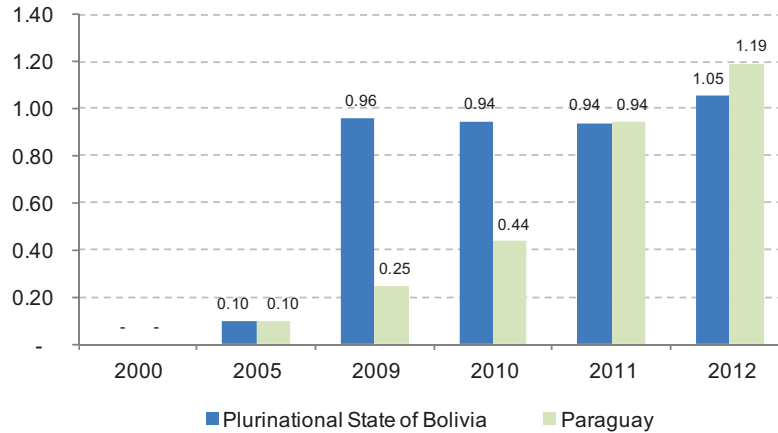


Source: ECLAC-NRID, based on International Telecommunication Union data (2012). <http://www.itu.int/ITU-D/ict/statistics/>, accessed on 23 March 2012.

With regard to Internet users, the Plurinational State of Bolivia saw an increase between 2000 and 2010, from 1.4 users per 100 inhabitants in 2000 to 34.2 in 2012, while Paraguay went from 0.7 in 2000 to 27.1 in 2012.

Finally, the data regarding the number of fixed broadband Internet subscribers per 100 people were considerably lower in both countries. In 2005 the figure for both countries was 0.10, while in 2012 it was 1.05 in the Plurinational State of Bolivia and 1.19 in Paraguay.

FIGURE 16
FIXED BROADBAND INTERNET SUBSCRIBERS
(Per 100 people)



Source: ECLAC-NRID, based on International Telecommunication Union data (2012).
<http://www.itu.int/ITU-D/ict/statistics/>, accessed on 23 March 2012. Data for 2000 n.a.

This differentiated information allows one to see that while clear progress has been made in telephone and Internet access, there is still work to be done in this area, both in terms of access and in terms of the cost of these services.

II. An evaluation of the transport infrastructure and infrastructure services

The following sections address the question of progress that has been made in the development of transport infrastructure in each country.

A. Plurinational State of Bolivia⁷

1. Road transport

Extension of the road network by segments and regions: The road system in the Plurinational State of Bolivia is comprised of three categories of networks: the basic road network, which is under the control of the Bolivian Highway Administration (ABC); the departmental road network, which is under the responsibility of the departmental governments; and the municipal road network, which is under the control of the municipal governments. Furthermore, there are no concessionaires, and the State is responsible for the collection of tolls throughout the entire country.

The basic road network is 16,054.35 km in length. It is comprised of five major corridors: east-west; north-south; west-north; west-south; and central-south. The departmental and municipal road networks consist of roads that connect various towns, production centres and capital cities.

Current state of the road network: Around 53 per cent of the roads in the Plurinational State of Bolivia are dirt roads, 38.6 per cent are gravel and 8.5 per cent are paved. These characteristics have a direct impact on road transport costs, increasing the price per kilometre travelled, as well as the length of time required for transport and the wear and tear on the vehicles. The road network of the Plurinational State of Bolivia includes the following main transportation corridors:

⁷ This section is drawn in part from ECLAC (2012): Infrastructure and Transportation Profiles in Latin America: the Case of the Plurinational State of The Plurinational State of Bolivia; ECLAC, Santiago, Chile.

- **The east-west corridor.** This corridor connects the ports of Arica and Iquique (Chile) on the Pacific Ocean with the port of Santos (Brazil) on the Atlantic coast, through the Plurinational State of Bolivia.⁸
- This corridor includes the following routes:
 - Border with Brazil-Puerto Quijarro-Santa Cruz-Cochabamba-Oruro-border with Chile (connecting to Arica or Iquique, route 4);
 - Border with Brazil-San Matías-San Ignacio-Santa Cruz (route 10) and its continuation;
 - Border with Brazil, Guajamerín-Cobija-border with Peru.
- **The northern corridor**, which connects the State of Rondonia, Brazil, with the east-west corridor through the Bolivian departments of Beni and La Paz. In addition, part of this segment connects the Bolivian department of Pando with Peru.
- **The southern corridor**, which connects Buenos Aires, Argentina, with Lima, Peru, and facilitates Paraguay's access to the Pacific Ocean.
- The following route cuts across the southern corridor and the northern corridor:
 - Border with Brazil-Guajamerín-Trinidad-Santa Cruz-Yacuiba-border with Argentina.

2. Rail transport

The rail network of the Plurinational State of Bolivia is divided into two networks: the first, the Andean network, with 2,274 km of track, links the departments of La Paz, Oruro, Potosí, Chuquisaca and Cochabamba. It also has connections to the rail networks of neighbouring countries, including Argentina, Chile and Peru. Nevertheless, only the railway line to Antofagasta, Chile, is in operation, and it is used exclusively for transporting cargo from mines.

The second network, the eastern network, has 1,424 km of track linking the departments of Chuquisaca, Tarija and Santa Cruz. The eastern rail junction has connections to two border crossings: Yacuiba, with a border crossing into Argentina, and Puerto Suárez, with a border crossing into Brazil, which are connected to other networks and stations in those countries.

The distance separating the two Bolivian rail networks is approximately 500 km. It is estimated that the construction of tracks and embankments will cost approximately US\$250 million. The Government's infrastructure development plans contemplate the urgent need for a project to connect the networks. There are no signs of progress, however, in the various stages involved in the project's execution.

Since 2012 efforts exist by the port company of Arica (EPA) and the Bolivian government to reactivate the railway links and service operation. However, until this point in time the reactivation date for the link remains uncertain. The Chilean section of the railway link, between Arica-Visviri-Charaña-Viacha (Arica - La Paz) is ready for operation since 2013. It is expected that detailed agreements between the railway companies from The Plurinational State of Bolivia (eastern network) and Chile are now needed to establish the service. On the Chilean side the railway infrastructure belongs to the public enterprise (FCALP), a subsidiary of Ferrocarriles de Estado (EFE). FCALP is in charge of the maintenance and operation between Arica and Visviri.

The Antofagasta railway (FCAB) is a private company operating between the Plurinational State of Bolivia and Chile, using the borer station at Ollagüe as the connecting point with Empresa Ferroviaria Andina S.A., who offers the continuation of the service within The Plurinational State of Bolivia.

⁸ This corridor is also connected to the rail network, allowing for access to Antofagasta, Chile, and to the Peruvian ports of Ilo and Matarani.

Current state of the rail network: One of the main barriers to the development of rail transport is the lack of a link between the eastern network and the western network, which is hindering the establishment of a rail transit corridor uniting the lowlands of the eastern part of the Plurinational State of Bolivia with ports on the Pacific.

In difference to the positive development of the eastern network, the western network has had significant difficulties maintaining its position as a transit corridor to ports on the Pacific.

3. Air transport

Current state of the air transport infrastructure: The Plurinational State of Bolivia has 14 airports, only four of which are international terminals:

- Viru Viru International Airport, located in the city of Santa Cruz;
- Jorge Wilstermann International Airport, located in the city of Cochabamba;
- El Alto International Airport, located in the city of La Paz;
- Oriel Lea Plaza International Airport, located in the city of Tarija.

The Viru Viru Airport has a runway that is 3,500 metres long and 45 metres wide, which means that it can accommodate aircraft of any size, and because of its infrastructure and strategic position, it is considered the central airport for the distribution of cargo and passengers in the Plurinational State of Bolivia.

4. Inland water transport

Current state of the inland water transport infrastructure and routes: the Plurinational State of Bolivia has more than 14,000 km of navigable rivers. The principal inland waterway ports are Central, Gravelal and Nutrioiltodos, which are located on the Tamengo Canal.⁹ The importance of inland water transport in the Plurinational State of Bolivia has been growing over recent years, in large part due to the increase in the production of soybeans in the department of Santa Cruz de la Sierra, which is reflected in the 100 per cent increase in freight moving through Puerto Suárez between 2006 and 2012. Soybeans and their derivatives are the principal products that are now being exported and transported through Bolivian ports on inland waterways.

The Puerto Suárez transport system provides a trimodal interconnection point with access from the Plurinational State of Bolivia, Brazil and northern Paraguay, and for this reason the inland water transport improvement projects in the Plurinational State of Bolivia depend in large part on the cooperation of Paraguay and Brazil. There is no question that the improvement of inland water transport in the Plurinational State of Bolivia is a primary focus, since the cost of using the Paraguay-Paraná Waterway for Bolivian foreign trade is lower than the cost of export operations using ports on the Pacific. In addition, the former option allows the Plurinational State of Bolivia to have greater control over the supply chain since the inland waterway ports are geographically closer to the country's main productive regions.

Owing to its geographical situation, the Plurinational State of Bolivia performs its export and import operations through various foreign ports. The main ports are:

On the Pacific coast: Arica, Antofagasta and Mejillones in Chile; and Ilo, Matarani and Mollendo in Peru;
On the Atlantic coast: Santos, Brazil; Buenos Aires, Argentina; and Nueva Palmira, Uruguay.

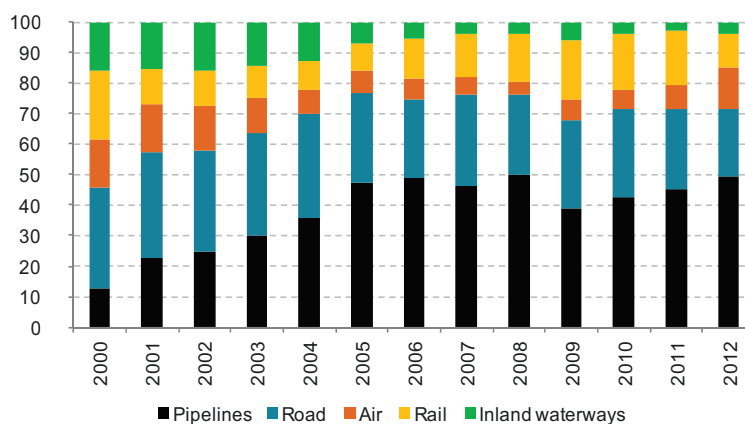
⁹ The Tamengo Canal is a natural and manmade canal 11 km in length that connects Puerto Suárez in the Plurinational State of The Plurinational State of Bolivia with the Paraguay River in Brazil.

5. Modal split in international transport

Figures 17 and 18 show the modes of transport that are used for Bolivian imports and exports, based on their value. Given the major role played by natural gas, pipelines connecting to Brazil and Argentina account for around 50 per cent of Bolivian exports, with road transport in second place, accounting for 20 per cent of the value of total exports. Rail transport is in third place, carrying approximately 12 per cent of the country's exports.

Air transport accounts for a small share of the total volume of export shipments, but its role in terms of value is not insignificant (10 per cent). It plays a particularly important role in the shipment of silver bullion.

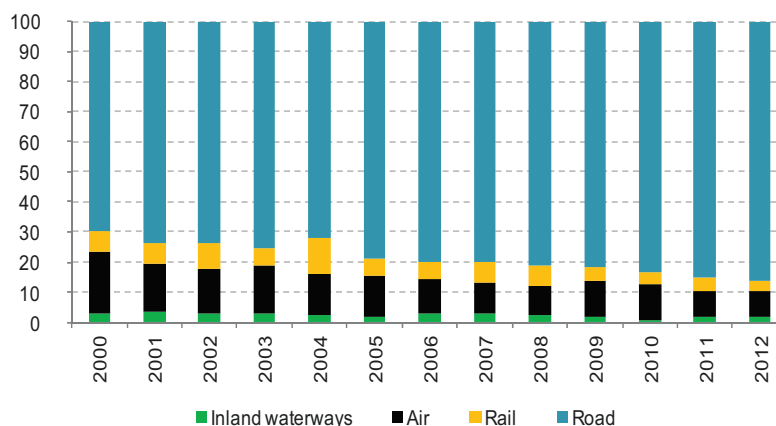
FIGURE 17
BOLIVIAN EXPORTS BY MODE OF TRANSPORT
(Percentages)



Source: ECLAC-NRID, based on data from the National Institute of Statistics of the Plurinational State of Bolivia.

In the case of imports, they are carried primarily by ground transport (88 per cent), air transport (8 per cent) and rail transport (3 per cent). Only fuels from Argentina are shipped by inland water transport.

FIGURE 18
BOLIVIAN IMPORTS BY MODE OF TRANSPORT
(Percentages)



Source: ECLAC-NRID, based on data from the National Institute of Statistics of The Plurinational State of Bolivia.

B. Paraguay

1. Road transport

Length of the road network by segments and regions: Paraguay has a road network extending approximately 60,100 km, with national routes accounting for 9,656 km of this length, departmental routes for 6,384 km, and rural feeder roads accounting for 44,060 km.

The paved routes total approximately 4,507 km in length, while improved roads (gravel and cobblestone) total 3,623 km. The rest of the network, some 51,970 km, consists of dirt roads.

There is a marked difference between the eastern and western parts of the road network in terms of surfacing and accessibility, corresponding to the markedly different levels of activity and development. The western region, which accounts for 60 per cent of the territory, has 16.8 per cent of the road network, while the eastern region, with 40 per cent of the territory, accounts for 83.2 per cent of the road network.

There is also an unequal distribution in terms of the percentage of routes that are passable throughout the year: the western region has less than 12 per cent of the improved and paved routes in the country. Only 18.3 per cent of the network in the western region is passable throughout the year, while in the eastern region this figure is 27.6 per cent.

Current state of the road network: The paved network offers a low level of coverage, and much of the secondary network is unpaved. There is a tendency in Paraguay to invest a great deal in the principal network and even to over-invest so as to ensure a continuing level of service.

The secondary network is insufficiently paved with low-cost paving materials to allow for year-round operation, and consequently there is poor coverage by the secondary network throughout the year.

The quality of the network is generally quite poor in spite of relatively high investments, as a result of inadequate spending on maintenance. While a large part of the national network is already paved, some of its roads are still impassable for part of the year, as is true for a much higher percentage of secondary roads and rural feeder roads. Many rural feeder roads are tracks (trails cut through the bush) and in general lack adequate dimensions and periodic maintenance.

2. Rail transport

Current state of the rail network: Rail transport is current being reconsidered with a view to the development of integrated corridors for freight transport. The old railway lines have fallen into disuse as a result of the shifting of the production zone for bulk goods in the country, such as the Paraná River Basin, to the east. These lines are being used to develop an interoceanic rail segment (a sovereign stretch), which will connect with the rest of the corridor on its route running in an east-west direction, with a gauge of 1.00 metres.

There is, however, an operational extension of 6 km, which links the city of Encarnación via a bridge to the city of Posadas, and from there to Argentina's railway network, which has a track gauge of 1.435 metres running in a north-south direction, that is, the corridor to Argentina links up with the Mesopotámico system, currently being operated by the ALL company, with a connection to the Eastern Republic of Uruguay. This hub will still be important as an alternative corridor in the near future between the ports of Nueva Palmira and Montevideo.

3. Air transport

Current state of the air transport infrastructure: According to data obtained from the study for the design of intermodal transport infrastructure facilities in Paraguay by the Spanish Agency for International Development Cooperation (AECID), it is estimated that Paraguay has some 50 airports that operate with regular airline flights and unscheduled service. Of these, fewer than 10 are fully equipped, and only two are of importance to the air transport system as a whole.

There are two international airports and nine local airports located around the country that are under the authority of the National Directorate of Civil Aviation (DINAC), an autonomous entity responsible for planning, regulation and operation of the infrastructure and terminals in the air transport sector, as well as related investments.

The two international airports for commercial airlines in Paraguay are the Silvio Pettirossi International Airport, the principal point of entry and departure for international passengers, which is located 12 km from the centre of the capital, Asunción, and the Guaraní International Airport, in Ciudad del Este (on the border with Brazil), 320 km from Asunción, which is used primarily for cargo. Both are located in the eastern part of the country.

There are also five airfields or small airports with paved runways in Itaipú, Concepción, Vallemí, Pilar, Encarnación, Ayolas, and Pedro J. Caballero, in the eastern part of the country, and one in the small town of Mariscal Estigarribia, in the western part of the country. In recent years, both of the country's major airports have seen a marked trend towards higher numbers of passengers and increased cargo traffic (with imports accounting for the lion's share), as a consequence of various liberalization measures promoted by the Government. Air transport is normally used for the shipment of lightweight, low-volume and high-value goods, while heavy, lower-value goods are shipped by boat or by land. It is worth noting that given the upward trend that has been observed, which is expected to continue over the coming years, better structures will be needed to ensure satisfactory performance.

4. Inland water transport

Current state of the inland water transport infrastructure and routes: The country's main rivers are the Paraguay and the Paraná, in terms of both their flow and their navigability. While there are other important rivers, their low flow rates make navigation impossible. The source of the Paraguay River is in south-western Brazil, and this river ends at its confluence with the Paraná River, which marks the border between Argentina and Paraguay. The navigable stretch for inland water transport is 2,182 km in length, beginning at the confluence with the Paraná River and ending at the Port of Cáceres in Brazil.

The volume of water over the course of the year varies substantially between the periods of high and low water. The drop in the water level during the period of low water, as well as the backup of inland waterway freight resulting from the considerable variation in the volume of water between the periods of high and low water, are factors that pose enormous difficulties for inland water transport. The rise in the water level in the river between the months of April and September, however, coincides with the harvest season and the period for the export of soybeans and other products, which facilitates the transport of these products by inland waterways.

At present, the navigability of the Paraná River waterway system is restricted by the dam reservoir of the Itaipú Binational Entity, which is jointly owned by Paraguay and Brazil, owing to the failure to carry out the necessary infrastructure projects. The river does not have a continuous upstream corridor throughout its entire route, which would allow for a connection between the Tieté Basin and the Upper Paraná. It should be noted that within the framework of the binational agreement on the construction of the dam, a provision was made for the planning and construction of locks linking the two rivers, with a shipping canal alongside the dam.

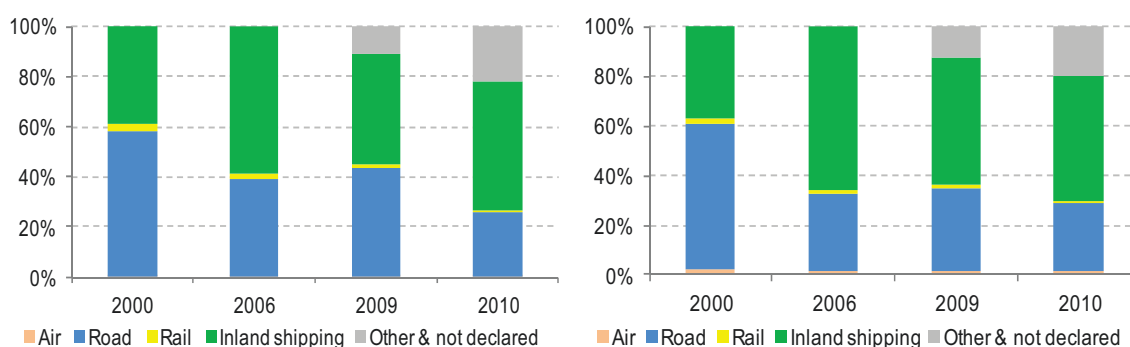
In addition, one should also mention the locks adjoining the Binational Yacyretá Dam between Argentina and Paraguay, which have a smaller capacity, given their effective dimensions of 28 metres wide and 236 metres long. This means that only small vessels that do not exceed 2 x 4 combinations can use these locks, which results in marginal increases in the rates in connection with unnecessary costs associated with manoeuvres needed to disconnect and connect the convoy in order to be able to continue along the route.

5. Modal Split in international transport

The bulk of Paraguay's trade operations are carried out using water transport (a combination of inland waterways and sea transport), accounting for 32 per cent of imports and 70 per cent of exports in 2010 based on the FOB value of the goods. The most important ports for inland water transport on the Paraná River are Puerto Salto de Paraná, Algesa and Ciudad del Este, while on the Paraguay River the most important ports are Chaco, Falcon and Alberdi. These ports account for a little over 88 per cent of the cargo transported by inland waterways.

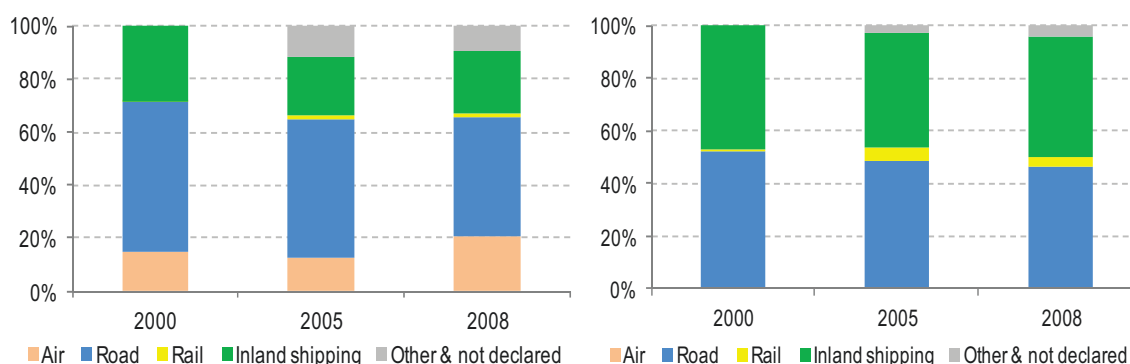
Road transport accounts for the second-largest amount, in spite of the economic difficulties that arise from delays at border crossings as a result of the customs procedures in transit countries.

FIGURE 19
PARAGUAY: EXPORTS BY MODE OF TRANSPORT, 2000-2010
(Volume) (Value FOB)



Source: ECLAC-NRID, based on data from the International Transport Database (BTI), ECLAC.

