

## 12. Santiago, Chile

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### 12.1 INTRODUCTION

Santiago is the capital of Chile and seat of the federal government. Located in the metropolitan region, and central valley of the Andes mountain range, the city has a population of nearly 6 million, or about 35 percent of Chile's population. Despite its rather modest size compared with Mexico City or Sao Paulo, Santiago is the seventh most populated city in Latin America. Its metropolitan area (Figure 12.1), known as Greater Santiago, is Chile's largest urban conurbation. (Greater Santiago, Greater Valparaíso and Rancagua constitute an even bigger inter-metropolitan area.)

Santiago is a dynamic city, and considered one of the best Latin American cities for investment<sup>587</sup> and doing business.<sup>588</sup> It is Chile's industrial and financial centre, generating 45 percent of Chile's GDP of CLP 137.21 trillion ( USD 247 billion) in 2013.<sup>589,590</sup> The development of its Sanhattan business district as a major financial hub has been a major boost to its economy. Santiago also has a high quality of life, commensurate with Montevideo and Buenos Aires.<sup>591</sup> In 2013, Santiago was classified as the most 'intelligent' city in Latin America,<sup>592</sup> while its environmental performance was assessed as average in the Siemens Green City Index 2010 for Latin America.<sup>593</sup>

While the city has undergone an impressive period of physical and economic transformation and development since the 1990s, it still faces many development problems. It is an economically divided city, with significant areas of slum settlement, and high levels of inequality, urban poverty and income disparity. The city also faces many environmental challenges associated with air and water pollution, water shortages and waste management.<sup>594</sup>

Despite these difficulties, Santiago is pressing ahead with reforms and improvements to its governance, development and environmental management practices, which include a strong commitment to sustainable development. This chapter profiles the Santiago metropolitan region – its economy, planning and development, environmental

**Figure 12.1 Map of Santiago Metropolitan Region**



Source: Google Maps 2016.

management, and social and governance systems. It presents some examples of good practices that could have wider application in Latin America and the Asia-Pacific region.

## 12.2 THE CITY IN CONTEXT

Santiago city sits in the province of Santiago and has 37 *communes* (districts). The city is part of Greater Santiago, which includes the province San Bernardo and Puente Alto to the south of the capital. The periphery of Greater Santiago includes areas belonging to the provinces of Cordillera, Maipo and Talagante (see also Section 12.8).

Santiago city is also part of an inter-metropolitan area in central Chile that also includes the city of Rancagua and the metropolitan area of Valparaiso. Greater Valparaiso's economic structure is a mix of services and industries related to port activities, tourism, and new technology;<sup>595</sup> and Rancagua is a major agricultural hub for central Chile. The three urban areas make up a diverse economic macro-zone of more than 7.5 million inhabitants, which is served by an international airport, two major seaports and one terrestrial connection to the Mercosur zone through the Andes.

**Photo 12.1 Sanhattan Business District, Santiago, Chile**



Source: Costanera Norte.

Santiago is the cultural, political and financial centre of Chile. The regional headquarters of many multinational corporations are located there. The city also hosts international institutions such as the United Nations Economic Commission for Latin America and the Caribbean (ECLAC).

The city has developed along the axis of a street that crosses it from west to east. Its segments have different names and usually known as Alameda, Providencia and Las Condes as it advances from west to east (close to the mountains). The older area is to the west (the Alameda).

Since the early 1990s, a modern financial district has developed in Las Condes. Today, the zone is known as Sanhattan, due to its similarities to Manhattan. The area is seeing rapid growth, with many office and residential buildings in various stages of construction. In 2011, Gran Torre Santiago, a skyscraper that is part of the Costanera Centre project, reached the 300m mark, making it the tallest structure in Latin America.

As mentioned earlier, Santiago accounts for the bulk of the economic activity in Chile. Its main activities are financial and business services, together with commercial activity. Manufacturing and personal services are also important. The film industry and marketing have developed successfully through small entrepreneurs.

In addition, the rail line to the south of Chile and the coast, together with a highly developed regional road system, enhances commercial, processing and marketing activities all across the Santiago metropolitan region. The area also has productive agricultural lands that produce fruits, grains, and vegetables. Dairy and beef production are also significant. To the south and northeast of the capital are mining activities, including copper, gypsum, and limestone mining.

Santiago is Chile's retail capital. Well-known department stores like Falabella, Ripley and La Polar originated in Chile and have expanded within South America. The capital is known for its numerous shopping malls; from older ones like Parque Arauco to Alto Las Condes Mall Plaza (a chain of malls present in Chile and other Latin American economies) and the Costanera Centre, which offers luxury shopping.

The Santiago metropolitan region accounts for 45 percent of Chile's GDP, 53 percent of Chile's industrial activity, and 68 percent of its commercial activity.<sup>596</sup> In this sense, it is a true primate city. Santiago is the home to the most renowned centres of higher education in Chile and virtually all foreign and national banks. The economy of Santiago has become highly oriented toward services, with commercial and financial services accounting for nearly 60 percent of gross regional product; and government, social services, and commercial activities accounting for 50 percent of all employment.<sup>597</sup> The strong economy and low government debt is attracting investors from Europe and the United States.