FIGURE 20
PARAGUAY: IMPORT BY MODE OF TRANSPORT, 2000-2008
(Volume) (Value FOB)



Source: ECLAC-NRID, based on data from the BTI, ECLAC.

Air transport accounts for a small share of the volume of exports and imports transported, although it is important for information technology goods and electronics (accounting for 30 per cent of the total trade in United States dollars). The role of air transport has increased during the first decade of this millennium and according to the DNA reached a participation of 15.6 per cent in 2010 in terms of value.

C. Public policies destined towards the improvement of transport infrastructure

Better development of the transportation infrastructure depends both on a country's logistics performance and on coordination with other countries to establish regulations, procedures and joint projects that will allow for enhanced linkages with international trade.

In this connection, in order to achieve better logistics performance, it is necessary to coordinate border procedures with the authorities of neighbouring countries, to improve the quality of the physical infrastructure and to facilitate the functioning of ground transportation services, the services of customs agents and warehouses, as well as the services of the inland waterway and rail transport systems.

Considerable emphasis has been placed on the improvement of the main national and international transportation routes in the Plurinational State of Bolivia. In spite of the fact that initiatives and projects in the transportation sector are described as being priorities and have been funded through existing financing programmes, especially those related to transportation corridors, there are still deficiencies in the transportation infrastructure, particularly in the secondary regional network. A lack of well-defined financing programmes for both the construction and maintenances of routes, as well as budgetary constraints in various parts of the country, are two of the most significant obstacles to the development of the road network.

1. Plurinational State of Bolivia¹⁰

In accordance with the Strategic Multimodal Transportation Plan for 2012–2025, which was prepared by the Ministry of Public Works, Services and Housing and the Bolivian Highway Administration of the Government of the Plurinational State of Bolivia, by the end of 2012 a total of 2,733 km of roads in the basic road network had been paved, which meant that 85 per cent of the arterial road system had been paved. On the other hand, the Bolivian Poverty Reduction Strategy Paper (PRSP) places an emphasis on the improvement of local roadways (the departmental network and the municipal network) that are connected to arterial roads with the aim of helping small agricultural producers transport their products.

Policies aimed at improvement of the road network: In the Plurinational State of Bolivia, the infrastructure for ground motor transport includes the main east-west road corridor, which crosses the departments of La Paz, Cochabamba and Santa Cruz. Owing to its status as a landlocked country, the impetus for the development of this road network was the establishment of links among its domestic markets and connections with markets overseas. The north-south corridors were developed later on. The corridors leading to the south were established more rapidly. There are now asphalt-sealed roads connecting with the northern part of Argentina through Yacuiba, Bermejo and Villazón, and in the direction of Paraguay running through the valley between Oruro and the Villazón milepost.

The transport policies of the Plurinational State of Bolivia have been focused exclusively on the construction of the highway infrastructure. The Ministry of Public Works, Services and Housing (MOPSV) is the public institution that proposes policies, plans and programmes for establishing links within the country and for the country's external integration. The Vice-Ministry of Transport and the Bolivian Highway Administration, which are the bodies responsible for carrying the transport policies of the Plurinational State of Bolivia, are under this Ministry.

Policies aimed at improvement of the rail network: The administration of the rail network in the Plurinational State of Bolivia has been the responsibility of two groups of Chilean origin since 1994. At present, two railway companies are operating under a 40-year concession contract: the Ferrovial Oriental S.A. (FOSA) company, which is responsible for the eastern network; and the Ferrovial Andina S.A. (FCA) company, which administers the western network.

¹⁰ Data drawn from the Logistics Study are used in this section, in addition to information from ECLAC (2012) "The Case of the Plurinational State of Bolivia".

Efforts have been under way since 2012 to reactivate the rail connections. The Portuaria Arica Company (EPA), together with the Bolivian Government, have been the principal proponents of restarting operations, however the re-establishment of the link remains uncertain.

Policies aimed at improvement of the air transport infrastructure: The major hub airports are administered by the Bolivian Airport Services Company S.A. (SABSA). There are plans to build three other international airports by 2014, located in the cities of Oruro, Alcantari (Chuquisaca) and Chimoré (Cochabamba).

Policies aimed at improvement of inland water transport: The Plurinational State of Bolivia has signed a number of agreements for the use of ports in neighbouring countries, as a result of which it enjoys special access rights to the Pacific coast granted by Peru and Chile and use of the Paraguay-Paraná Waterway granted by Argentina, Brazil, Paraguay and Uruguay, which allows access to the Atlantic Ocean.

The Port Services Administration (ASP-B) was established in 1996 to replace the Autonomous Customs Warehouse Administration (AADAA) with the aim of putting into practice the national policies on development and foreign trade. Within this context, the ASP-B carries out its operations in various ports with the aim of supervising and supporting foreign trade activities and the facilitation of transit, and it is also responsible for overseeing trade-related treaties and agreements. The administration performs customs operations at the Chilean ports of Arica and Antofagasta, including the inspection and verification of Bolivian cargo. In general, the ASP-B provides services involving the reception, verification, warehousing, oversight and certification of all imported and exported cargo.

2. Paraguay

Policies aimed at improvement of the road network: The country needs major investments for the maintenance and rehabilitation of its road network: only 40 per cent of the national routes and 10 per cent of the departmental routes are paved. Some 48 per cent of the national and departmental routes are in fair or poor condition.

At the same time, it is important to stress that many of the loans and policies in this sector have been focused on the goal of paving all of the routes in the primary network, neglecting the maintenance of feeder roads (departmental and rural), which has a decisive impact on the mobility in certain regions, given that these routes are exposed to harsh climatic conditions that make them impassable and that occasionally isolate towns along the primary network.

Policies aimed at improvement of the rail network: the reactivation project is being planned through a Cooperation Agreement between the Government of the Republic of Paraguay and the Government of the Republic of Korea, under the coordination of the Korea International Cooperation Agency (KOICA). A feasibility study has been performed for this venture, and there is also an executive project design, which is supposed to develop in detail the entire rail route from the city of Presidente Franco to the Curupaty area, in the department of Ñeembucú on the banks of the Paraguay River, to link it to Argentina via the future international bridge between Curupaty and Las Palmas (in Argentina).

Policies aimed at improvement of the air transport infrastructure: Paraguay has a master plan under the management of DINAC that is aimed at upgrading existing airport facilities, in particular those at Silvio Pettrossi Airport, with a view to expanding the infrastructure so as to facilitate traffic, primarily passenger traffic. DINAC has begun the relevant improvement projects.

On the other hand, the Vice-Ministry of Transport under the Ministry of Public Works and Communications, working together with the Technical Secretariat for Planning and DINAC, initiated contacts with cooperation agencies in order to perform a feasibility study of the construction of a new airport near the city of Asunción.

Policies aimed at improvement of inland water transport: The Agreement on Inland Water Transport via the Paraguay-Paraná Waterway is the intergovernmental agreement that allows for inland water transport via the Paraguay and Paraná rivers through the establishment of a regulatory framework that governs trade and transport of goods. From the standpoint of transportation, this an agreement that is

distinguished by a significant number of coordinated actions and measures in the area of inland water transport. It is expected that the steps taken in this direction will serve to integrate operations among the signatories, including Argentina, the Plurinational State of Bolivia, Brazil, Paraguay and Uruguay. The agreement also addresses customs issues, as it governs procedures, customs seals, the declaration of goods, liability regulations, guarantees and customs formalities.

In 2011, thanks to funding from the World Bank, a consulting contract was awarded for a study on the granting of a concession for improvement of the navigability of a section in the sovereign part and the other, shared segment of the waterway. This study outlines all of the aspects relevant to technical, economic, financial and regulatory issues, and the procedures for the proposal of a model for granting a concession. The study also includes tasks to be carried out, such as the handling of the concession in the sections with shared sovereignty, and the establishment of legal entities that could carry out enforcement and oversight tasks, such as the administration of the basin with a view to its improvement and optimization to ensure the sustainability of its sound use and operation.

The Paraguay-Paraná Waterway is the best inland water transport corridor for foreign trade transit and for imports of goods from within the area and outside the area. Paraguay has signed a number of international, regional and bilateral agreements and treaties to facilitate the transport conditions via this waterway, which, when combined with other modes and an interconnection with port and free trade zones, allows for efficient performance so as to gain an advantage in the highly competitive international and globalized marketplace. There are, however, some obstacles both in terms of products and transport that are ongoing, repeated and systematic, which give rise to uncertainty, lost opportunities, risks and high costs.

In addition, marginal profits are generated in the transit corridors which, as a landlocked country, Paraguay is forced to use.

D. Regional physical integration - the IIRSA/COSIPLAN/ UNASUR initiative

The principal initiatives in place in South America to improve the interconnection and transit operations among these countries are the Initiative for the Integration of the Regional Infrastructure of South America (IIRSA) and the efforts of COSIPLAN and UNASUR.

The original version of the IIRSA project portfolio was produced in 2004, and it has gone through successive updates as a result of the deepening of the regional planning process within the framework of the Initiative. In 2004 the Initiative brought together a portfolio of 335 infrastructure projects representing an estimated investment of US\$37,424.8 million.

In 2010, in view of the completion of the first stage of work under the Initiative, the last updating exercise within the IIRSA framework was performed on the basis of meetings of the Executive Technical Groups (ETGs) of all of the Integration and Development Hubs (IDHs). The resulting portfolio was comprised of 524 projects with an estimated investment of US\$96,119.2 million.

TABLE 3
NUMBER OF PROJECTS AND ESTIMATED INVESTMENT IN 2004–2010

Year	Number of projects	Estimated investment
2004	335	37 424.80
2008	514	69 000.00
2010	524	96 119.20
2012	546	130 324.50

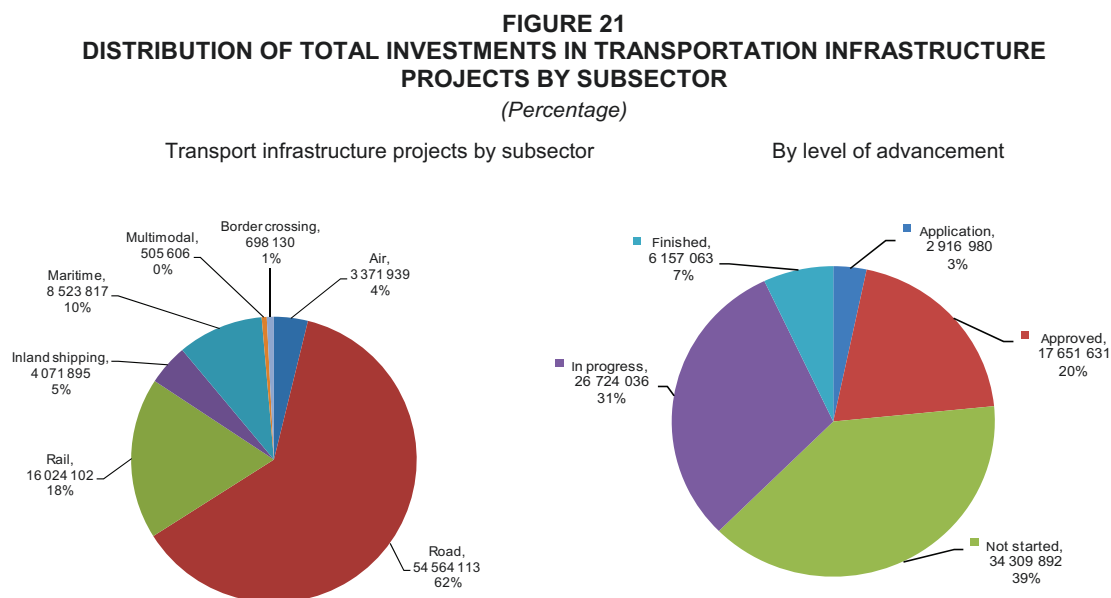
Source: ECLAC-NRID, based on data from www.iirsa.org, accessed on 3 April 2013.

The updating of the portfolio as of 2012 resulted in a list of 546 projects with an estimated investment of US\$130,324.50 million. The following section provides a description of the entire project portfolio based on the sector to which each project belongs, and the degree of progress that has been made, respectively.

1. Investment in transport infrastructure¹¹

In December 2012 the total number of transportation projects in the IIRSA portfolio was 474, with highway projects accounting for the largest share at 47.5 per cent, while multimodal projects accounted for the smallest share with 3 per cent.

Total investments in transportation infrastructure projects were in excess of US\$87,759 million. Once again the subsector with the largest investments was the highway subsector, with more than US\$54,564 million, while the multimodal subsector accounted for the smallest amount at US\$505 million. The figure below shows the distribution of investments by subsector expressed as a percentage.



Source: ECLAC-NRID, based on data from www.iirsa.org, accessed on 3 April 2013.

Note: Information updated on the basis of project data sheets as of December 2012.

The IIRSA portfolio defines five stages of progress for the projects, which are: Requested, Approved, Not Initiated, In Progress and Completed. In certain cases a project may be at several stages of progress at once, since the investments for each project may, on some occasions, come from different funding sources, and in addition they may be developed in different phases. Of the total amount of investments, 39.1 per cent, which corresponds to more than US\$34,309 million, is at the Not Initiated stage, and this is the stage that accounts for the largest share. Of the five stages of project progress, 3.32 per cent of the investments, corresponding to almost US\$3 billion, are at the Requested stage. The figure below shows the distribution of investments earmarked for transportation infrastructure, expressed as a percentage.

¹¹ This section is drawn in part from NRID/ECLAC (2013) "Physical Integration Investment in Latin America".

In 2012 the COSIPLAN project portfolio contained 546 infrastructure for integration projects in the transport, energy and communications sectors, accounting for total estimated investments of US\$130,424.50 million;¹² 168 of these projects were in progress and accounted for US\$54,578.9 million (41.9 per cent of the portfolio); 302 projects accounting for US\$62,909.8 million (48.4 per cent of the portfolio) were at the preparation stage; and 74 projects accounting for US\$12,650.4 million (9.7 per cent of the portfolio) had already been completed. The following table provides a detailed breakdown of these projects.

TABLE 4
OVERVIEW OF THE IIRSA/COSIPLAN PROJECT PORTFOLIO BY IDH

	No. of groups	Quantity	Projects %	Amount	Estimated investment %
Amazon Hub	7	64	0.1172	8 867.6	6.8
Andean Hub	10	64	0.1172	8 692.4	6.7
Capricorn Hub	5	80	0.1465	11 959.1	9.2
Guyana Shield Hub	4	18	0.0330	4 465.4	3.4
Paraguay-Paraná Waterway Hub	5	94	0.1722	8 460.7	6.5
Central Interoceanic Hub	5	61	0.1117	5 209.2	4.0
MERCOSUR-Chile Hub	6	113	0.2070	50 974.4	39.2
Peru-Brazil-the Plurinational State of Bolivia Hub	3	25	0.0458	28 878.7	22.1
Southern Hub	2	27	0.0495	2 817.0	2.1
TOTAL	47	546	1	130 324.5	100

Source: ECLAC-NRID, based on www.iirsa.org, accessed on 3 June 2013.

Notes: Investments in existing projects, in which the investments were made for the most part prior to the launching of the IIRSA Initiative, are not taken into account. These projects are: the Santa Marta-Paraguachón-Maracaibo-Barquisimeto-Acarigua road corridor under the Andean Hub and the Itaipú System under the MERCOSUR-Chile Hub.

The following tables illustrate the degree of progress of projects in the IIRSA/COSIPLAN project portfolio as of 2012, based on their stage of implementation.

Figure 22 illustrates the distribution of the total IIRSA/COSIPLAN project portfolio in 2012, with the Plurinational State of Bolivia accounting for 6 per cent (US\$7,392.39 million) of the total and Paraguay for 9 per cent (US\$11,858.04 million), while the other 10 countries involved in the Initiative account for 85 per cent, or a total of US\$110,888.67 million.

¹² The source for all of the tables included in this section and in the following sections regarding the IIRSA/COSIPLAN portfolio by hubs is the project database found at www.iirsa.org/proyectos.

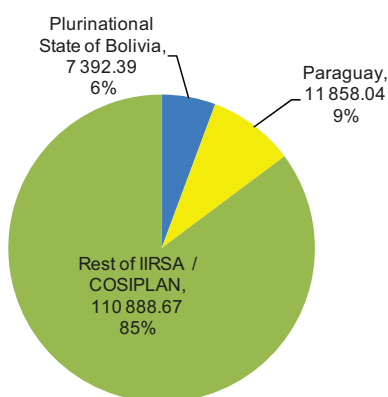
TABLE 5
IIRSA/COSIPLAN PROJECT PORTFOLIO BY STAGE OF IMPLEMENTATION AND IDH

Integration and Development Hub	Profile ^a	Pre-implementation ^b	Implementation ^c	Completed	Total
Amazon Hub	25	15	20	4	64
Andean Hub	21	7	22	14	64
Capricorn Hub	16	37	17	10	80
Guyana Shield Hub	7	2	5	4	18
Paraguay-Paraná Waterway Hub	34	29	23	8	94
Central Interoceanic Hub	10	15	26	10	61
MERCOSUR-Chile Hub	36	25	36	16	113
Peru-Brazil-The Plurinational State of Bolivia Hub	6	7	10	2	25
Southern Hub	6	5	10	6	27
TOTAL	161	142	169	74	546

Source: ECLAC-NRID, based on www.iirsa.org, accessed on 3 June 2013.

- ^a At this stage a background analysis is performed so that a judgement can be made about the advisability and technical and economic feasibility of carrying out the project.
- ^b This stage includes those projects that are in the following phases: pre-feasibility, feasibility and investment.
- ^c This stage refers to the set of activities necessary for the physical construction process, such as the signing of a contract, the purchase and installation of machinery and equipment, various facilities, etc. A description of progress that has been made in the Infrastructure and Development Hubs that involve or relate to the Plurinational State of Bolivia or Paraguay, broken down by the sectors (transport, energy, etc.) to which each hub belongs is provided below.

FIGURE 22
TOTAL INVESTMENTS IN THE IIRSA/COSIPLAN PROJECT PORTFOLIO INVOLVING LANDLOCKED COUNTRIES



Source: ECLAC-NRID, based on www.iirsa.org, accessed on 3 June 2013.

The total portfolio for landlocked countries in South America (US\$19,250.43 million) includes investments in projects that have already been completed in the amount of US\$1,321 million and those that are still in progress in the amount of US\$3,684 million, as shown in the following table. The table also shows the total by degree of progress and by country.

TABLE 6
DEGREE OF PROGRESS IN THE IMPLEMENTATION OF PROJECT INVESTMENTS
BY LANDLOCKED COUNTRY AND AS A WHOLE

(Millions of dollars, May 2013)

	The Plurinational State of Bolivia	Paraguay	Total for landlocked developing countries
Total portfolio	7 392.39	11 858.04	19 250.43
Completed	13.00	1 308.00	1 321.00
In progress	2 217.90	1 467.00	3 684.90
At pre-implementation stage	2 468.69	6 430.39	8 899.08
At profile stage	2 692.80	2 652.65	5 345.45

Source: ECLAC-NRID, based on www.iirsa.org, accessed on 3 June 2013.

As for sectors in which investments have been made in projects that have been completed and are in progress, the following table provides a breakdown of these investments for each country. To date (June 2013), the investments that have been made and that are in the process of implementation total US\$5,006 million: US\$2,775 million in Paraguay and US\$2,231 million in the Plurinational State of Bolivia.

TABLE 7
INVESTMENTS IN PROJECTS THAT HAVE BEEN COMPLETED AND PROJECTS IN PROGRESS
BY LANDLOCKED COUNTRY AND AS A WHOLE

(Millions of dollars, May 2013)

	The Plurinational State of Bolivia	Paraguay	Total for LLDCs
Transport	2 230.80	696.00	2 926.80
Energy		2 079.00	2 079.00
Communications	0.10		0.10
Total	2 230.90	2 775.00	5 005.90

Source: ECLAC-NRID, based on www.iirsa.org, accessed on 3 June 2013.

E. Conclusions

The list of projects of the IIRSA/COSIPLAN initiative is extensive. However, a key aspect is the state of the projects. The table in the previous sections shows that only a minor part of the projects is "under way" or has been finished. The greatest share of the projects is still in the profile stage.

The IIRSA/COSIPLAN initiative is making an important contribution to the infrastructure development in the region. One challenge, especially for the landlocked countries, is the diligences with which the transit countries develop their transport networks to their borders, at the same time significant efforts are needed to connect and integrate infrastructures beyond border crossings. It should also be mentioned that many efforts of improving infrastructure might get lost, if the existing inefficiencies in the regulatory frameworks, institutions and planning will not be eliminated.

III. International trade and facilitation

This chapter provides an evaluation of the structure of exports and the performance of foreign trade by the Plurinational State of Bolivia and Paraguay within the region compared to transit countries, including the principal markets, since the adoption of the Almaty Programme of Action.

There is a review of the initiatives that have been implemented at the national, regional and subregional levels since the launching of the programme, in particular those that were launched by regional commissions and economic communities in the region.

A. International trade

1. Plurinational State of Bolivia

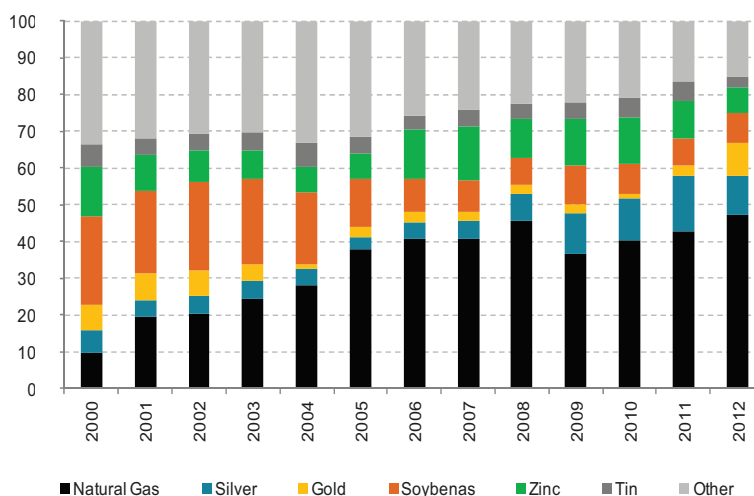
Composition of trade

Figure 23 shows that the structure of Bolivian exports is poorly diversified, with natural gas, zinc concentrates, lead concentrates, soybeans and their derivatives, silver, gold, tin and chestnuts accounting for around 85 per cent of recorded exports over recent years. There was a significant increase in natural gas as a proportion of exports as a result of sales of this commodity to Argentina, a trend that will continue up to 2019 when sales will reach around 27 million cubic metres per day.

There has also been a significant rise in exports of minerals, in particular zinc, lead, tin and silver, with Asian countries serving as the major buyers of these products.

The principal import products, as one can see from Table 4, are fuels, intermediate goods and capital goods for industry, as well as means of transport and building materials.

FIGURE 23
VALUE OF THE PRINCIPAL CATEGORIES OF BOLIVIAN EXPORTS
(Percentages)



Source: ECLAC-NRID.

TABLE 8
COST, INSURANCE, FREIGHT (CIF) VALUE OF THE PRINCIPAL CATEGORIES
OF BOLIVIAN IMPORTS
(Dollars)

	2000	2005	2011
Consumer goods	471.0	524.2	1 713.6
- Nondurable	296.9	297.2	853.1
- Durable	174.1	227.0	860.5
Intermediate goods	931.3	1 281.4	3 745.8
- Fuels	117.3	239.5	1 025.4
- For agriculture	52.9	113.7	300.3
- For Industry	624.1	729.1	1 800.0
- Construction	84.5	122.0	450.5
- Other	52.5	77.1	169.7
Capital goods	606.8	611.3	2 184.3
- For agriculture	12.9	39.0	162.7
- For Industry	414.6	441.8	1 503.8
- For transport	179.2	130.6	517.7
TOTAL	2 009.1	2 416.9	7 643.7

Source: ECLAC-NRID, based on data from the National Institute of Statistics of The Plurinational State of Bolivia.

Analysis of main products

Natural gas

Natural gas is the principal export product of the Plurinational State of Bolivia, and in 2011 it accounted for 43 per cent of the country's exports, with a value of approximately US\$3,885 million. In 2012, and to August of this year, natural gas accounted for 47 per cent of exports, with a value of approximately US\$3,368 million.

The main market for natural gas from the Plurinational State of Bolivia is Brazil, which imported around 26 million cubic metres per day between January and September 2012 and accounted for 69 per cent of the total volume of exports. The second most important market is

Argentina, which imported around 12 million cubic metres per day during the same period and accounted for the remaining 31 per cent of the total volume of natural gas exports.

The natural gas that is exported to Brazil is transported by the Gas Trans Boliviano (GTB) company, which built the pipeline that connects the various gas-producing regions in the Plurinational State of Bolivia with Sao Paulo in Brazil. The natural gas that is sent to Argentina is also transported by a pipeline that links Tarija with Buenos Aires.

The Plurinational State of Bolivia does not have the ability to export to other countries overseas because its landlocked position prevents it from having a natural gas liquefaction terminal that would allow it to handle liquefied natural gas (LNG) carriers as Peru currently does. In negotiations between The Plurinational State of Bolivia and Chile during 2001 and 2003, Chile offered to facilitate a project providing a location, investment in infrastructure and operation to export liquefied gas. These negotiations have not materialized until this point in time.

Silver

Silver is the country's second most important export. In 2011 exports of this mineral reached US\$1,375 million and accounted for 15 per cent of the country's total exports in terms of value. Between January and November 2012, silver exports reached US\$1,000 million and accounted for around 10 per cent of total exports. In terms of volume, in 2011 silver exports reached around 13,600 tons and between January and November 2012 they reached around 13,250 tons.

It is important to bear in mind that a large proportion of silver exports are exported in zinc and lead concentrates. For example, mining companies export one ton of zinc concentrate with an average legal mineral content of 55 per cent, which in turn contains around 400 grams of silver for each ton of concentrate. In the case of lead concentrate, its legal content on average fluctuates between 68 per cent and 80 per cent, and it in turn contains between 3,000 and 5,000 grams of silver for each ton of concentrate.

The main markets for this mineral in 2011 and 2012 were in Peru, which accounted for 17 per cent and 16 per cent of the country's total silver exports in those years, respectively. Silver exports to this neighbouring country are transported in two ways: a) by rail, which runs from Potosí to the port of Antofagasta in Chile, to be transported from there by sea to Peru, accounting for 26 per cent of Bolivian silver exports to Peru in 2011 and for 10 per cent in 2012; b) by road, via the route from Potosí to Arica in Chile, to be transported from there by sea to Peru, accounting for 44 per cent of Bolivian silver exports to Peru in 2011 and for 71 per cent in 2012. In addition, silver is transported by road to Peru via the border crossing at Desaguadero.

The second most important market is Switzerland, which accounts for around 13 per cent of Bolivian silver exports, with shipments to this market going primarily by air. The United States accounted for 8 per cent of exports in 2011 and for 5 per cent in 2012, with shipments to that country going by air as well.

The Republic of Korea and Japan represent the third most important market for Bolivian silver, with each country accounting for an average of 13 per cent of exports, and the two countries together for 26 per cent. The principal exit route for these exports is by rail to the port of Antofagasta in Chile, which accounts for 90 per cent, with road transport to the port of Arica in Chile in second place.

Canada and Belgium represent the fourth most important market, with each country accounting for an average of 10 per cent of silver exports, and the two countries together for 20 per cent. The principal exit route for exports to Canada is by road to the port of Arica, followed by rail transport to the port of Antofagasta, with air transport in third place. In the case of Belgium, the principal exit route is by rail to Antofagasta (75 per cent), followed by road transport to the port of Arica (25 per cent).

Zinc and lead

Zinc is the third most important export product for the Plurinational State of Bolivia, reaching around US\$944 million and accounting for 10 per cent of Bolivian exports in 2011; between January and August of 2012, exports reached US\$487 million and accounted for around 8 per cent of total exports. In terms of volume, between January and August of 2011 some 534,000 tons were exported, and

during the same period in 2012 this figure was approximately 480,000 tons, which represented a 10 per cent decline. In 2011 lead exports totalled US\$240 million and between January and August of 2012 they were close to US\$107 million. In terms of volume, between January and August of 2011 some 109,000 tons were exported, and during the same period in 2012 this figure was approximately 100,000 tons.

Japan is the most important market for zinc, accounting for 32 per cent of exports of this mineral in 2011, followed by the Republic of Korea and Belgium, each accounting for 21 per cent. Spain is in fourth place in terms of imports of this mineral, with 6 per cent of the total. The most important exit route for exports is by rail from Potosí to the port of Antofagasta in Chile, with approximately 80 per cent of the exports travelling by this route. The remaining 20 per cent of exports go by road to the port of Arica in Chile.

The Republic of Korea is the most important market for lead, accounting for an average of 30 per cent of these exports, followed by Japan with 20 per cent, Belgium with 20 per cent, China with 13 per cent and Peru with 7 per cent. The logistics for this mineral are essentially the same as those for zinc.

Oilseeds

The Plurinational State of Bolivia mainly exports three types of oilseed products: soybean cake, sunflower seed oil and soybean oil, and soybeans or soybean meal. The total exports of these products in 2011 were close to US\$683 million and between January and August 2012 they were around US\$748 million. The most important product in terms of value is soybean cake, which accounts for close to 52 per cent of these exports, followed by soybean oil with around 42 per cent, and then soybeans and soybean meal with approximately 6 per cent.

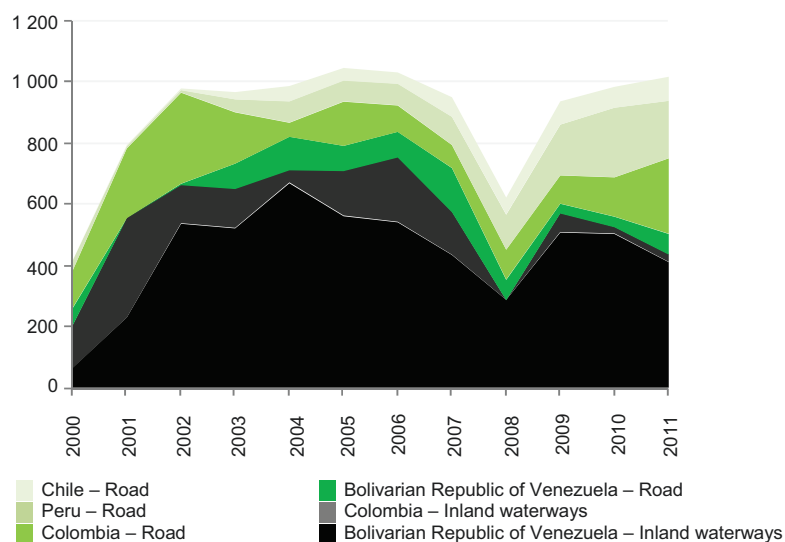
When analysed in terms of volume, the exports of these products total approximately 1.5 million tons, with soybean cake accounting for 70 per cent of this figure, soybean oil and sunflower seed oil for around 20 per cent, and soybeans and soybean meal for around 10 per cent of the volume sold. Santa Cruz is the department responsible for all of the production and exports of oilseed products.

Looking at the principal markets for these products, in the past decade the main markets for soybean cake were Colombia and the Bolivarian Republic of Venezuela, with those two countries accounting for around 94 per cent of export shipments; 64 per cent of these exports travelled by inland water transport and the remaining 30 per cent by road. In 2011 Colombia and the Bolivarian Republic of Venezuela accounted for 72 per cent of the exports, and only 43 per cent were shipped by inland water transport, with the remaining 29 per cent going by road. Chile and Peru became the second most important market for these exports, accounting for 26 per cent of the total.

In short, the increase in the use of roads as a means of transport for exports can be explained in part by the emergence of new markets in the neighbouring countries of Peru, in first place, and Chile, in second place, while the sole means of transport to these markets available at this time is by road.

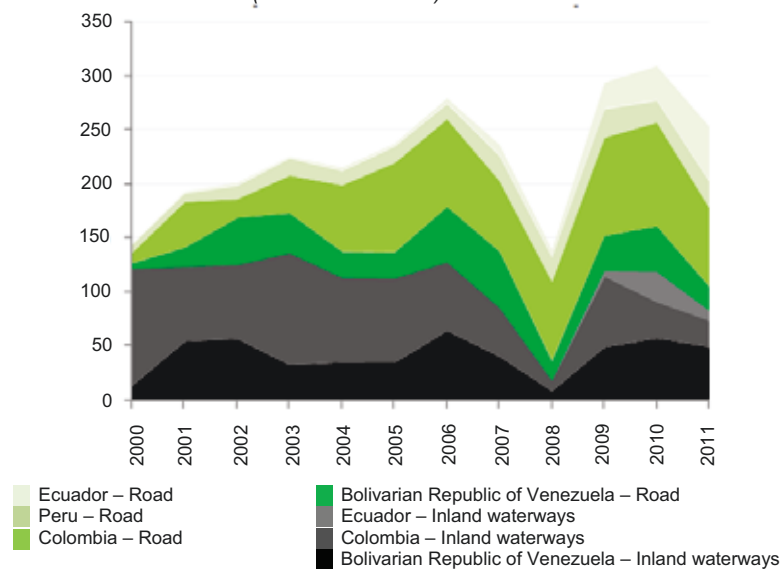
The other important products to consider are soybean oil and sunflower seed oil. In the past decade close to 63 per cent of the exports of these products went by inland water transport to Colombia and the Bolivarian Republic of Venezuela, and 30 per cent of these exports were shipped by rail. In 2011, however, only 39 per cent of these products were exported by inland water transport, and 45 per cent went by road. Exports to Peru remained constant over this period and in the last three years Ecuador joined the export market, with products being shipped to that country by road as well.

FIGURE 24
EXPORTS OF SOYBEAN CAKE BY COUNTRY OF DESTINATION
AND MODE OF TRANSPORT, 2011
(Thousands of tons)



Source: ECLAC-NRID, based on data from CEBEC-CAINCO, with data from the National Institute of Statistics.

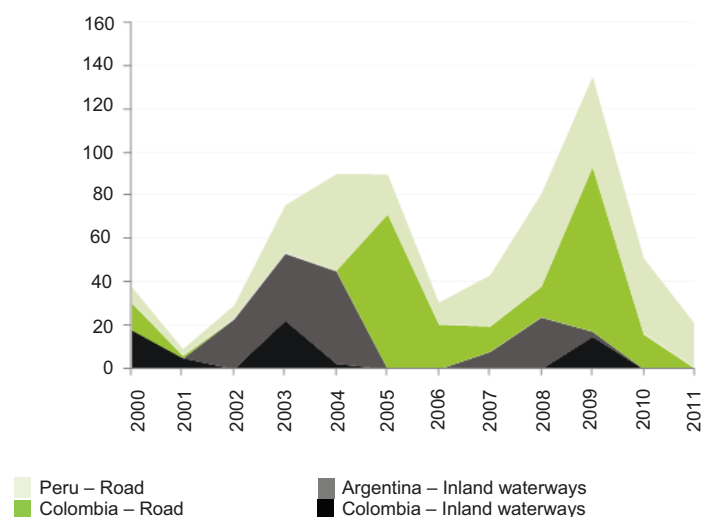
FIGURE 25
EXPORTS OF SOYBEAN OIL AND SUNFLOWER SEED OIL BY COUNTRY
OF DESTINATION AND MODE OF TRANSPORT, 2011
(Thousands of tons)



Source: ECLAC-NRID, based on data from CEBEC-CAINCO, with data from the National Institute of Statistics.

FIGURE 26
EXPORTS OF SOYBEANS AND SUNFLOWER SEEDS BY COUNTRY
OF DESTINATION AND MODE OF TRANSPORT, 2011

(Thousands of tons)



Source: ECLAC-NRID, based on data from CEBEC-CAINCO, with data from the National Institute of Statistics.

Tin

In 2011 tin exports totalled around US\$432 million, and in the first eight months of 2012 these exports were close to \$240 million. In terms of volume, between January and August of 2011, close to 82,000 tons were shipped, and there has not been any change in these figures this year. The United States is the primary market for this product, accounting for around 50 per cent of exports, and the principal means of transport is by road, with shipments going to the port of Arica in Chile. China is the second most important market, with 30 per cent of the exports going to this country. The main means of transport for these exports is by road to Arica, accounting for close to 60 per cent of the exports. The second means of transport used for shipments of tin to China is by rail to the port of Antofagasta. The United Kingdom is the third most important market for Bolivian tin, with approximately 10 per cent of the total exports, and the route for these exports is through Arica.

Chestnuts

Chestnut exports reached US\$148 million in 2011, and between January and August of 2012 exports of this product were close to US\$100 million. The principal markets for these exports are the United Kingdom, accounting for an average of 25 per cent, the United States with an average of 23 per cent, Germany with 14 per cent, the Netherlands with 10 per cent and Australia with 6 per cent. The main means of transport is by road from the department of Beni to La Paz, and from there to the port of Arica via Tambo Quemado. In terms of volume, these exports total around 18,000 tons.

Quinoa

Quinoa exports reached US\$64 million in 2011, and between January and August of 2012 exports of this product were close to US\$48 million. The principal markets for these exports are the United States, accounting for an average of 60 per cent, France with 10 per cent, Canada with 6 per cent, the Netherlands with 6 per cent and Germany with 4 per cent. The main means of transport is by road from the departments of Potosí and Oruro to La Paz, and from there to the port of Arica via Tambo Quemado. In terms of volume, quinoa exports total around 20,000 tons.

The following table provides details about the selected products and export corridors.

TABLE 9
PLURINATIONAL STATE OF BOLIVIA: PRINCIPAL EXPORTS, MODE OF TRANSPORT
AND TRANSPORTATION CORRIDORS, 2012

Product	Export/ Import	Type of shipment	Corridor			
			Mode	Origin	Destination	
Zinc and Lead (Rail)	Export	Railcar	Rail	Potosí-Uyuni-Ollagüe- Antofagasta	Republic of Korea, Japan, Spain, Belgium, Canada and Brazil	
Zinc (Road)	Export	Truck	Road	Potosí-Tambo Quemado-Arica	Belgium, Switzerland, China and Republic of Korea	
Tin	Export	Truck	Road	Potosí-Tambo Quemado-Arica	United States, China and United Kingdom	
Soybean cake (Road)	Export	Truck	Road	Santa Cruz-Tambo Quemado-Arica	Colombia and Chile	
Soybean cake (Inland waterways)	Export	Barge	Inland waterways	Santa Cruz-Puerto Suárez-Nueva Palmira	Bolivarian Republic of Venezuela, Colombia and Ecuador	
Chestnuts	Export	Truck	Road	Beni-Tambo Quemado-Arica	United States, United Kingdom, Germany and the Netherlands	

Source: ECLAC-NRID, based on data from CEBEC-CAINCO, with data from the National Institute of Statistics

On the import side, roads are the principal means of transport, accounting for 86 per cent of the imported goods entering the Plurinational State of Bolivia. The principal route of entry is from Arica (Chile) via Tambo Quemado, accounting for 46 per cent of total imports, followed by Corumbá (Brazil)-Puerto Suárez, which accounts for 14 per cent; the Pocitos (Argentina)-Yacuiba route is in third place with 13 per cent; Desaguadero and the border with Peru is in fourth place with 9 per cent; and finally, Iquique (Chile)-Pisiga accounts for 4 per cent.

Air transport is the second most commonly used means of transport for imports, accounting for 8 per cent, but products of this type are not relevant for the analysis that is the focus of this study.

Rail transport is the third most important means of transport, accounting for 3 per cent of total imports, with the main route of entry running between Puerto Suárez and Corumbá in Brazil.

Finally, inland water transport is the fourth most commonly used means of transport for imports, with the route of entry running between Corumbá in Brazil and Puerto Suárez accounting for 2 per cent of total imports. This mode of transport is used primarily for imports of hydrocarbons, such as diesel, gasoline and liquefied petroleum gas (LPG).

An analysis of the origin of imports shows that around 44 per cent come from neighbouring countries. The most important country for imports is Brazil, which accounts for 19 per cent, followed by Argentina with 14 per cent, Peru with 7 per cent, Chile with 4 per cent and Paraguay with 1 per cent.

The remaining 56 per cent of imports come from countries that are not neighbouring countries and they require sea transport to reach the country, with the most important being imports from China, which accounts for 14 per cent, followed by the United States and Japan, with 10 per cent and 4 per cent, respectively. European countries account for 10 per cent, the Bolivarian Republic of Venezuela accounts for 7 per cent, primarily diesel and petroleum derivatives, and finally, other Asian countries, with 10 per cent.

The four departments that account for the largest flow of imports are Santa Cruz, La Paz, Oruro and Cochabamba, with 45 per cent, 26 per cent, 9 per cent and 9 per cent, respectively.

Diesel, gasoline and liquefied petroleum gas

In 2011 fuel imports totalled approximately \$1,073 million, and between January and August of 2012 this value reached close to US\$862 million. Diesel is the most important import, accounting for 72 per cent of the total, followed by gasoline and LPG, with 19 per cent and 9 per cent, respectively. In 2012 the share of diesel in total imports rose to 85 per cent and LPG accounted for 7 per cent; between January and August of this year there were no gasoline imports.

The transportation logistics for fuels are quite varied and can be broken down into five routes and different modes of transport. The first route is by sea from the Bolivarian Republic of Venezuela to the port of Matarani in Peru, and then by road via the point of entry into the Plurinational State of Bolivia at

Desaguadero, destined for the customs office at La Paz. The second mode of transport is by inland waterway and sea from Brazil, Argentina and the Bolivarian Republic of Venezuela via the Paraguay-Paraná Waterway, destined for Puerto Suárez in the Plurinational State of Bolivia and the customs office in Santa Cruz. The third import route is from the Bolivarian Republic of Venezuela to the port of Arica in Chile, entering the country by road via Tambo Quemado, with a final destination of Oruro or using the SICA pipeline, SICA-Arica. The fourth route is by road, and in this case hydrocarbons coming from Argentina cross the border at Yacuiba with a final destination of Tarija. The fifth route is by road from Brazil, entering the country at Puerto Suárez, with a final destination of Santa Cruz de la Sierra.

Machinery, electronics and household appliances

In 2011 imports of machinery, electronics and household appliances reached approximately US\$1,743 million, accounting for 23 per cent of total imports, and between January and August of 2012, exports [sic] reached close to US\$1,194 million. There are two principal corridors for the transport of these imports. The first is from overseas, with the products coming primarily from Asia, Europe and the United States to the port of Arica in Chile, and from there entering the Plurinational State of Bolivia via Tambo Quemado by road, to be distributed throughout the entire country. The second main corridor involves imports from Brazil, which cross into the Plurinational State of Bolivia by road via Puerto Suárez. The destination for most of these imports is Santa Cruz, and these goods are intended primarily for the agricultural sector.

Motor vehicles

The third most important group is comprised of motor vehicles, both passenger vehicles and those used for freight. In 2011 these imports totalled around US\$1,065 million. Between January and August 2012, imports were close to US\$600 million. There are two main corridors for imports of this type: first, imports arriving primarily by sea from Japan, the United States and China via the port of Arica in Chile; from there they enter by road via Tambo Quemado for distribution throughout the country. The second most important route is by road from Brazil to Corumbá and Puerto Suárez.

Iron and steel

The fourth most important type of product is steel and/or steel rods and other products related to steel. In 2011 these imports totalled around US\$409 million. Between January and August of 2012, imports were close to US\$262 million. There are three main corridors for imports of this type: first, imports arriving by road from Brazil and going to Corumbá and Puerto Suárez. The second most important corridor is from Peru by road, crossing the border at Desaguadero. The third corridor is by sea from China to the port of Arica in Chile, and from there via Tambo Quemado to the Plurinational State of Bolivia.

The following table provides details about the selected products and import corridors.

TABLE 10
PLURINATIONAL STATE OF BOLIVIA: PRINCIPAL IMPORTS, MODE OF TRANSPORT
AND TRANSPORTATION CORRIDORS, 2012

Product	Export/Import	Type of shipment	Corridor		
			Mode	Origin	Destination
Agricultural chemicals	Import	Sea-road	Sea-ground	Shanghai, China	Santa Cruz
Household appliances	Import	Sea-road	Sea-ground	Guangzhou, China	Santa Cruz
Machinery	Import	Truck	Road	Brazil-Corumbá-Puerto Suarez	Santa Cruz
Motor vehicles	Import	Truck	Sea-ground	Japan, United States, China-Arica-Tambo Quemado	Santa Cruz
Iron and steel (rail)	Import	Railcar	Rail	Brazil-Corumbá-Puerto Suarez	Santa Cruz
Iron and steel (road)	Import	Truck	Sea-ground	Brazil-Matarani-Desaguadero	La Paz

Source: ECLAC-NRID, based on data from CEBEC-CAINCO, with data from the National Institute of Statistics.

2. Paraguay¹³

Composition of trade

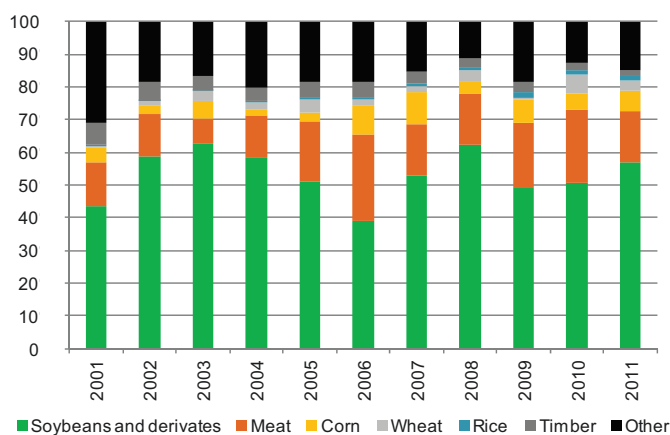
Figure 27 shows that the pattern of Paraguay's exports is characterized by a high concentration of products in just a few categories: soybeans, corn, wheat, rice, timber and meat, which on average accounted for 85 per cent of recorded exports. In the 1990s some significant changes occurred in Paraguay's major export crops. For example, there was a rise in the production of soybeans as a result of an increase in the area under cultivation and higher yields.

Growth in the output of soybeans was driven by expansion of the area under cultivation and an increase in the yield per hectare. The higher yields were achieved through the widespread introduction of mechanization in production operations, as well as more extensive utilization of agricultural chemicals and fertilizers.

Under this category there was also a significant increase in exports of corn and wheat, which between 2000 and 2005 accounted for only around US\$75 million annually, while in the period 2006–2011 this figure exceeded US\$350 million, and in 2011 these exports were valued at more than US\$605 million. Brazil was the principal market for these grains.

Performance in the livestock sector, especially beef production, was quite low during the years 1995–1999 owing to problems with foot and mouth disease, but it has rebounded in the last five years with sales to new markets such as Russia and Chile.

FIGURE 27
PRINCIPAL CATEGORIES OF PARAGUAYAN EXPORTS
(Percentages)



Source: ECLAC-NRID, based on data from the Central Bank of Paraguay.

A product that is losing ground relative to other exports is timber, with its share of total exports falling from 5.5 per cent to 2.5 per cent, although if it is analysed in absolute terms, one can see a modest increase from US\$60 million per year to around US\$100 million per year over the last five years.

¹³ ECLAC Logistics Study.

Table 11 shows that the principal import products are fuels, equipment and machinery, and miscellaneous products (electronics and luxury consumer goods referred to as “tourism goods”¹⁴ because they are intended for re-export to neighbouring countries), chemicals (including agricultural chemicals and fertilizers), and nondurable consumer goods, primarily food.

TABLE 11
PRINCIPAL CATEGORIES OF PARAGUAYAN IMPORTS, FREE ON BOARD (FOB)
(Millions of dollars)

	2010	2011	2012
Consumer goods	3 075.0	3 633.6	3 063.6
- Nondurable	2 415.9	2 819.1	2 376.4
- Durable	659.1	814.5	687.2
Intermediate goods	2 534.6	3 454.5	3 336.1
- Fuels	1 072.8	1 506.5	1 568.9
- Chemicals	682.1	939.1	800.5
- Other	779.7	1 008.9	966.7
Capital goods	3 790.2	4 414.0	3 343.2
- Machinery, equipment and engines	2 851.7	3 094.5	2 414.2
- Motor vehicles and accessories	677.2	905.6	697.7
- Other	261.3	413.9	231.3
TOTAL	9 399.8	11 502.1	9 742.9

Source: ECLAC-NRID, based on data from the Paraguayan Chamber of Importers.

Analysis of main products

Soybeans

Soybeans are among Paraguay’s principal export products, accounting for 50 per cent of the total value of exports on average. Soybean producers operate on medium-sized and large farms, and the majority of them use standardized production methods. Approximately 2.8 million hectares are under cultivation, with an average yield of 2.5 tons per hectare. Some 70 per cent of this output is exported in bulk form, while the remaining production is destined for industrial processing, with soybean oil being a key product.

The major production areas are in the eastern part of the country, in the departments of Alto Paraná (33 per cent), Itapúa (25 per cent) and Canindeyú (17 per cent). Another area that is seeing a rise in production is the San Pedro region (5 per cent). The static storage capacity available for soybeans is 5.1 million tons.

Between 2000 and 2003, 42 per cent of soybean exports were shipped by ground transport and 56 per cent by inland water transport, but the ban on the handling of genetically modified soybeans at the port of Paranaguá in Brazil and tariff problems at the border have resulted in a change in the logistics system. Currently, the soybeans produced are shipped in bulk by inland water transport to the ports of Nueva Palmira or Rosario, from which they are then shipped to ports overseas, with Rotterdam in the Netherlands being the principal destination. Between 2011 and 2012, on average 98 per cent of the exports went by water transport and 2 per cent by ground transport.

¹⁴ The tourism category includes goods such as watches, perfumes, computers, electronics, clothing and athletic shoes, beverages, tobacco and toys.

TABLE 12
PARAGUAY: ANNUAL PRODUCTION AND USE OF SOYBEANS, 1997–2011

	Exports		Industry		Seed	Total production
	Tons	%	Tons	%	Tons	Tons
1997	2 150 000	77.6	541 000	19.5	80 000	2 771 000
1998	2 293 601	76.8	641 000	21.5	53 600	2 988 201
1999	2 298 758	77.1	596 000	20.0	85 300	2 980 058
2000	2 025 552	69.6	810 871	27.9	75 000	2 911 423
2001	2 509 948	71.7	917 231	26.2	75 000	3 502 179
2002	2 385 979	67.3	1 085 695	30.6	75 000	3 546 674
2003	3 167 193	70.1	1 260 822	27.9	90 000	4 518 015
2004	2 664 415	68.1	1 172 000	30.0	75 000	3 911 415
2005	2 882 182	71.3	1 077 646	26.7	81 000	4 040 828
2006	2 380 344	65.4	1 180 842	32.4	80 000	3 641 186
2007	4 136 117	74.1	1 305 000	23.4	140 000	5 581 117
2008	4 438 085	74.4	1 390 000	23.3	140 000	5 968 085
2009	2 282 705	62.6	1 224 500	33.6	140 000	3 647 205
2010	4 654 429	72.0	1 558 000	24.1	250 000	6 462 429
2011	5 138 364	72.1	1 570 000	22.0	420 000	7 128 364

Source: ECLAC-NRID, based on <http://www.capeco.org.py>, accessed on 3 April 2013.

Meat

Exports of meat and processed meat products accounted for an average of 8 per cent of Paraguay's exports between 2000 and 2005, although between 2006 and 2012 there was a significant increase in these exports, and their share of total exports could reach 20 per cent. In 2012 Paraguay exported meat and meat by-products valued at US\$ 1,054 million. Meat industry exports grew from 27,000 tons in 1994 to 211,000 tons in 2010. In monetary terms, this represented an increase from US\$ 55 million in annual exports to US\$ 920 million, which places Paraguay among the top beef exporters in the world.

The major production areas are in both the eastern and western parts of the country, in the departments of San Pedro, Concepción, Amambay, Neembucú, Villa Hayes and Boquerón.

The principal export markets are Chile and the Russian Federation, accounting for 48 per cent and 25 per cent of total exports, respectively. Exports to the Russian Federation are shipped by water transport through the ports of Nueva Palmira and Buenos Aires. Meat is shipped to Chile by ground transport, via transit routes through Argentina. Other markets include Israel, Brazil and the Bolivarian Republic of Venezuela.

Delays in the delivery of animals for slaughter due to poor road conditions have an impact on the entire supply chain and can cause delays in the arrival of containers at the port of embarkation.

Wooden mouldings

Timber has traditionally been exported without a large degree of processing, which means that a high-quality product has been sold without the value added that could be achieved through processing. However, given the growing importance of value added products, such as parquet flooring materials and mouldings, this particular product has been chosen for this study.

Between 2000 and 2005, exports of wood products, primarily parquet flooring materials and mouldings, accounted for around 6 per cent of Paraguay's total exports; however, their relative importance declined between 2006 and 2012, accounting for an average of around 3 per cent. This is a value added export product that is shipped from Paraguay under tariff heading codes 4402, 4407, 4409, 4412 and 4418 (mouldings).

Manufacturers of wooden mouldings export their products primarily to the United States market, through a chain of distributors. The timber heading was chosen because this is a value added product that is shipped in containers and has a final destination at ports in the eastern part of the

United States. The products entering this market enjoy a preferential reduced-tariff status. Exports are shipped in 20-foot containers. The products leave the factory as consolidated freight.

Sesame seeds

Sesame seeds accounted for 1.5 per cent of Paraguay's exports between 2005 and 2012. The share of sesame seeds has grown rapidly since 2000, representing a source of income for rural families to replace income from cotton.

In Paraguay, the cultivation of sesame seeds increased from 16,800 hectares in 2000/01 to 70,000 hectares in 2009/10. According to estimates by the Ministry of Agriculture and Livestock, national output reached a record level of 42,000 tons in 2009/10. Some 75 per cent of the production is concentrated in the departments of San Pedro and Concepción, and other important areas include Canindeyú and Boquerón. In recent years, sesame seed production has experienced large variations in yield and in market prices. In good harvest seasons, significant profits can be generated, while in other periods the profit margins are smaller. Consequently, it is recommended that these variations be planned for in advance and that the cultivation of sesame seeds be combined if possible with other crops that have more predictable prices.

There are different varieties of sesame seeds, and Paraguay exports for the most part the white or white broom and golden seeds, with Japan serving as the principal export market. A significant share of the national sesame seed production is exported with an organic label. Almost all of the sesame seeds are exported without processing. Possible products derived from sesame seeds with export potential include sesame oil, sesame nougat (made with honey) and feed for ornamental birds.

Producers deliver sesame seeds in bags directly to middlemen or to collection centres. These centres serve as a temporary storage site for the product until sufficient volumes are reached that would justify transport to the vicinity of Asunción for shipment. A truck makes multiple stops to collect the product. Producers are not always ready to deliver the goods, which complicates the collection process.

In 2012 the average value of sesame seeds was US\$1,900 per ton.

Most of the exports are destined for the Asian market, with Japan accounting for the largest share (70 per cent), followed by Germany (10 per cent), Mexico (9 per cent), the Netherlands (8 per cent) and Argentina (7 per cent) as the main destination markets. Sesame seeds are not subject to tariffs in these markets.

Exports are shipped in containers by inland water transport to the ports of Nueva Palmira or Buenos Aires, and from there they travel by sea to the ports of Asia or northern Europe.

Agricultural chemicals

Fertilizers are imported primarily from Brazil, and in 2011 imports totalled around US\$550 million, with Brazil accounting for 67 per cent of this figure. Imports travel by ground transport and products are then loaded onto trucks that carry the fertilizers to the farming areas, to importers' warehouses or to designated warehouses. Most of the imports are packaged in Big Bags.

Corn

The area planted with corn at the national level in 2000-2001 was equal to approximately 406,000 hectares, and up until 2006 this figure remained practically unchanged, reaching 430,000 hectares. Between 2007 and 2011, however, there was a significant increase in the area under cultivation, reaching more than 736,000 hectares, while production rose from 1 million tons to close to 3 million tons. The main reasons for this rise in output are the expansion in the area under cultivation and higher productivity: the average yield during the first five-year period was 2.3 tons per hectare, which then rose to 3.5 tons per hectare.

The departments of Alto Paraná and Itapúa account for 54 per cent of total output; these departments are where the largest farms are located, with average yields of 4,000 kg per hectare based on hybrid varieties, which currently represent the bulk of corn exports. The departments of Canindeyú, Caaguazú and Caazapá account for 27 per cent of exports; the farms there produce

average yields on the order of 3,000 kg per hectare, while other regions that plant native varieties at low density bring in yields of around 2,000 kg per hectare.

Paraguay's corn exports have been rising steadily, from 214,905 tons in 2000 to 480,000 tons in 2005 and 1,936,984 tons in 2011. This increase is due primarily to expansion of the area under cultivation and the use by corporate growers of hybrid seeds that produce higher yields.

Brazil, which accounts for around 67 per cent of corn exports, is the main market for this product, followed by Uruguay with 7 per cent and China with 6 per cent. Exports to Brazil are shipped by ground transport using trucks that carry an average load of 27 tons.

LCL (less than container load) imports

In contrast to full container load (FCL) shipments, less than container load (LCL) imports include any product that is exported or imported in volumes less than the volume of cargo that fits in a container. This type of import is important in international trade because there are small exporters and importers who do not have sufficient cargo to fill up an entire container and there are also large importers and exporters who only need to send a sample or a replacement item.

There is a broad range of export products that fit into this category, such as essential oils, kaa heé, samples, etc., and there are also many imports in this category, such as toys, chemicals, replacement parts, etc. The consolidation of different shipments is handled by consolidator companies, which are international freight agents or freight forwarders, who include in the price the opportunity cost of not being able to fill the containers completely.

Information technology products

The flows in question involve imported products arriving in Asunción on commercial flights that operate daily from China with transit in Miami. Paraguay's air freight market includes direct international connections for passenger travel.

The products and corridors selected for Paraguay are listed in detail in the following table.

TABLE 13
PARAGUAY: PRINCIPAL PRODUCTS, MODE OF TRANSPORT AND TRANSPORTATION
CORRIDORS, 2012

Product	Export/ Import	Type of shipment	Corridor		
			Mode	Origin	Destination
Soybeans (unprocessed)	Export	Truck	Ground	Ciudad del Este	Cascavel (Brazil)
Soybeans (unprocessed)	Export	Barge	Inland waterway-Sea	Asunción-Nueva Palmira/Rosario	Rotterdam (Netherlands)
Chilled meat	Export	Refrigerated truck	Ground	Asunción	Santiago (Chile)
Frozen meat	Export	FCL 40'	Inland waterway-Sea	Asunción-Buenos Aires/Montevideo	St. Petersburg (Russian Federation)
Wooden mouldings	Export	FCL 20'	Inland waterway-Sea	Asunción-Buenos Aires/Montevideo	Miami (United States)
Sesame seeds	Export	FCL 40'	Inland waterway-Sea	Asunción-Buenos Aires/Montevideo	Osaka (Japan)
Agricultural chemicals	Import	Truck	Ground	Brazil	Asunción
Corn	Export	Truck	Ground	Asunción	Brazil
LCL	Import	346 cartons	Inland waterway-Sea	Houston-Buenos Aires	Asunción
Information technology	Import	1,200 kg	Air	Miami	Ciudad del Este

Source: Infrastructure Services Unit, ECLAC, 2013.

B. Approach to transit policy issues

This section presents an analysis of the institutional and legal frameworks in place in the region, including bilateral agreements and international conventions, among other things.

The principal initiatives and programmes aimed at the development of integrated and planned transportation systems are also described. This section provides an overview of the efforts and progress that have been made by the landlocked and transit countries in the region in reducing transportation costs and expediting border crossings:

- Progress in the development, adoption and implementation of the legal and regulatory frameworks with the aim of reducing the duration of transit processes and trade costs;
- Simplification and harmonization of the regulations related to transit and trade in order to improve the level of transparency;
- Further simplification of border controls and procedures or shorter customs inspections and clearances; a reduction in the excessive documentation required for exports and imports;
- Promotion of the use of information and communication technology at the borders; consolidation of capacity-building and training programmes in the sector; private-sector involvement.

1. Plurinational State of Bolivia

The principal authority regulating the transportation sector (rail, ground, air and sea transport) in the Plurinational State of Bolivia is the Telecommunications and Transport Control Authority (ATT). The responsibilities of this agency include the following:¹⁵

- Regulation of telecommunications and transportation services and oversight of their operators within a framework of transparency and competition, promoting the efficient use of scarce natural resources through the granting of permits, and ensuring the provision of these services;
- Ensuring the provision of high-quality transportation and telecommunications services, maintaining security, and ensuring that users and/or consumers are able to exercise their rights.

Ground transport activities, motor vehicle transport and terminal services are regulated in accordance with the provisions of Supreme Decree No. 28710, which states that the ATT shall carry out the economic regulation of the sector, shall conduct investigations at its own initiative or on the basis of reports of alleged anti-competitive or abusive practices with respect to competitors and users, and shall propose and oversee quality standards.

The activities performed by the ATT in the air transport subsector are: economic regulation, monitoring of concession contracts, proposal and oversight of technical standards, and protection of airport users against possible abusive practices on the part of airport administrators. The legal framework for the development of regulatory activities has been established by the provisions of Law No. 1600 on the Sectoral Regulation System, Law No. 2902 on Civil Aviation in the Plurinational State of Bolivia, Supreme Decree No. 24718 and specific administrative resolutions.

Another important aspect is the compatibility of road systems with the weight of vehicles, in light of the continuing integration of the road network in South America. There is no question that the lack of harmonization of the regulations regarding vehicle weight could result in an unexpected worsening of the road infrastructure and could entail significant costs.

¹⁵ This section is drawn in part from ECLAC (2012): Infrastructure and Transportation Profiles in Latin America: the Case of the Plurinational State of Bolivia; ECLAC, Santiago, Chile.

Finally, this regulatory entity shall perform the following activities in the rail transport subsector: economic regulation, granting of rights (rights of way) in accordance with a concession contract, the proposal and oversight of technical standards, the proposal and oversight of safety standards, the protection of users against possible abusive practices on the part of air transport operators, monitoring of investment plans and the proposal of rules to the executive branch. The regulation of these sectors is carried out within the framework of the provisions of the Law on Railways, Supreme Decrees No. 24177 and No. 24179, concession and licensing contracts, and specific administrative resolutions.

Customs facilitation in the Plurinational State of Bolivia¹⁶

The SIDUNEA Computerized Customs System is a computer tool that has been introduced in a number of countries with the aim of enhancing international trade through measures that include reforms of existing administrative practices. The National Customs Service of the Plurinational State of Bolivia has been using this information tool.

The principal modules of the SIDUNEA system include tasks related to: systems administration, the national configuration (regulations, tariffs, codes, etc., of a particular country), processing of the customs declaration, risk assessment (selectivity), accounting, entering of information by interested parties, use of administrative documents, and electronic clearance of goods.

The features of the SIDUNEA system include:

- It avoids the imposition of organizational templates in customs administration.
- SIDUNEA continuously updates the tables, agreements and regulations that the user follows in filling out declarations in accordance with the legislation in force.
- The user can see the details of his declarations stored locally in his workstation and can easily update the data.
- It has a selectivity module that allows customs authorities to speed up the clearance process and improve their oversight capability. It selects declarations to inspect using random local selection criteria.
- It allows for a comprehensive audit of files that contain the record of a trade transaction (import/export).

Additionally, the Plurinational State of Bolivia and Chile have made an agreement for establishing integrated border controls (2004, active since 2006), which has been implemented in three border crossings.¹⁷ In this context infrastructure investment projects have been developed and the construction of a new border control in Chungará is under way to improve the connectivity between the two countries. In this area, the strengthening of bilateral mechanism to coordinates actions and programming of future investments as well as the implementation of the agreement for the functioning of the Arica/Iquique/Santa Cruz/Cuiabá/Corumbá corridor remains a challenge.

2. Paraguay

In recent years, Paraguay has developed a Transportation Master Plan and a National Logistics Plan (PNL). Transportation Master Plan. The Master Plan intends to define short, medium and long term development of infrastructure and transport and logistics, in order to efficiently and effectively meet the requirements of productive sectors and the general population, in this way the plan should contribute to social development, the competitiveness of the economy and the access of domestic production to international markets.

¹⁶ ECLAC Logistics Study.

¹⁷ Visviri - Charaña, chungará-Tambo Quemado y Colchane – Pisiga.

The (PMT) Master Paraguay Transportation Plan was developed in 1992 by the Office of Comprehensive Transportation Planning (ITPO), Ministry of Public Works and Transport. The original Master Plan was replaced recently.

The National Logistics Plan attempts to streamline processes, increase opportunities for exporters capture supply chains and regional value through efficient logistics arrangements and reduce trade transaction costs. The PNL includes a) an analysis and evaluation of supply chains, b) development of a database of logistics indicators, and c) a proposal for an institutional and organizational framework for the development and implementation of PNL.

The PNL is part of an initiative to modernize the transport and logistics industry that the Government of Paraguay drives through the Ministries of Public Works and Communications and Industry and Commerce. The PNL was developed to identify strategies to improve logistics performance of Paraguay, promote the development of services and Value Added Logistics Infrastructure and support performance of supply chains.

The expected effects from the PNL are: a) reduction of the overall logistics cost of the country, b) better use of the territory from the point of view of logistics functions, c) attracting more investments in industrial or service sectors, d) improve Paraguay's geostrategic positioning within the region, and e) improved trade performance in general.

In 2007 a Logistics Roundtable to strengthen foreign trade was created, currently composed of 11 government agencies and over 20 private sector representatives was created. Since the creation of the Bureau of Logistics for foreign trade, and more rapidly since the establishment in 2010 of two working groups to respond to it (Hidrovia and air transport), participation has increased. The Roundtable has become an institutionalized forum for dialogue, a forum for exchange between the public and private sectors. Although this initiative does not have regulatory and executive power, its mixed and heterogeneous composition serves to identify sector problems without intermediation and to find practical solutions.

PNL proposes the installation of a National Logistics Observatory in order to measure and analyze the logistics performance of the country, and as a centre of concentration and diffusion of knowledge on logistics. Besides the PNL proposes logistics indicators to identify and analyze the main factors determining logistics performance (infrastructure, services, business benchmarking, trade facilitation).

Customs facilitation in Paraguay¹⁸

With regard to the status of the use of information technology applicable to transportation and logistics, Paraguay has the SOFIA system (System for the Fiscal Organization of Customs Levies), which was developed by the National Customs Administration. SOFIA is a computerized customs clearance system that interacts directly with the customs agents, transportation companies, warehouses and the Customs Administration.

The features of the SOFIA system include:

- SOFIA allows customs agents or transport agents to connect to the system so that they can prepare the import/export clearances or manifests from their own offices.
- It also allows for the performance of operations from authorized public centres.

The customs agent goes to the customs office to perform his operations (presentation of the clearance, documentary and/or physical verification, and subsequent removal of the goods) in accordance with the assigned selective channel.

- The system operates electronically in terms of revenue collection, using funds deposited at a local bank or at authorized counters at the customs office, once the amount has been posted

¹⁸ ECLAC Logistics Study.

to the joint account of the customs agent and the importer that is intended for making tax payments.

With the aim of bringing greater transparency and dynamism to formalities involving trade operations, the Government of Paraguay has adopted measures to modernize its trade regime and make it more flexible. One of the most notable and concrete measures in this regard was the implementation of the one-stop shop for exporters (VUE), starting in 2006, and then later, the one-stop shop for imports (VUI), which was developed on the basis of the VUE electronic management system, through the signing of a Cooperation and Assistance Agreement between the National Customs Administration and the Ministry of Industry and Trade. The implementation of these systems has been completed, they are now functioning and the process of involving the relevant institutions is under way.

The VUE one-stop shop for exporters, which was promoted by the Ministry of Industry and Trade (MIT). The VUE is an integrated management system based on the re-engineering of procedures, legal alignment and a technological structure that enables persons and institutions involved in exportation to operate in an interactive way, thereby facilitating export procedures. The SOFIA and VUE systems are integrated.

The VUE has produced positive results by providing a tool for exporters that streamlines extra customs processes for exports. On average, the formalities for the National Register of Exporters have been simplified by 99 per cent; the number of steps required for the Certification of Origin has been reduced by 95 per cent and the time required for processing has been cut by 98 per cent, among other advances in various processes. This represents a valuable contribution in the form of improvement management related to the administration of information.

As mentioned above, the one-stop shop for imports (VUI) is one of the tools being used to provide for simple, rapid and transparent import processes, in addition to reducing formalities and costs. In practical terms, the objective of the VUI is to ease and simplify the flows of information between the trade sector and government authorities and to provide significant benefits to all of the parties involved in importation.

More information about these initiatives involving various instruments can be found on the official website of the Ministry of Industry and Trade: www.mic.gov.py and www.vue.org.py.

Another tool for simplifying border controls and procedures and reducing the length of time required for customs inspections and clearances is the National Information and Notification System for Regulations, Rules and Procedures (SNIN) for trade facilitation. It was established in accordance with Decree No. 6499/05 and it is part of the ALA/PY2004/016-713 project, which is referred to as FOCOSEP (Strengthening the Competitiveness of the Paraguayan Export Sector), with financial assistance provided by the European Union up until May 2008.

Among the specific objectives of this system is the facilitation of trade in products based on International Technical Regulations.

The SNIN has information for members of the public who are interested in topics related to external trade, barriers and technical regulations, in addition to other information to provide alerts to exporters. Approximately 50 notifications within the framework of the WTO are posted each month on the SNIN website, with information provided by various WTO member countries.

Likewise, additions have been made to the regulation regarding the enactment of Decree No. 1765 of 2009, which governs the functioning of the SNIN and defines its strategy, and also converts it into an administration operating under the Ministry of Industry and Trade. At the same time, Decree No. 1766/09 was adopted, which established the National Committee on Technical Barriers to Trade.

This instrument and the relevant information are available on the official website of the Ministry of Industry and Trade: www.mic.gov.py and www.snin.gov.py.

The National Customs Administration is engaged in the implementation of the recommendations of the World Customs Organization with the aim of achieving maximum efficiency for the customs clearance of goods, imports and exports alike.

3. Regional Initiatives of Customs

The expansion of the Quality Management System to various customs administrations is intended to simplify, update, boost and improve the delivery of services, and to make this process more flexible, and thereby to build confidence.

In addition, work is being done to bring about the gradual implementation of the recommendations of the Framework of Standards to Secure and Facilitate International Trade (SAFE) of the World Customs Organization, the purpose of which is to:

- Establish standards that provide supply chain security and facilitation at a global level to promote certainty and predictability;
- Enable integrated supply chain management for all modes of transport;
- Enhance the role, functions and capabilities of customs to meet the challenges and opportunities of the twenty-first century;
- Strengthen cooperation among customs administrations to improve their capability to detect high-risk consignments;
- Strengthen customs/business cooperation;
- Promote the seamless movement of goods through secure international trade supply chains.

MERCOSUR adopted resolution 17/04, calling for the implementation of the International Customs Transit Computerized System (SINTIA), which provides for a registration and follow-up procedure for the International Cargo Manifest(ICM)/Customs Transit Declaration, the purpose of which is to ensure that there is a single customs declaration for each international waybill or international bill of lading, while at the same time providing for the use of technological advances to digitize the International Cargo Manifest among the signatory countries.

The Argentine Republic introduced another significant innovation through the Customs Transit Security Initiative (ISTA), which is currently undergoing a test phase in Paraguay, and which has regulatory support within the framework of MERCOSUR through directive 13/12. This directive promotes the implementation of initiatives based on the application of security mechanisms in the States Parties employing modern technology to ensure the integrity and security of the cargo, with the aim of monitoring international customs transit operations that are carried out under the Agreement on International Land Transport (ATIT) throughout the entire territory of the States Parties.

Another significant step in this direction was the initiative to undertake the development of a single customs document for MERCOSUR (DUAM) as a model to be used for the integration of common data pertaining to customs declarations and procedures for trade within MERCOSUR. Once it is launched, it will be used as a tool for the processing and generation of data for the performance of supervision and risk analysis tasks, thereby facilitating the sharing of information among the customs authorities and the free circulation of and trade in goods among the countries involved.

Another area in which the Government is making progress is in the adoption of the recommendations of the World Customs Organizations contained in the document “Customs in the 21st Century”, which are based on 10 building blocks to improve global customs operations, the key elements of which are as follows:

- Globally networked customs;
- Better coordinated border management;
- Intelligence-driven risk management;

- Customs-trade partnership;
- Implementation of modern working methods, procedures and techniques;
- Enabling technology and tools;
- Enabling powers;
- A professional, knowledge-based service culture;
- Capacity-building;
- Integrity.

The Agreement on International Land Transport, which was signed by Argentina, the Plurinational State of Bolivia, Brazil, Chile, Paraguay and Uruguay within the framework of the Latin American Integration Association (ALADI), governs international land transport among the signatories.

In accordance with the MERCOSUR Recife Agreement, the National Navigation and Ports Administration of Paraguay (ANNP) is the agency responsible for providing the physical facilities necessary for the relevant integrated control, under the coordination of the Ministry of Public Works and Communications (MOPC), both for Paraguayan institutions and for neighbouring countries.

Integrated control is also intended to facilitate trade and ease the movement of people and goods through border crossings. Nevertheless, in spite of the progress that has been made in terms of infrastructure projects, at all of the border crossings that are in regular operation, much remains to be done to achieve the full implementation of the Agreement with regard to integration on the part of neighbouring transit countries.

Paraguay is an active participant in the Working Group of the International Telecommunication Union (ITU) that is responsible for preparations for the World Conference on International Telecommunications. This group approved Resolution 30 of the Plenipotentiary Conference (Guadalajara, 2010), which defines special measures for the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

In 2011, the Republic of Paraguay presented a draft resolution within the framework of this Working Group, which envisages the establishment of special measures for landlocked developing countries (LLDCs) that would allow them greater and easier access to the international fibre-optic network. For Paraguay, this is an essential tool for overcoming the limitations arising from its status as a landlocked developing country and the nature of its production structure.

With respect to the Internet, penetration is still limited owing to the high cost of the service and the low income levels of the population in general. In March 2009, however, this market received a sharp boost with the publication of a new regulation that liberalized international access (Regulation on International Access and Data Transmission Services, Resolution No. 190 of 11 March 2009). While there are no other fixed-line telephone operators in Paraguay, local mobile telephone providers will be able to establish new fibre-optic connections.

In spite of this progress, the prices continue to be the highest among MERCOSUR countries. In 2009 the Internet penetration rate was 2.43 subscribers per 100 inhabitants, which is relatively low compared to the rates for the other countries in the region. The number of mobile Internet subscribers as of June 2012 had reached 327,289, while the number of fixed-line Internet subscribers was 129,907, making for a total of 457,196 Internet subscribers, which is equal to a penetration rate of 7.08 per 100 inhabitants.

There is a project being planned by COPACO, Paraguay's state-owned telephone company, to lay a new cable link between Paraguay and the Plurinational State of Bolivia, with a view to crossing the rest of the continent all the way to the Pacific Ocean, where a connection would be made by means of a submarine cable to the international fibre-optic network. This connection could do much to help reduce broadband prices and increase Internet penetration.

C. Logistics performance and trade facilitation

1. Plurinational State of Bolivia and Paraguay

The cost and quality of logistics factors are determined not only by the infrastructure and the performance of public authorities, but also by the availability of high-quality, competitive private services. In this regard, the Doing Business report and the Logistics Performance Index (LPI) developed by the World Bank – both based on surveys and studies – are the principal tools available for evaluating a country's trade facilitation programmes and logistics performance.

The measurement system consists of a scale between 1 and 5, with 1 being the least efficient and 5 being the most efficient. Singapore is ranked as the most competitive and Burundi as the least effective. Singapore is one of the most competitive countries and Burundi one of the least competitive countries in this ranking. Among the 155 countries that are part of this study, the Plurinational State of Bolivia is in 90th place, with a score that puts it ahead of only the Bolivarian Republic of Venezuela and Paraguay among the other countries in the region.

In the context of trade facilitation it is also of importance to understand the ease of doing business. The Plurinational State of Bolivia is in 155th place and Paraguay is in 103rd place of the 185 economies in the World Bank's global ranking on the ease of doing business. The results of the measurements related to international trade in the Plurinational State of Bolivia and Paraguay reflect the difficulties, high costs and inefficiencies, with the two countries in 125th place and 155th place, respectively. Likewise, of the 33 countries studied in the 2013 report on Latin America and the Caribbean (LAC), both of the economies observed are in last place in the regional ranking, together with the Bolivarian Republic of Venezuela and Haiti. The countries with the top positions on the list are Panama, Barbados and Chile, respectively.

TABLE 14
TRADE FACILITATION INDICATORS

Indicator	The Plurinational State of Bolivia	Paraguay	LAC	OECD
Documents required for export (no.)	8	8	6	4
Time required for export (days)	19	33	17	10
Cost of export (dollars per container)	1 425	1 440	1 268	1 028
Documents required for import (no.)	7	10	7	5
Time required for import (days)	23	33	19	10
Cost of import (dollars per container)	1 747	1 750	1 612	1 080

Source: ECLAC-NRID, based on Doing Business 2013.

The gap in cross-border trade facilitation is much greater than what is seen in emerging economies in the Asia-Pacific region or in countries that are members of the Organisation for Economic Co-operation and Development (OECD). One can see that operations involving the preparation of documents, such as the handling of customs formalities, obtaining certifications and permits for the entry and exit of containers, among other procedures, are the principal factor contributing to the major import and export costs for a standard shipment of goods. This is a reflection of the bureaucratic structures of public authorities in both countries, which have an adverse effect on the costs and time associated with international trade operations.

2. Paraguay, participation in negotiations intended to facilitate trade¹⁹

While the future World Trade Organization (WTO) Trade Facilitation Agreement calls for the establishment of a National Committee to provide assistance in the implementation of the Trade Facilitation Agreement, there is already a Working Group at the national level, which meets to address topics related to trade facilitation, and specifically freedom of transit and customs clearance. In this connection, with the cooperation of the United Nations Conference on Trade and Development (UNCTAD) and funding from the European Union and Norway, an assessment was performed of the level of Paraguay's compliance in the implementation of measures and in the design of an implementation plan for the future agreement. As a result of this analysis, it should be noted that the majority of the measures that will be included in the future agreement have been implemented in part. At the same time, there are measures that have been implemented in full, such as: the measures to enhance impartiality, non-discrimination and transparency (Article 5); certain issues regarding the release and clearance of goods (Article 7); declaration of transhipped or in transit goods (Article 9 bis); and certain formalities connected with importation and exportation (Article 10). Nevertheless, there are difficulties with all of these measures in terms of their overall implementation, continuity, sustainability or improvement. The measures that have not yet been implemented are the appeal procedures, other measures involving the customs release and clearance of goods, and consularization.

Paraguay has traditionally played an active part in the Doha Round negotiations in connection with its interest in rules-based international trade that recognizes the asymmetries and generates the means necessary to correct them, through greater participation by developing countries, and in particular the vulnerable landlocked countries, including broader participation in world trade through better access to markets.

In this regard, Paraguay is placing an emphasis on negotiations on Agriculture and Trade Facilitation, without neglecting the other aspects of the negotiations, such as Services, Non-agricultural Market Access, Dispute Settlement, Sanitary and Phytosanitary Measures, Technical Barriers to Trade, Regional Trade Agreements, etc. Paraguay is a participant in various groups created to provide for follow-up and promotion of the negotiation topics, and from this perspective it presents and supports proposals that put forward its positions and interests.

On the other hand, Paraguay fully supports the positions set forth in the Ministerial Declaration of the Fourth Meeting of the Ministers of Landlocked Developing Countries Responsible for Trade, which was held in September 2012 in Almaty, Kazakhstan.

Similarly, the Plurinational State of Bolivia has been proactive in its international agreements.²⁰

With regard to the facilitation of transit to and from the Plurinational State of Bolivia, the following bilateral and multilateral agreements have been signed:

- the General Agreement on Integration and Economic and Social Cooperation to establish a common market between the Plurinational State of Bolivia and Peru (August 2004).
 - the Plurinational State of Bolivia has signed agreements within the framework of the Generalized System of Preferences (GSP) with the following countries, and these agreements are still in force: Japan, Turkey, Switzerland, Russian Federation, Canada, New Zealand, Norway.
- The Plurinational State of Bolivia has entered into the following trade agreements, which facilitate and promote commitments in relation to transport:
 - the Andean Community

¹⁹ Report of the Government of Paraguay.

²⁰ This section is drawn in part from ECLAC (2012): Infrastructure and Transportation Profiles in Latin America: the Case of the Plurinational State of The Plurinational State of Bolivia; ECLAC, Santiago, Chile.

- the Plurinational State of Bolivia - Chile
- the Plurinational State of Bolivia - Mexico
- the Plurinational State of Bolivia - MERCOSUR
- the Plurinational State of Bolivia - Cuba
- the Plurinational State of Bolivia - Brazil and Argentina
- the Plurinational State of Bolivia - Bolivarian Republic of Venezuela
- the Plurinational State of Bolivia - Panama

As far as regional initiatives are concerned, the four main initiatives related to institutional mechanisms and regulations for infrastructure projects and trade facilitation are the Southern Common Market (MERCOSUR), the Andean Community (CAN), the Latin American Integration Association (ALADI) and the IIRSA Initiative.²¹

MERCOSUR. Over recent years important decisions have been adopted within the framework of MERCOSUR with the aim of ensuring equitable conditions in the chains of production and reducing the asymmetries among countries in the region. The establishment of the MERCOSUR Structural Convergence Fund (FOCEM) was an important step towards the creation of direct financing for projects that contribute to reducing the current infrastructure asymmetries among the member countries.²²

Andean Community. The principal objective of this body is to promote integration through trade liberalization and the use of a common external tariff.²³ In 2005, in order to further facilitate the exchange of goods and services, the decision was made to strengthen the institutional and jurisdictional framework, to create a joint programme to promote investment and production, and to adopt special assistance programmes for the Plurinational State of Bolivia. These assistance programmes are focused on the establishment of regulations for international road transport, freight transport via inland waterways, air transport and multimodal transport, and the establishment of Border Integration Zones.²⁴

Latin American Integration Association (ALADI). This organization facilitates the creation of preferential markets in the region with the aim of establishing a common market in Latin America.²⁵ The measures adopted by the Association serve as a framework for the signing of agreements in the area of transport. In 2003, the Latin American Logistics Association (ALL) was created for the purpose of promoting knowledge-sharing among the members, analysing specific logistics problems, promoting training services and capacity-building in various areas of logistics, and supporting the creation of logistics associations in Latin American countries.

ALADI has carried out various studies on road transport, which served as the basis for the adoption of an agreement to encourage the convergence of regulations for this means of transport in South America.²⁶ There are no specific agreements pertaining to air and sea transport, however.

²¹ The Initiative for the Integration of Regional Infrastructure in South America (IIRSA) is a forum for dialogue among the authorities responsible for transportation, energy and communications infrastructure in the 12 South American countries. The aim of the IIRSA is to promote the development of infrastructure from a regional perspective, by pursuing the physical integration of the countries of South America and the achievement of an equitable and sustainable model for regional development.

²² The main objectives of the Fund are to promote structural convergence and social cohesion, especially in the smallest countries and the least developed regions, to support institutional structures and to strengthen the integration process.

²³ Trade liberalization was achieved in 1993, followed by a customs union in 1995 (although with some imperfections) and the application of common trade regulations. A common external tariff for imports from countries that are not members of the Andean Community was established along with the customs union.

²⁴ The Border Integration Zones allow for the inclusion of integrated controls at Binational Border Services Centres (CEBAFs).

²⁵ Three mechanisms are employed to achieve these objectives: i) a preferential tariff system for products from the region; ii) pacts and regional policies for all of the Member States; iii) pacts among certain Member States.

²⁶ The Agreement on International Land Transport (ATIT), which regulates road and rail transport in the geographical zone comprised of Argentina, the Plurinational State of Bolivia, Brazil, Chile, Paraguay, Peru and Uruguay, was adopted in 1991.

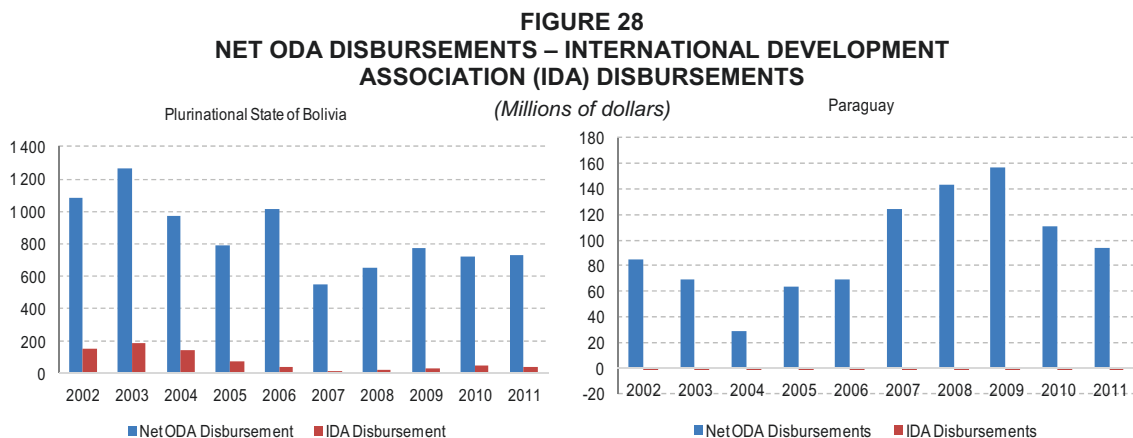
IV. International support measures and emerging issues

This section provides an overview of the trends that have been observed since the adoption of the APOA with regard to international assistance initiatives to help the region mitigate the adverse impacts of the geographical conditions of the countries being studied, with the aim of establishing efficient, reliable and sustainable transportation systems, the building of productive capacities, and trade facilitation.

The analysis addresses, among other things, official development assistance (ODA), debt relief, access to markets, cooperative technical assistance, trade assistance, etc., as well as key issues that were not originally included among the Programme's priority areas, that is, issues that have emerged over the past decade and have had an impact on the socio-economic outlook of the landlocked countries. The proposals and debates concerning the resolution of these problems are also discussed.

A. Official development assistance (ODA)

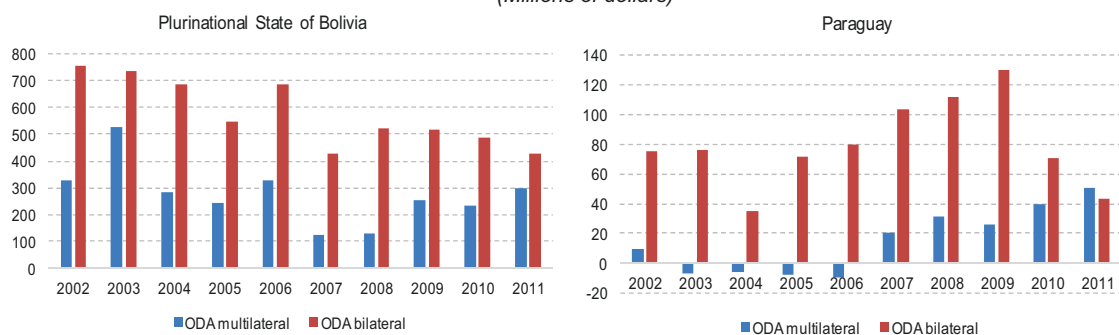
The following figures present data concerning various forms of official development assistance provided to the Plurinational State of Bolivia and Paraguay, respectively.



Source: Based on OECD (2013).

FIGURE 29
COMPONENT OF NET ODA

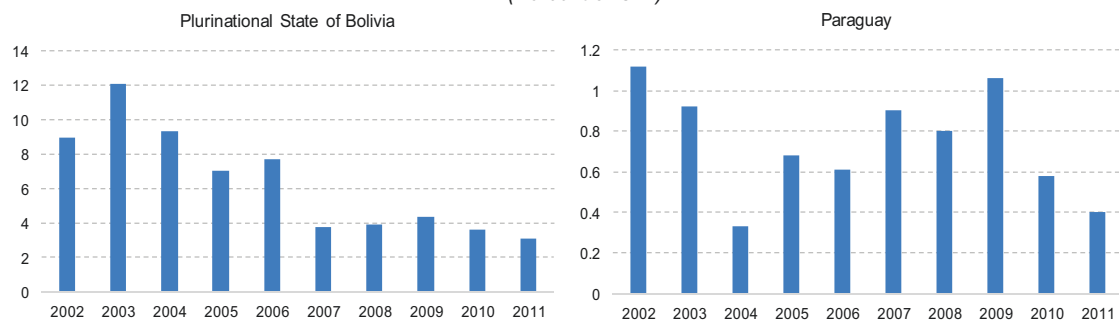
(Millions of dollars)



Source: based on OECD (2013).

FIGURE 30
NET ODA AS A PERCENTAGE OF GROSS NATIONAL INCOME (GNI)

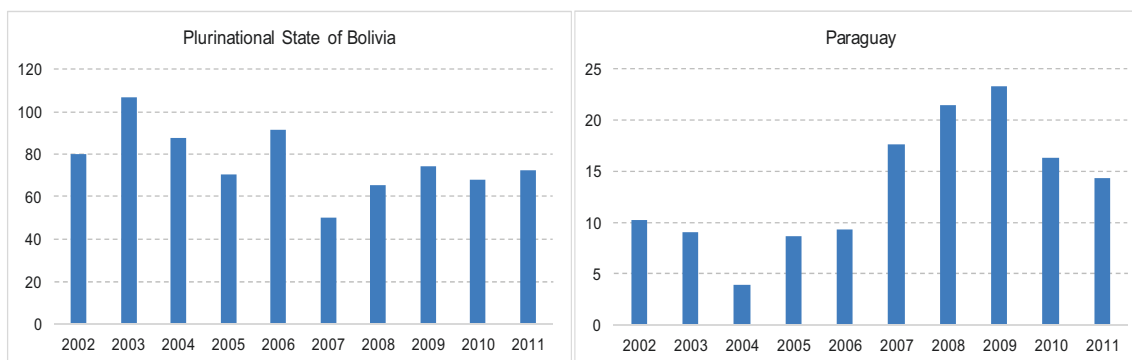
(Percent of GNI)



Source: based on OECD (2013).

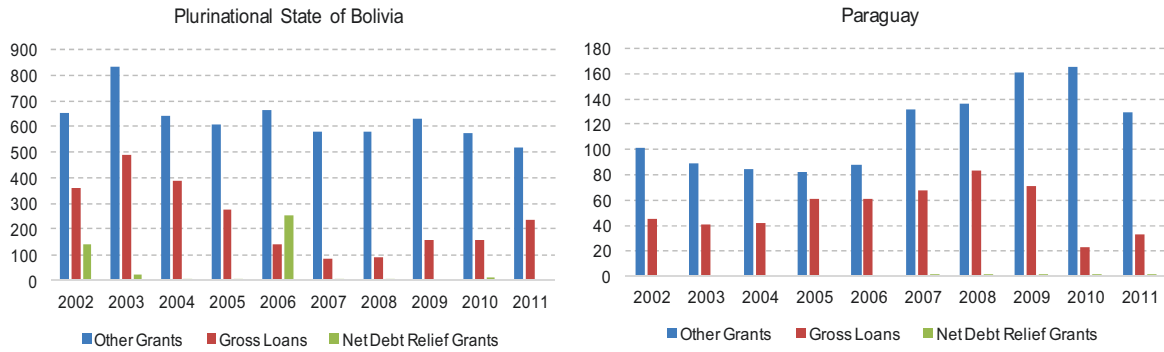
FIGURE 31
NET ODA DISBURSEMENTS PER CAPITA

(Millions of dollars)



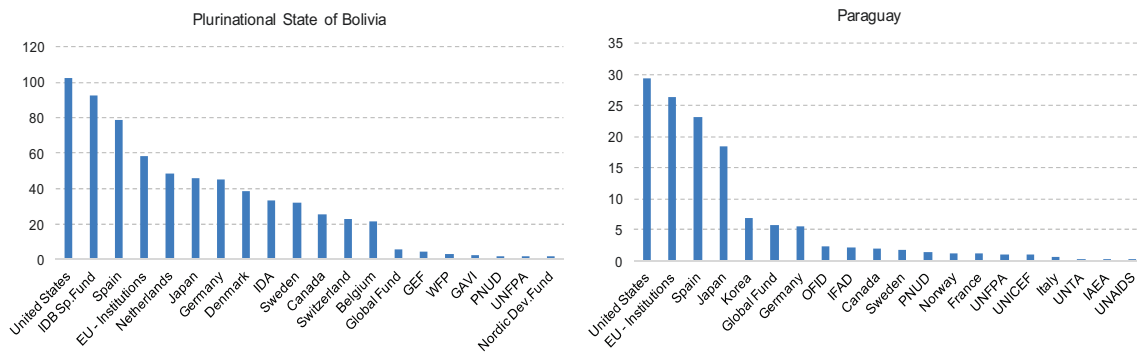
Source: based on OECD (2013).

FIGURE 32
ODA DISBURSEMENTS AS TYPE OF FINANCING
(Millions of dollars)



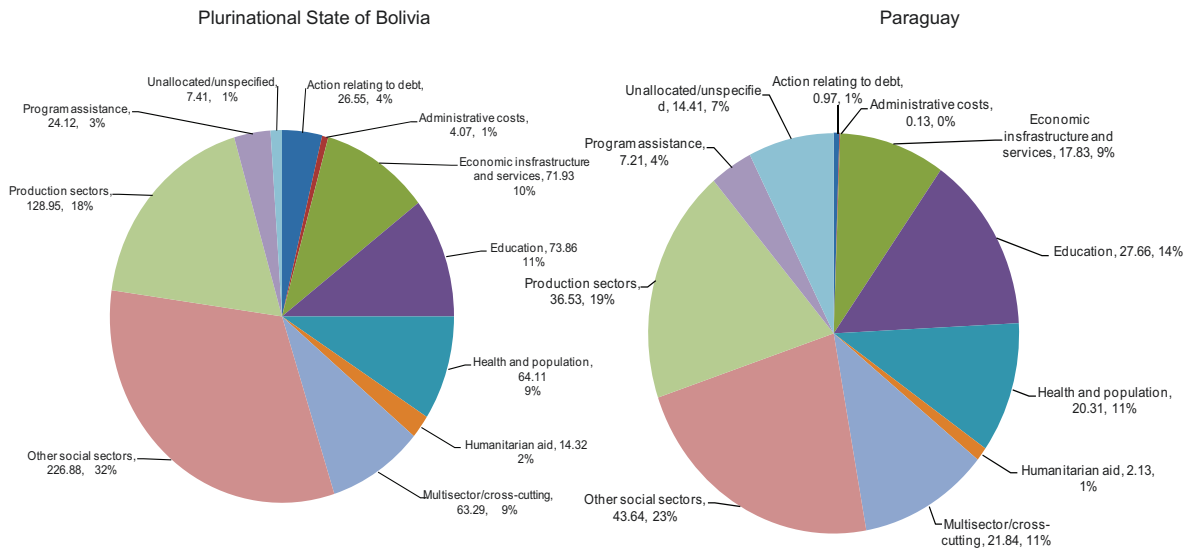
Source: based on OECD (2013)

FIGURE 33
SOURCE OF ODA - TOP 10 DONORS - AVERAGE FOR LAST FIVE YEARS
(Millions of dollars)



Source: based on OECD (2013)

FIGURE 34
GROSS ODA DISBURSEMENTS BY SECTOR - AVERAGE LAST 5 YEARS
(Millions of dollars)



Source: Based on OECD (2013).

B. Corridor Paving Programme²⁷

The Road Integration, Rehabilitation and Maintenance Corridor Paving Programme is a programme financed by a loan from the Inter-American Development Bank (IDB) that is currently in the implementation stage. The purpose of the programme is to contribute to improving the competitiveness of the productive sector and the economic and social integration of Paraguay through the paving, rehabilitation and maintenance of various main corridors of the road network.

The aim of the programme is to reduce transportation costs in the national and international integration corridors through the Transportation Infrastructure and Services Master Plan, while at the same time preserving the country's road infrastructure assets. The programme will improve the ease of transit and level of accessibility in its respective areas of influence, as well as road safety and the travel time on the road sections and routes that are involved. The updating of the Transportation Infrastructure and Services Master Plan that is being financed by a loan from the IDB is in the final technical assessment stage regarding the proposals presented by consultants. The last Transportation Master Plan was prepared in 1992.

C. Other cooperation initiatives

The Programme for the Renovation and Modernization of Public Transport and Government Offices Project PR-L 1044, financed by the IDB, is currently in the design stage and the Ministry of Public Works and Communications is the agency responsible for its implementation. The aim of this programme is to contribute to improvement of the quality of urban life for the population in the project's area of influence and to the rebalancing of urban growth in the city of Asunción, the nation's capital.

With regard to South-South cooperation, various suggestions can be made in terms of the programme's improvements, challenges and solutions:

- Strengthen the political dialogue with cooperating countries and regional bodies concerned with this topic with the aim of avoiding duplication and developing the relevant connections that will enhance aid effectiveness.
- Enhance the technical and management capacities of South-South cooperation.
- Strengthen and promote national information systems so as to facilitate decision-making.
- Design a project and/or programme monitoring and evaluation mechanism and reduce the fragmentation and duplication of actions.
- Develop greater international negotiating, coordination and international articulation capacities.
- Develop a single template for South-South cooperation.
- Develop mechanisms for more widespread dissemination of opportunities for cooperation and the strengths and successful experiences offered by the countries involved.

In this context, special mention should be made of the progress that has been made in the solutions and mechanisms of South-South cooperation that should continue to be focused on social inclusion and social participation. The development and strengthening of individual, collective and institutional capacity-building should also be focused on achieving the sustainability of cooperation activities.

It is worth noting that the principal challenge facing Latin America and the Caribbean continues to be the struggle against inequality. The environment of inequality in the region means that South-South cooperation strategies need to promote inclusive development and improvement of the conditions for the integration and participation of various segments of the population in the economic, political and environmental spheres.

²⁷ Report of the Government of Paraguay.

Governments have made significant progress in the implementation of the Almaty Programme of Action, in all of the areas addressed by the programme. Nevertheless, there is still a long way to go in terms of the internal actions that can be carried out. These include improvement of internal management, and another very important factor, which depends on the flows of investments and international financial assistance that contribute to the development of the entire transportation and communications infrastructure.

D. International support

The European Union has contributed €133 million to the Plurinational State of Bolivia based on the Country Strategy Paper of the European Commission for 2002–2006. Financing has been provided for projects primarily in the areas of improvement of the road infrastructure between Santa Cruz and Puerto Suárez, alternative development, economic cooperation in the area of trade, and budget support for the supply of drinking water and the installation of sewage systems. In addition, the European Commission, through the adoption of the Country Strategy Paper for 2007–2013, has proposed a contribution of €234 million with the aim of creating economic opportunities, combating the production and trafficking of illegal drugs, and integrated watershed management.

The Plurinational State of Bolivia is also receiving support through programmes being carried out jointly by the European Community and the Andean Community, which are focused on promoting the participation of civil society in the regional integration process and the establishment of a common Andean market through the improvement of statistical information sources, technical trade assistance, and harmonization of standards and technical rules.

There are plans to create trade mechanisms through the Forum for East Asia-Latin America Cooperation (FOCOLAE) that will benefit landlocked developing countries such as the Plurinational State of Bolivia and Paraguay.

E. Emerging issues

The Millennium Declaration and the Almaty Programme of Action have helped to raise awareness among the international community of the specific obstacles that are faced by landlocked countries. In addition to the challenges that were recognized and stated initially at the time that the Programme was launched, new issues and challenges have emerged that need to be taken into consideration in any future programme of action to be adopted by the Review Conference on the Implementation of the Almaty Programme of Action.

Integration with global communication technology and data transmission systems: Over the past decade since the Programme was launched, numerous advances have been made in communication technology, and there are now various devices or information technology tools that were not available at the time that the original declaration was adopted. It is important to bear in mind for any potential updating of the provisions of the Programme that the changes in the technological landscape offer unprecedented possibilities, while at the same time giving rise to new challenges and needs. Fibre optics, among other advances, is one such tool, offering a cost-effective way to handle telecommunications. For this reason access to international fibre-optic networks is essential to promote the integrated development of landlocked countries.

Environment: While the importance of a prudent approach to environmental issues is already addressed in the original provisions of the Programme, the knowledge available a decade later allows for and requires the urgent development of transport and transit infrastructure and services systems that are socially, economically and environmentally sustainable. This process should be based on a fresh perspective that takes into consideration the need for landlocked countries to have at their disposal technological advancements and appropriate cooperation measures to mitigate the adverse effects of phenomena being observed around the planet, including climate change.

Policies for the service sector: A constraint that affects landlocked countries and that has become increasingly evident since the adoption of the Programme is the way in which the commercialization of

the service sector is insufficient to address certain difficulties of a geographical nature. For this reason, it would be useful for an updating of the Programme to provide for the implementation of a set of potential measures to alleviate these problems.

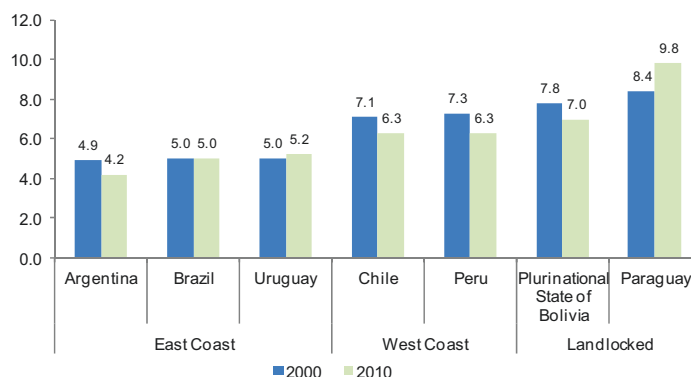
Investment and international assistance: One of the issues that has emerged as a major impediment to development is the lack of investment in the creation of new employment and business opportunities, and at the same time, the insufficient percentage of official development assistance going to these countries, as well as inadequate coordination with international financial institutions. For this reason, it is necessary to act urgently to develop mechanisms that could help to reverse this trend.

Other energy sources: While the advances that have been made with regard to the production of clean energy are significant, as are the related opportunities in terms of the provision of technical assistance and collaboration through shared experiences, there still needs to be better access to transportation and infrastructure facilities so that the international distribution of services in this sector can move towards more pronounced and sustainable development. To this end, it is recommended that efforts be made to coordinate joint actions among landlocked countries and transit countries for the free circulation of energy and the elimination of unnecessary and counterproductive obstacles.

V. Logistics performance and transport costs in Latin American landlocked countries

The contribution of freight to the total price of imports²⁸ between 2000 and 2010 grew from 8.4 per cent to 9.8 per cent in Paraguay, while during the same period in the Plurinational State of Bolivia this figure fell from an average of 7.8 per cent to 7.0 per cent. As for transit countries, Uruguay saw a slight increase (0.2 per cent) in the contribution of freight to the total cost and Brazil experienced no change, while the rest of the countries reported a decline, with Peru in particular showing a drop of 1 percentage point during the decade in question. As one can see from the following figure, the two landlocked countries continue to have a higher proportion of freight costs than the transit countries. The burden of transport costs in relation to the value of the imported product depends on a number of factors (i.e. distance, logistics performance, market structure, economies of scale, competition, port productivity and efficiency among others).

FIGURE 35
CONTRIBUTION OF INTERNATIONAL FREIGHT TO THE TOTAL COST OF IMPORTS



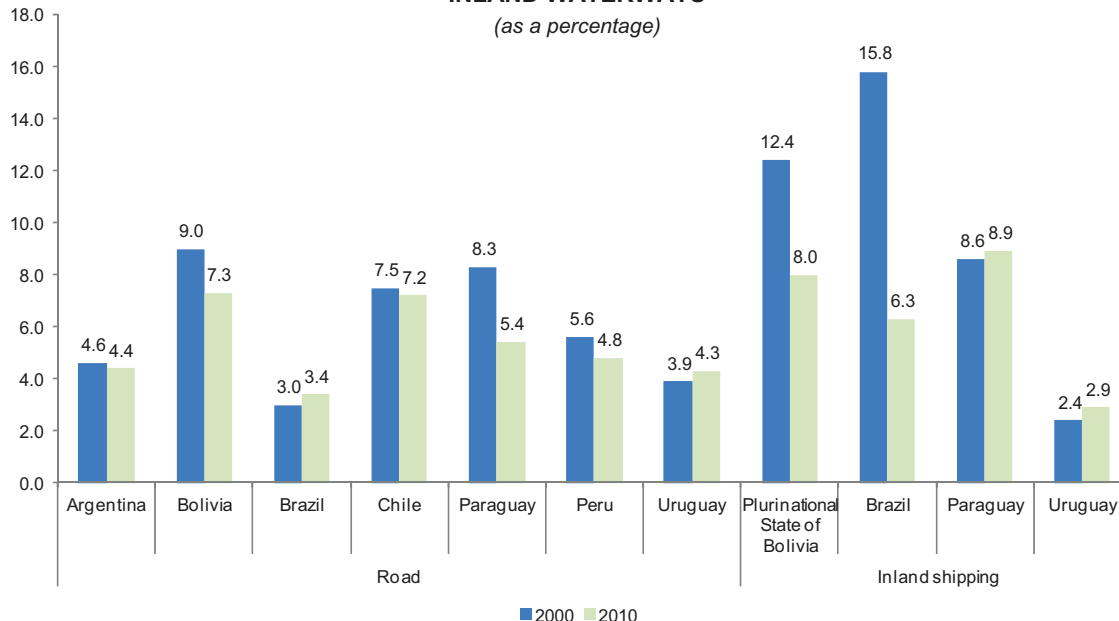
Source: International transport database, Infrastructure Services Unit, ECLAC, 2013.

Note: The burden of transport costs is calculated as the percentage of the CIF value of imports.

²⁸ The burden of transport costs is calculated as the percentage of the CIF value of imports.

Similarly, the contribution of freight to the total cost of imports by mode of transport shows that in spite of significant improvements made in the landlocked countries over the decade, in those countries freight costs continue to account for a larger share than in the transit countries, as one can see from the following figure. In the particular case of freight travelling by inland water transport, Paraguay and the Plurinational State of Bolivia reported the highest values, with 8.9 per cent and 8 per cent, respectively, while in terms of road transport, the Plurinational State of Bolivia had the highest figure with 7.3 per cent of the total costs, followed by Chile with 7.2 per cent. This is a reflection of the fact that many of the difficulties or inefficiencies facing the landlocked countries are shared by the transit countries as well, and for this reason, finding effective solutions to these difficulties would benefit both parties.

FIGURE 36
CONTRIBUTION OF INTERNATIONAL FREIGHT TO THE TOTAL COST OF IMPORTS BY ROAD AND INLAND WATERWAYS



Source: International transport database, Infrastructure Services Unit, ECLAC, 2013

Note: The burden of transport costs is calculated as the percentage of the CIF value of imports.

Nevertheless, the competitiveness of the landlocked countries is not determined solely by the freight charges that they pay in foreign trade operations. It is also necessary to evaluate other factors, such as the facilitation of customs procedures, border-crossing procedures, distribution and warehousing logistics, and waiting time for loading and unloading within the country and in transit countries. To this end, during the period between October and December of 2012, making use of the methodology developed in 2006 for the analysis of the Impact of Transport and Logistics on International Trade Competitiveness in Paraguay,²⁹ an analysis was performed of the principal characteristics and cost overruns of 20 export and import chains in Paraguay and 13 in the Plurinational State of Bolivia, an activity that was carried out through onsite interviews at businesses and institutions involved in the foreign trade operations of these countries.

Given the difficulties associated with the collection of statistical data and in particular the wide variability in logistics costs that were observed, the objective of this section is not to calculate the cost of the landlocked position of these countries, but rather to identify the principal difficulties that the landlocked countries are faced with in their foreign trade operations and the extent to which they affect their competitiveness. This information will make it possible to identify the main trade barriers and where actions should be prioritized both at the national level and the regional level. For the record, it

²⁹ Document prepared for the United States Agency for International Development (USAID) by the CARANA Corporation, June 2006.

should be noted that the study was based on a selection of supply chains for which information was available, and for this reason the results and cost overruns identified may not be applicable to other products traded, all other things being equal.

An integrated framework was developed for the analysis of the supply chain costs, arranged according to the characteristics of the product and the type of transport used. While logistics process may vary, a cost structure was sought that could be adapted to the characteristics of the corridors and products selected. The following cost categories were used:

TABLE 15
COST CATEGORIES USED IN THE ANALYSIS OF SUPPLY CHAINS OF
THE PLURINATIONAL STATE OF BOLIVIA AND PARAGUAY

Pre-shipment	Pre-shipment activities, which include consolidation, packing and warehousing of the products, transport to the exporter, and any other activity that may be necessary or that is carried out prior to the departure of the cargo to its final destination. Also included are costs related to inspections and certifications required by any public health authority.
Transfer to port of departure	This item essentially includes the domestic ground freight, from the exporter's plant to the inland waterway port, and any other logistics costs that arise at this stage of the process.
Port	Costs associated with waiting, entry into and departure from the port are included under this heading.
Customs	The Customs label is applied to all those activities related to customs, other verification and monitoring institutions, and the customs clearance agent. Certifications and inspections that are required by the client or by the importing country are also included here. In the case of ground transport, costs related to border crossing, etc., are included.
Transport to destination	This heading includes not only freight costs but also those related to insurance, handling and port services in the case of inland waterway-sea transport.
Inventory and financing cost	Inventory and financing costs are calculated for the entire export and import process. This heading is intended for the calculation of those costs that arise as a consequence of having the cargo halted, preventing it from continuing through the export or import process, which causes losses for the agents involved in the foreign trade chain who are not able to settle payments on time and as needed.

Source: Infrastructure Services Unit, ECLAC, 2013.

The following section presents the general conclusions drawn from the set of supply chains that were analysed for each country and a detailed analysis of the logistics inefficiencies identified by mode of transport for two representative export chains in each country. The same is done for one representative import chain for each country.

A. Cost of logistics inefficiencies for the Plurinational State of Bolivia's foreign trade

1. Analysis of logistics inefficiencies in the supply chain for soybean cake exports

In the case of Bolivian exports of soybean cake, the supply chain includes, on average, 100 km by road from the point of harvest by the farmer to the processing plant's storage silos and from there, an average of 90 km to the processing plant itself. Once the soybeans are processed, the soybean cake is transported by rail 650 km from Santa Cruz de la Sierra to a Bolivian inland waterway port (on the border with Brazil), from which it is shipped by barge via the Paraguay-Paraná Waterway; it then is transferred to ships at Rosario (Argentina). Its principal destinations are Colombia, the Bolivarian Republic of Venezuela and/or Ecuador. The analysis that was performed found that logistics inefficiencies accounted for 20.9 per cent of the cost overruns.

- Inland water transport is the segment that generates the largest cost overruns, accounting for 11.2 per cent, as a result of the delay of barges crossing the channel at the city of Corumbá (Brazil) and their subsequent formation of a barge convoy. In addition, 72 hours of delays are added to the normal time needed for the journey between Puerto Aguirre (Plurinational State of Bolivia) and

Rosario (Argentina), which is approximately 2,500 km, because of a lack of dredging and navigational beacons in the rivers. An important aspect of the logistics deficiencies related to inland water transport involves the underutilization of the capacity of barges, which could carry 1,400 tons, but carry on average 1,200 tons owing to the lack of dredging of the waterway.

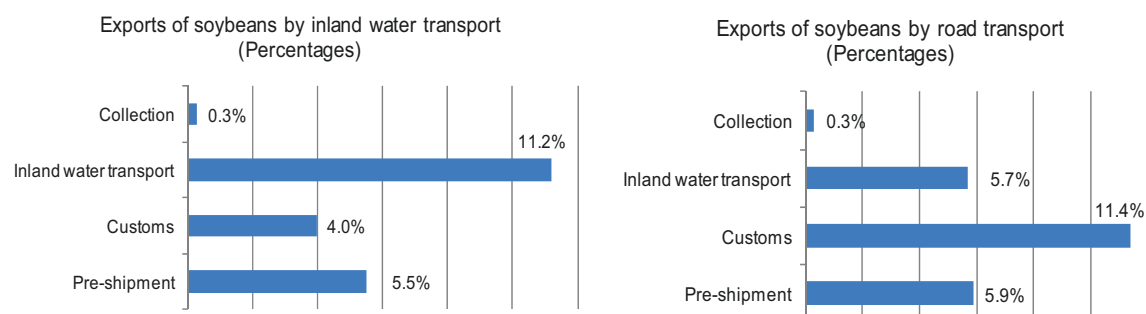
- The pre-shipment process accounts for 5.5 per cent as a result of losses of goods because of the poor condition of rural roads or robberies en route, in addition to transport delays and delays in loading and unloading at silos owing to a backup of the trucks involved in this process.
- Customs formalities account for 4 per cent of cost overruns as a consequence of delays in obtaining the Adequate Domestic Market Supply Certificate (Export Permit), which is under the authority of the Ministry of Productive Development and the Plural Economy.
- Finally, there is a cost overrun equal to 0.3 per cent resulting from delays in the settlement of payments (bank transfers) attributable to the time required for the exchange of documents between the seller and the buyer.

The construction of the port at Puerto Busch on the Man Céspedes corridor and the corresponding railway branch line between Puerto Busch and Motacucito will make it possible to solve the problem of the shallow depth of the Tamengo Canal and the crossing of the channel at Corumbá, reducing the travel time and increasing the transport capacity of the barge convoys.

In the case of soybean exports by ground transport to the port, this entails a journey from the farm to the storage silos, and from there to the processing plant, similar to the case described above for rail-inland waterway-sea transport. Once the soybeans have been processed, the soybean cake is transported by truck from Santa Cruz de la Sierra to the ports of Arica (Chile) or Ilo (Peru). The findings point to inefficiencies estimated at 23.3 per cent.

- In road transport the cost overruns are caused by delays arising from the poor condition of the roads, as is the case in the region of El Sillar on the Santa Cruz-Cochabamba route, in addition to delays in unloading at the port, which account for 11.4 per cent.
- These are followed by inefficiencies in the pre-shipment process that were analysed for the inland water transport chains, which are estimated at 5.9 per cent.
- Customs formalities involved in this route also accounted for high cost overruns as a consequence of delays in obtaining the Adequate Domestic Market Supply Certificate (Export Permit), which are coupled with delays crossing the border, thus accounting for a total of 5.7 per cent.
- Finally, the collection processes are similar to those for the inland water transport chain, contributing 0.3 per cent of the total.

FIGURE 37
PLURINATIONAL STATE OF BOLIVIA: LOGISTICS INEFFICIENCY FACTORS IDENTIFIED
IN THE SOYBEAN EXPORT CHAIN BY MODE OF TRANSPORT



Source: Infrastructure Services Unit, ECLAC, 2013.

2. Analysis of logistics inefficiencies in the supply chain for zinc exports

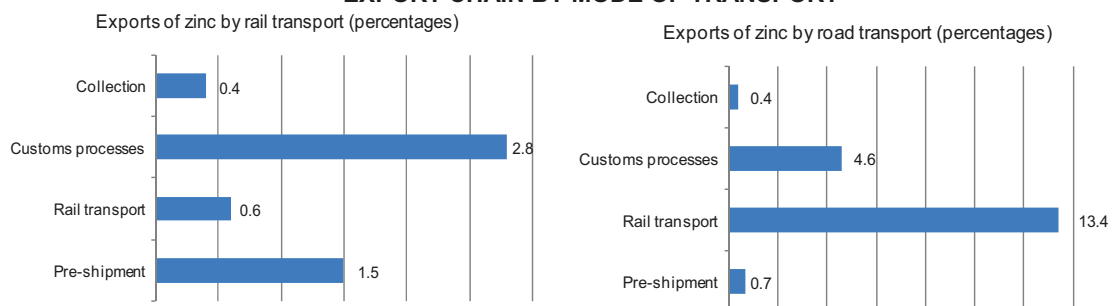
Exports of zinc concentrate via rail and sea transport in the pre-shipment stage are first sent by road from the mine to the plant (10 km) and from there to the Avaroa railway station (15 km). In the event that the plant has a branch rail line, the road segment runs only from the mine to the plant. Then the concentrate is transported by rail via Ollagüe (on the Bolivian border) to the ports of Mejillones or Antofagasta (Chile), a trip of 650 km. Sea transport then follows from one of these Chilean ports to a port in Japan or the Republic of Korea, which is a trip lasting between 30 and 35 days. The inefficiencies in shipping operations in this corridor account for 5.3 per cent of the value.

- Inefficiencies in customs processing are the most significant contributing factor here, accounting for 2.8 per cent of the total identified; these inefficiencies are the result of delays in border crossings and the significant cost of the certificate of quality issued by the National Service for the Registration and Control of the Sale of Minerals and Metals (SENARECOM), which is equal to 0.5 per cent of the gross value. SENARECOM issues a certificate of quality for the exported products, while this same certification is issued by special companies at the request of both the exporter and the buyer, that is, there is a triple certification process. With the aim of reducing this cost, a single certification could be required and accepted, which would be issued by a company internationally recognized for this purpose.
- The second factor, accounting for 1.5 per cent, is associated with the pre-shipment phase, essentially as a result of the poor condition of secondary roads.
- The third factor, accounting for 0.6 per cent, involves rail transport and is due to the change of locomotives at the border.
- The collection process shows cost overruns equal to 0.4 per cent as a result of delays in the settlement of payments (bank transfers) attributable to the time required for the exchange of documents between the seller and the buyer.

In the case of logistics chains that use road transport in combination with sea transport, there is a road segment from the mine to the plant in Potosí and from there to the port of departure (Arica, Chile), covering a distance of 806 km, which takes between 2 and 2.5 days. Sea transport then follows from Arica to a port in Japan or the Republic of Korea, which is a trip lasting between 30 and 35 days. In this case, the inefficiencies identified account for 19.1 per cent.

- Of this figure, road transport accounts for 13.4 per cent, which is also due primarily to delays resulting from the poor condition of the road from the plant to the asphalt road, a segment that covers a distance of approximately 50 km. There are further delays at the port of Arica because trucks have to wait in line for the offloading of cargo owing to a lack of proper scheduling.
- The rest of the links in the chain contribute in a way that is similar to what is seen in rail transport.

FIGURE 38
PLURINATIONAL STATE OF BOLIVIA: LOGISTICS INEFFICIENCY FACTORS IDENTIFIED IN THE ZINC EXPORT CHAIN BY MODE OF TRANSPORT



Source: Infrastructure Services Unit, ECLAC, 2013.

3. Analysis of logistics inefficiencies in the supply chain for steel imports

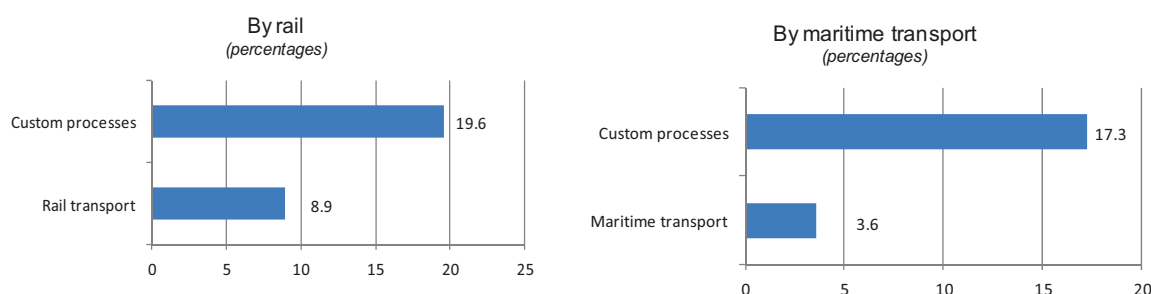
This section provides an analysis of imports of steel bars for construction that come from Brazil by rail in flatcars from Piracicaba-Baurú-Corumbá, which is on the border with the Plurinational State of Bolivia. This trip takes about five days. At the border, the cargo is transferred to flatcars owned by the Bolivian railway company to continue the journey on to the city of Santa Cruz in the Plurinational State of Bolivia, which takes between three and four days. In this case, it is assumed that each flatcar is carrying 50 tons. The results indicate cost overruns of 28.5 per cent.

- Of this figure, inefficiencies in customs processing resulting from delays on the Brazilian side on the part of AGESA (a bonded warehouse) and the Federal Revenue Service in releasing cargo, along with delays in customs operations on the Bolivian side, account for 19.6 per cent.
- The second most important factor is road transport, which accounts for 8.9 per cent of the inefficiencies owing to delays caused by the transfer of cargo from Brazilian flatcars to Bolivian flatcars, which can take as long as 96 hours in connection with flatcar transshipments at the border, as well as the arming of the train convoy and transport on the Bolivian side.

In the case of imports of steel bars for construction, the supply chain originates in the port of Santos in Brazil and it runs to the port of Matarani in Peru, a journey by sea that takes around 20 days. From there, the steel bars are transported by truck to La Paz, a trip of 575 km that takes two days. This chain accounts for 20.9 per cent of the cost overruns.

- In this case, the customs processing accounts for 17.3 per cent as a result of the same delays in customs clearance and border crossing as those referred to above.
- Sea transport accounts for 3.6 per cent of the inefficiencies, primarily as a result of delays related to port operations.

FIGURE 39
PLURINATIONAL STATE OF BOLIVIA: LOGISTICS INEFFICIENCY FACTORS IDENTIFIED IN THE STEEL BAR IMPORT CHAIN BY MODE OF TRANSPORT



Source: Infrastructure Services Unit, ECLAC, 2013.

4. Overcosts that affect main logistics chains in the Plurinational State of Bolivia

In general terms, Bolivian exports are affected by logistics cost overruns that are the result of national inefficiencies, as well as by other shortcomings arising from a lack of facilitation for the processes involved and a lack of infrastructure in transit countries, problems which to some extent have an impact on foreign trade by the Plurinational State of Bolivia as well. In addition, domestic ground transport is a source of cost overruns resulting from slower operations due to the conditions of the roads or conditions that prevent the use of higher-performance equipment. In addition, there are significant delays at border crossings and in scheduling processes for the unloading of cargo at the port of destination in the transit country.

The country's own customs processes are also a source of inefficiencies and cost overruns owing to delays, fees collected at border crossings, and requirements for photocopies and multiple certifications from national authorities.³⁰ For this reason it is necessary to analyse in greater detail the relevance and added value of these processes and possibly coordinate them under a single national document in such a way that there is no adverse impact on trade facilitation or national competitiveness.

The third important factor involves the pre-shipment of goods, in which losses occur in the transfer process and as a result of poor road conditions on rural routes or secondary roads. Inland water transport is affected by a lack of dredging and navigational beacons in the rivers, as well as low water levels in rivers, which are factors that contribute to a substantial increase in the freight costs of exports that use this mode of transport.

With regard to the supply chains for Bolivian imports, generally speaking the same conditions are seen as those that have been described for exports, with the additional distinction that the customs process is the principal source of cost overruns. This is due to the excessive amount of time required for the Bolivian customs clearance procedure because of the limitations imposed on operations in Bolivian free trade zones for certain goods. This has also given rise to the overcrowding of inland customs warehouses. Another sector affected by cost overruns is water transport, particularly as a result of delays in port operations in transit countries. Finally, ground transport is affected by the poor conditions of the roads and delays at the border owing to the need to carry out trans-shipments of equipment as a result of regulatory differences and different track gauges among countries, particularly with regard to trucks and trains coming from Brazil.

B. Cost of logistics inefficiencies in Paraguay's foreign trade

1. Analysis of logistics inefficiencies in the supply chain for soybean cake exports

The supply chain for soybean exports in Paraguay on average covers 30 km from the place of harvest to the collection centre, and from there another 200 km to the plant, from which the product is shipped to a port in the vicinity of Asunción. From there it is shipped by inland water transport for trans-shipment at Nueva Palmira in Uruguay or at Rosario or San Lorenzo in Argentina, and then it is transported by ship to its final destination, which is most often Rotterdam, in the Netherlands. The analysis that was performed identified logistics inefficiencies and logistics cost overruns equal to 17.1 per cent of the value, which can be attributed both to the country's public sector and to its private sector, as well as inefficiencies owing to a lack of facilitation and infrastructure in the transit countries.

- The situation of the inland shipping infrastructure is a factor that contributes significant inefficiencies owing to the lack of dredging and navigational beacons, delaying operations by 24 hours and accounting for 7.5 per cent.
- Product losses and delays in ground transport are in second place, along with delays in the pre-shipment process of goods, owing primarily to the lack of a road infrastructure, particularly on rural routes; these factors contribute 5.1 per cent.
- Port delays were also identified, with wait times averaging 8 hours, and this accounts for 2.9 per cent of the cost overruns identified. These problems could be resolved with an adequate system for the coordination and assignment of slots for the handling of cargo that is in port.
- With regard to customs (this heading covers not only customs processing, but also all of the activities that are performed by public agencies), there are significant delays accounting for 1.6 per cent of the cost overruns; the handling of documents by the Merchant Shipping

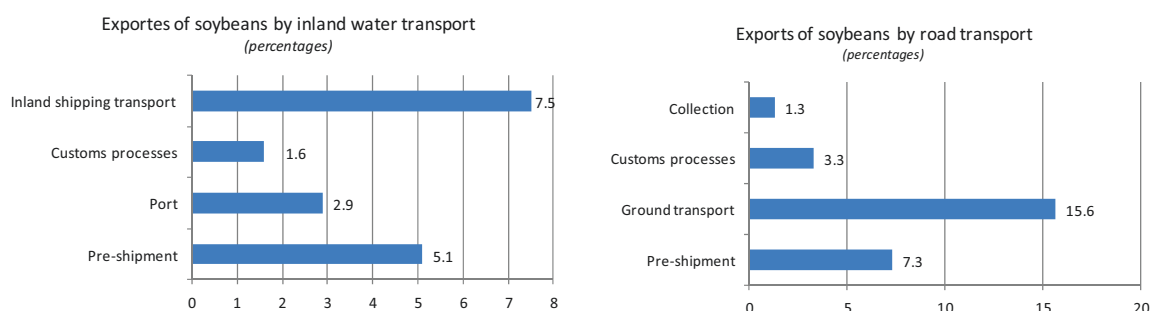
³⁰ These include, among others, the National Export Verification Service (SENAVEX), the National Agricultural Health and Food Safety Service (SENASAG), and in the case of mineral products, a certificate of quality issued by the National Service for the Registration and Control of the Sale of Minerals and Metals (SENARECOM), for a fee equal to 0.5 per cent of the gross value.

Administration stands out in particular, with an average processing time of two days, as well as the costs associated with customs processing and charges by the National Ports and Navigation Administration of Paraguay (ANNP).

In the case of supply chains that use ground transport, the product travels 50 km from the place of harvest to the collection centre. Then it is loaded at the plant to be shipped on by land to Cascavel, Brazil. The results of the analysis show inefficiencies equal to 27.5 per cent.

- Among these, the most significant factor is ground transport, which alone accounts for 15.6 per cent. The reasons for these cost overruns lie primarily with delays at the Paraguay-Brazil border crossing.
- The second most important factor is the pre-shipment process, accounting for 7.3 per cent, as a result of delays and product losses associated primarily with deficiencies in the rural road infrastructure.
- Finally, customs processing³¹ accounts for 3.3 per cent.
- The settlement of payments contributes 1.3 per cent, which can be explained primarily by delays caused by banks.

FIGURE 40
PARAGUAY: LOGISTICS INEFFICIENCY FACTORS IDENTIFIED IN THE SOYBEAN CAKE EXPORT CHAIN BY MODE OF TRANSPORT



Source: Infrastructure Services Unit, ECLAC, 2013.

2. Analysis of logistics inefficiencies in the supply chain for meat exports

The supply chain for frozen meat uses 40-foot refrigerated containers, departing from Asunción by inland waterway, followed by trans-shipment at the port of Buenos Aires or Montevideo, with a final destination of St. Petersburg in the Russian Federation. The analyses that have been performed show that the export chains that use inland water transport account for 26.2 per cent of the cost overruns arising from logistics inefficiencies.

- The principal factor contributing to this figure corresponds to problems in inland shipping services and the related inland shipping infrastructure, which accounts for 13.3 per cent of the total owing to the lack of dredging and navigational beacons along the routes, in addition to the costs resulting from low water levels. Argentina recently began the inspection of entire containers using a scanner, which results in an average delay of 24 hours, in addition to the cost overruns related to the service.
- Processes related to pre-shipment operations are the second most important factor, accounting for 9.9 per cent, primarily as a result of a series of delays, the most significant of which is

³¹ The term customs processes includes all those activities linked to customs, other certifying and fiscal institutions as well as the customs agent.

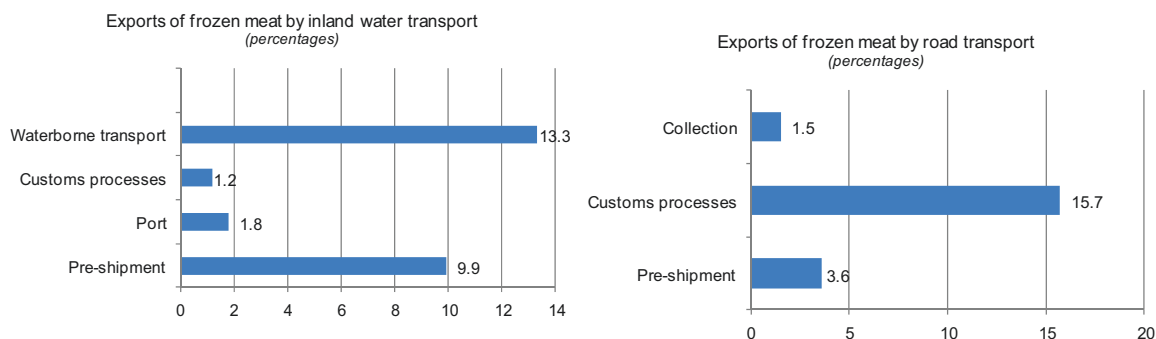
obtaining the Russian sanitary inspection certificate, which is processed in Buenos Aires. Ground transport from the farm to the refrigeration facility, obtaining the container, and obtaining the phytosanitary certificates are significant factors contributing to these inefficiencies and they result in average delays of 48 hours. There are a number of reasons for these delays: in the transfer from the farm to the refrigeration facility, there are delays related to the poor condition of the rural road network; there are also problems with delivery of the container owing to the customs bureaucracy and the phytosanitary certification process.

- In third place are delays in port access, which account for 1.8 per cent of the inefficiencies. It is evident that a considerable proportion of these delays could be resolved through a system for the coordination and assignment of loading/unloading slots.
- Finally, customs processes,³² which include both formalities carried out with customs offices and all of the activities performed by public agencies, account for 1.2 per cent of the cost overruns identified.

For their part, meat exports by ground transport use refrigerated trucks that travel from the farms by road, crossing the territory of Argentina to the city of Santiago, in Chile, where the products are sold. In this case, the logistics inefficiencies account for 20.8 per cent of the total.

- Among the factors that serve to explain this figure, customs formalities are of particular importance, accounting for 15.7 per cent, due to an average waiting time of 24 hours at the Paraguay-Argentina border crossing because of requirements imposed by the National Animal Health Service (SENASA) of Argentina, and an average delay of 4 hours at the Argentina-Chile border crossing.
- The second most important factor involves pre-shipment operations, which account for 3.6 per cent of the total, owing to a series of delays in ground transport from the farm to the refrigeration facility because of the poor condition of rural roads and a shortage of available vehicles that are suitable for handling exports of this kind, in addition to the same delays with obtaining containers and phytosanitary certificates as seen in the case of inland water transport.
- Finally, collection procedures account for 1.5 per cent of inefficiencies identified.

FIGURE 41
PARAGUAY: LOGISTICS INEFFICIENCY FACTORS IDENTIFIED IN THE MEAT EXPORT CHAIN
BY MODE OF TRANSPORT



Source: Infrastructure Services Unit, ECLAC, 2013.

³² The term customs processes includes all those activities linked to customs, other certifying and fiscal institutions as well as the customs agent.

3. Analysis of logistics inefficiencies in the supply chain for imports

This section presents an analysis of imports of agricultural chemicals (pesticides, insecticides, etc.) by ground transport from Brazil for delivery at a destination in Paraguay. The analysis that was performed indicates the presence of logistics inefficiencies equal to 36 per cent above the cost that would have been generated without the inefficiencies.

- Of this amount, customs processes account for 33 per cent owing to the direct costs of customs clearance, and above all, delays in the release of goods, which average 24 hours.
- This is followed by ground transport, accounting for 3.3 per cent, owing to border-crossing delays, which result in inventory costs and lost profits.

These figures can be compared to imports of medical equipment, such as LCL bulk freight by inland waterway-sea transport,³³ which is imported in crates from Osaka, Japan, via Buenos Aires. The assumption is based on average imports of 4,970 kg, equivalent to 700 crates that are transported in 40-foot containers. The results obtained in this corridor indicate inefficiencies equal to 18.9 per cent.

- Of this amount, customs processes³⁴ account for the largest share of the cost overruns (this heading includes not only formalities carried out with customs offices but also all those performed by public agencies), representing 16.8 per cent of the inefficiencies.
- Cost overruns involving water transport are in second place, accounting for the remaining 2.1 per cent. These inefficiencies are associated with the lack of dredging and navigational beacons in the river, which prevents the optimal use of barges, and this resulted in a recent cost item owing to low water levels.

Finally, there are the products that are transported by air, and in this case imports of information technology products by air from Shanghai (China) via Miami (United States) to Asunción and also to Ciudad del Este were analysed. The results obtained in this corridor point to logistics inefficiencies equal to 20.6 per cent.

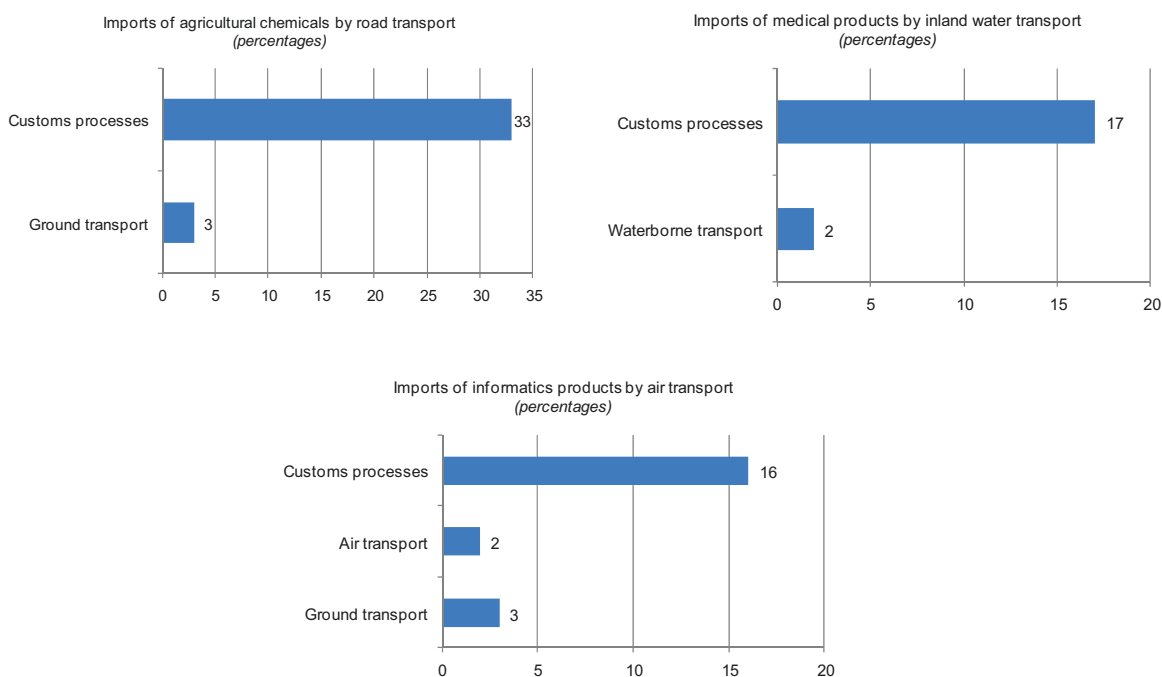
- Customs processes³⁵ account for the largest share of these inefficiencies, at 15.7 per cent, owing to delays of one day for the release of goods and high costs associated with customs clearance.
- The second most important factor involves ground transport from the airport to the owner's warehouses, which accounts for 3.3 per cent of the cost overruns identified.
- Finally, air transport accounts for 1.6 per cent owing to a difference in the market price for air transport (based on a comparison at the regional level).

³³ LCL (less than container load) freight refers to any product that is exported or imported in volumes that are less than the volume of freight that fits in a container.

³⁴ The term customs processes includes all those activities linked to customs, other certifying and fiscal institutions as well as the customs agent.

³⁵ The term customs processes includes all those activities linked to customs, other certifying and fiscal institutions as well as the customs agent.

FIGURE 42
PARAGUAY: LOGISTICS INEFFICIENCY FACTORS IDENTIFIED IN THE IMPORT CHAIN
BY MODE OF TRANSPORT



Source: Infrastructure Services Unit, ECLAC, 2013.

4. Overcosts that affect main logistics chains in Paraguay

In the case of Paraguay's foreign trade, there are logistics cost overruns associated with exports owing both to national inefficiencies and inefficiencies in the transit countries. In general terms, the condition of inland waterway infrastructure and the functioning of inland shipping services account for the largest share of cost overruns because of a lack of dredging and navigational beacons in the rivers, as well as the low water levels in rivers, which are factors that contribute to a substantial increase in the freight costs of Paraguayan exports.

The second most important factor involves the pre-shipment of goods, in which losses in the transfer process, inventory costs, transport times, and other cost overruns resulting from delays in the delivery or certification of goods have an impact on the country's competitiveness. Poor road conditions on rural routes or secondary roads owing to a lack of maintenance or suboptimal design also have an adverse impact on transportation services.

The third factor is cost overruns at ports, where there are delays in gaining access to port facilities, as well as in the loading and unloading of goods in the inland waterway-sea corridors. The customs process also contributes a number of inefficiencies, in particular those related to certificates of origin, port charges, trans-shipment, delays in the release of goods, cargo reservations, photocopies and various associated costs, some of which appear to be paid in order to facilitate foreign trade processes. Under this item it is important to analyse in greater detail the relevance and value added of these processes so that they do not affect either trade facilitation or the country's competitiveness. Finally, ground transport also contributes to export cost overruns, owing primarily to delays in border crossings and delivery at the destination, which result in inventory costs and lost profits.

The situation with imports is different, with most of the logistics cost overruns arising from customs processes as result of the same inefficiencies as those identified for exports, in addition to costs associated with the entry permit required by some transit countries. The second most important factor

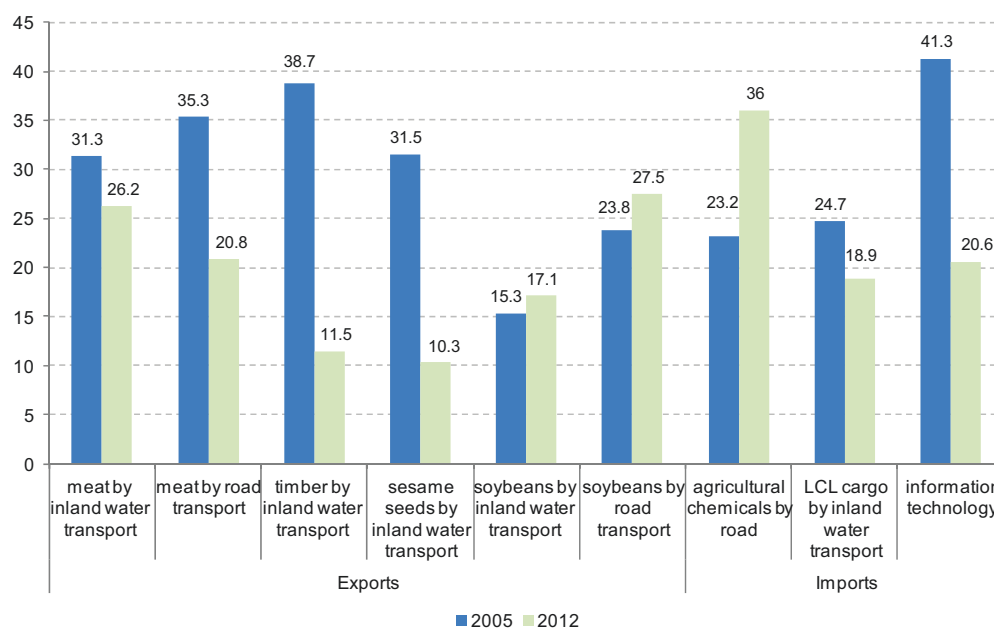
here involves ground transport, owing primarily to delays at the border, while water transport, in addition to the facts mentioned above with regard to a lack of dredging and navigational beacons in the rivers, contributes further cost overruns as a result of delays in port operations in transit countries.

5. Analysis of the evolution of logistics inefficiencies in foreign trade chains

In view of the fact that this study employs the same methodology as that developed by the CARANA Corporation in its 2006 analysis, and given that there is an overlap of some of the logistics chains analysed in the two studies, it is possible to analyse the progress of the measures implemented both by Paraguay and by the transit countries within the framework of the APOA.

A comparison of the inefficiencies in the supply chains used by Paraguay for both exports and imports in 2005 and 2012 is shown in Figure 43 from an analysis of these figures, one can see that while there is still considerable room for improvement in the area of logistics, both at the national level (related to infrastructure improvements and the coordination of national processes) and at the international level (related to improvements in customs facilitation and international transit), advances have clearly been made in the efficiency of the majority of the supply chains during the period under review.

FIGURE 43
PARAGUAY: EVOLUTION OF LOGISTICS INEFFICIENCIES IDENTIFIED IN THE FOREIGN TRADE CHAINS BY MODE OF TRANSPORT



Source: Infrastructure Services Unit, ECLAC, 2013.

The progress recorded in exports by inland water transport stands out in particular, with the inefficiencies identified in this sector dropping drastically between 2005 and 2012, primarily as a result of improvements in the pre-shipment processes (at the national level) and in inland water transport (at the international level), although these improvements were offset by an increase in customs inefficiencies and port delays in the loading/unloading of the products.

Another aspect that warrants a more detailed analysis is the increase in inefficiencies in the transport chains that use roads, as is the case, for example, with exports of soybeans by ground transport, or imports of agricultural chemicals. In the case of the latter, the large increase that was seen in the inefficiencies can be explained by inefficiencies in ground transport resulting from a lack of infrastructure, and also, above all, by a significant increase in customs inefficiencies for product imports (this factor accounts for 92 per cent of the inefficiencies identified in 2012).

VI. Recommendations

The Almaty Programme of Action, adopted in 2003, has not only sought to raise awareness of the importance of these topics for the development of landlocked developing countries, but it has also helped to coordinate the assistance being provided by the United Nations System and the international community to these countries. In the case of Latin America, both the Plurinational State of Bolivia and Paraguay are making significant progress in various aspects of development, and in particular in the improvement of their connectivity and customs processes, in addition to significant advances in the social conditions of their people. While it is not possible to say how much of this progress is due precisely to the APOA and how much is the result of macroeconomic improvements that the countries have experienced at the national level, the importance of the APOA for the coordination of national, regional and international actions is clear.

For this reason, a set of recommendations is presented below that will allow for a strengthening of the measures aimed at the coordination and facilitation of processes that were undertaken in the past decade, so as to consolidate the progress that has been made and to move towards the full development of Latin America, and in particular the landlocked countries in this context.

A. Strategic actions to be developed at the national or multilateral level

The following are proposals for actions to be developed at the national level by landlocked countries that would have an immediate impact in terms of their international competitiveness. These proposals are intended to expand the range of national action beyond the traditional focus of the promotion and facilitation of trade, in order to address strategic actions on a national scale:

- Raise awareness of the phenomenon of logistics costs and its impact on development: The first step towards reducing national logistics costs is to perform an exhaustive analysis of the determining factors in a representative set of supply chains, keeping in mind that the determining factors are a function of multiple variables and present differences in connection with the characteristics of the product involved, the related logistics, and the geographical

location; and that the physical distance³⁶ is in many cases not the predominant factor in cost, nor is cost directly proportional to the geographical distance involved.

- Address the lack of investment in the physical infrastructure: A significant part of the logistics cost overruns that the countries are facing is related to deficiencies in or a lack of a national infrastructure, in which the scarcity of paved roads, particularly in rural areas, hinders the rapid transit of goods during the rainy seasons. The same is true for the design and dimensions of many bridges, which, having already reached the end of the service life for which they were designed, do not allow for the use of large tractor-trailer trucks, requiring that the goods be transferred or that smaller vehicles be used, thereby increasing service costs, travel time and additional cost overruns owing to the underutilization of carrying capacities. Given that the fiscal resources for investment in new infrastructure are always scarce, it is essential to explore innovative new financing arrangements, such as public-private partnerships, although these forms will never replace public investment. Special attention should also be given to the maintenance of existing infrastructure, by taking care of the existing road infrastructure assets and breaking with the political bias seen on the part of many politicians who favour the construction of new infrastructure projects over the maintenance of existing facilities.
- Resolve the operational inefficiencies in transportation services: The national transportation systems, both ground transport and inland water transport, have operational inefficiencies in many cases that are related to their fragmentation, a lack of organizational structure, deficiencies in the development of human capital, or regulations that interfere with the competitive management of transportation services.
- Promote greater diversification of production: Generally speaking, it is evident that although the landlocked countries have opened up their economies, their exports are characterized by a high concentration of just a few products with little variety or value added, which makes these countries particularly vulnerable in structural terms to economic crises (Economic and Social Commission for Asia and the Pacific (ESCAP), 2013). This is especially true for the Plurinational State of Bolivia and Paraguay, which have based a considerable part of their development on exports of natural resources, in particular minerals and agricultural products. For this reason, it is essential to establish mechanisms for macroeconomic stabilization and investment promotion, particularly the promotion of investments in infrastructure, and to promote greater diversification of production through the building of technological capacities, production chains, and value added logistic services, among other initiatives that will make these economies resilient to external shocks. Only in this way will it be possible to sustain the economic growth and social development that have been observed in recent years.
- Draw upon international experience: The essential process of harmonizing technical regulations with neighbouring countries could be an opportunity to improve a country's own internal processes through the adoption of best regulatory practices and the harmonization of regulations or processes related to the design of infrastructure (axle weights, railway gauges, etc.). The adoption of best international practices, and in particular best regional practices, not only will allow for advances in the modernization of infrastructure services, but will also promote the facilitation of processes through the sharing of a technological and regulatory framework with transit countries.
- Knowledge society and new technologies: From an integrated development perspective, landlocked countries need to be full participants in the knowledge society. In a world in which information technologies offer unlimited opportunities to create networks of experts, these countries have the opportunity to exchange experiences and to promote innovation and

³⁶ Distance has been reported to increase freight costs on average by 0.25 per cent for every additional 1 per cent of the kilometres travelled (Márquez et al., 2007; Wilmsmeier et al., 2006; Micco and Pérez, 2002), and in some studies the impact is even lower (Sánchez et al., 2003).

research in their own countries. In order to do this, they need to create mechanisms to promote the exchange of students and researchers and to encourage the organization of events of scientific interest and events for entrepreneurs at the national level. These efforts should help to establish the structures that are needed to raise the level of research and promote the emergence of innovations and business ventures that will provide value added to the economy and to national human development.

- Promote tourism opportunities: Numerous landlocked developing countries have found tourism to be a source that can generate a steady influx of foreign currency into the national economy, as well as positive intersectoral links that promote the growth of other sectors of the economy with positive multiplier effects on development, gender inclusion and sustainable use of the environment (ESCAP, 2013).

B. Actions to be developed at the multilateral level under the auspices of the Almaty Programme of Action

At the regional level, the following actions that require the coordination of activities among the landlocked countries and the transit countries are of particular interest:

(1) In relation to Priority 1: Fundamental transit policy issues – it is important for landlocked and transit developing countries to review and modify their regulatory frameworks to promote the expeditious transit of cargo through procedures that promote transparency and mutual respect of transit regulations and agreements in force between the transit and landlocked countries. The progressive and coordinated introduction of intelligent transport systems among the countries will certainly help to streamline administrative procedures, increase the security of the processes and promote the rational and competitive use of the available customs and port infrastructure. The promotion of South American phytosanitary regulations will facilitate border crossings. Police officials should receive more extensive training with regard to the contents of international transit protocols and agreements so as to avoid confusion and discriminatory actions against foreign carriers.

(2) With regard to Priority 2: Infrastructure development and maintenance – together with an increase in public investment intended for the creation of new infrastructure, programmes for road maintenance, especially in rural areas, need to be implemented and funded. In addition, transit rules need to be complied with, in particular those related to compliance with maximum axle weight for international transport operators. With regard to the railway infrastructure in particular, the improvement and maintenance of tracks and rolling stock is essential to ensure compliance with the international agreements in force. Improvement of the navigability of inland water routes, including signalling, maintenance and channel-widening projects, is an issue that is still to be resolved.

(3) In relation to Priority 3: International trade and trade facilitation – the importance of international conventions and regional, subregional and bilateral agreements, which are the principal means of achieving the simplification, normalization and transparency of rules and procedures. While real progress has been made in this area, there is still a need for more institutional reinforcement, and the definition and dissemination of integrated policies. In this connection, barriers remain to the smooth flow of goods in inland water transport and road transport.

(4) In relation to Priority 4: International support measures – it is recommended that the technical assistance and capacity-building activities for landlocked countries be continued, giving special attention to the establishment of institutional capacities related to logistics and institutional development, and supporting actions that are part of an integrated development plan, rather than a set of isolated individual efforts.

Regional integration is a process that should continue to be strengthened and in which landlocked countries can and should play a more active role. First of all, they can work to ensure that international transit agreements are adhered to and that they are properly aligned with the current needs of the logistics operators, as well as with international conventions and with the spirit of regional integration agreements.

Second, they can promote foreign direct investment and in particular intraregional investment for the proper integration of the transport, energy, water and fibre-optic infrastructure networks.

This scenario is favourable for the coordination of intraregional investments, which by providing a flexible and secure regulatory framework could expand the markets, reduce the cost of services and provide integrated solutions to the people of both landlocked countries and transit countries, with important synergistic effects for the sustainable development of the entire region. In this connection, it would be advisable to explore the possibility of partnerships between countries, as well as between the public and private sectors, while seeking ways to share the costs and benefits of these investments equitably.

It is important to emphasize the need to intensify and strengthen the frameworks for bilateral collaboration between the landlocked and transit countries, especially those related to transit facilitation, the facilitation of transport and the development of infrastructure for physical integration of countries, in order to jointly move towards the solution of existing problems in international logistics chains.

Finally, movement towards common logistics and mobility policies is a crucial issue for Latin America, since these policies provide an institutional framework for the analysis and effective resolution of problems facing the countries that are related to the availability of infrastructure, as well as those involving facilitation, while promoting channels for the coordination of actions between the public and private sectors, as well as their essential subregional coordination. This includes, without a doubt, the transformation of national development strategies, improved regulation of logistics and transportation services, training of personnel, integration of the vision of the productive sectors into infrastructure improvement plans and programmes, enhanced transparency of processes involved in the prioritization and selection of investment projects, and promotion of investment in information and communication technologies for the simplification of processes and controls, among many other aspects.

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