The city has a strong east–west division in terms of income, poverty, and access to services. The northeast is predominantly middle and high income, while the west and south are lower income and home to the majority of the poor. Maipu, La Florida and Puente Alto (to the south and southeast) are examples of middle-income districts developed in the 1990s with the end of military rule. Quilicura (to the north), Peñalolen (to the southeast) and the *barrio alto* or high-income suburbs (to the east), all on the urban fringe close to the mountains in the Precordillera, are more recent residential areas.

Although urban poverty has declined considerably over the past few years, the Gini coefficient remains at 0.47, indicating high levels of income inequality. A marked

dichotomy continues between the modern globalized city of Santiago and the rich neighbourhoods of the upper middle class in the northeast on one side, and the poor neighbourhoods in the south and west. This imbalance in the geography of income groups, housing and services adds to the planning and development problems associated with transport and traffic congestion, distribution of jobs, pollution and capacity to provide services to the city efficiently.

### 12.3 ECONOMIC ENVIRONMENT

Santiago's steady economic growth over the past few decades, driven primarily by a mining boom, has transformed it into a modern metropolis.

Table 12.1 provides basic information on the metropolitan region's economy. The region is home to a range of manufacturing industries and trade services. It is also a major centre of the theatre arts, restaurants, and scientific and cultural events. It has two of Chile's leading universities. Its connectivity standards are also way ahead of other cities in Chile. There is a 25km metro network and its modern transportation infrastructure includes a free-flow toll-based network of highways and a partially underground urban freeway.

**Table 12.1 Key Economic Facts – Santiago**

	Chile	Greater Metropolitan Region
<b>GDP (2011)<sup>1</sup></b>	USD 201.1 billion	USD 88.4 billion (45% of economy)
<b>GDP per capita, PPP (2013)</b>	USD 1,898	USD 24,342
<b>Estimated population (2014)</b>	17,819,054	6,246,244 (35% of economy) 7,228,581 (Metropolitan Region)
<b>Employment (Dec 2014)</b>	8,003,050	3,248,220 (Greater Santiago)
<b>Unemployment rate (Dec 2014)</b>	6.2%	5.9%
<b>Key export sectors (2014)</b>	Agriculture, mining and manufacturing	Tourism, mining, wines and manufacturing

Note 1: Chain-linked prices; total GDP for Chile includes value-added tax and import duties.

Source: Central Bank of Chile, *National Accounts: Evolution of Economic Activity* (Santiago: Central Bank, 2014); Banco Central de Chile (2014); INE (Instituto Nacional de Estadísticas [National Institute of Statistics]) *Compendio Estadístico 2014* [Statistical Summary] (Santiago: INE, 2015); UN (2015); McKinsey Global Institute (2015).

### 12.3.1 Key Industry Growth Sectors

Chile is one of Latin America's strongest economies, and is ranked globally as a high-income economy.<sup>598</sup> GDP per capita in 2013 was USD 21,898, the highest in Latin America. Its political and institutional stability together with an open policy has resulted in a fruitful, competitive and attractive environment for investment. Corruption, by Latin American standards, is also low.<sup>599</sup> In 2010, Chile became the first South American economy to join the Organisation for Economic Co-operation and Development (OECD).<sup>600</sup>

Chile has a great diversity of natural landscapes and protected areas, and tourism has experienced sustained growth in recent decades. Chile is also the second-largest producer of salmon in the world. Its unique geography (a long and narrow strip between the Pacific Ocean and Los Andes mountains) and the temperature differences during the day provide ideal conditions for growing wine grapes; and Chile has become one of the world's top wine producers. Services has also grown rapidly, in tandem with the development of information and communications technology (ICT), greater access to education and an increase in the skills level of the workforce.

Table 12.2 gives a breakdown of GDP for the economy of the metropolitan region. The largest contributors to the region's economy are business services, personal services, manufacturing, and wholesale and retail trade. The manufacturing sector accounts for 34 percent of national exports, with food products, chemicals and pulp and paper being the main contributors.<sup>601</sup> Agriculture, and allied sectors like forestry, logging and fishing, accounts for only a small portion of GDP, and due to their highly mechanized nature, they employ a relatively limited labour force (13.6%). Chile's major agricultural products include grapes, apples, pears, onions, wheat, corn, oats, peaches, garlic, asparagus, beans, beef, poultry, wool, fish (mostly salmon), timber and wine.

**Table 12.2 GDP by Sector, Santiago Metropolitan Region, 2011**

	Greater Metropolitan Region			Economy		
	million CLP	million USD <sup>2</sup>		million CLP	million USD <sup>2</sup>	
Agriculture and forestry	353,883	684	0.8%	2,876,570	5,562	2.8%
Fishing and aquaculture	814	2	0.0%	420,654	813	0.4%
Mining	233,621	452	0.5%	12,535,539	24,239	12.1%
Manufacturing industry	5,323,875	10,294	11.6%	11,100,605	21,464	10.7%
Electricity, gas and water supply	761,350	1,472	1.7%	3,451,198	6,673	3.3%
Construction	2,073,221	4,009	4.5%	7,094,649	13,718	6.8%
Wholesale and retail trade, hotels and restaurants	7,245,145	14,009	15.8%	11,477,918	22,194	11.0%
Transport and telecommunications	3,082,340	5,960	6.7%	6,973,413	13,484	6.7%
Financial and business services	16,293,790	31,506	35.6%	19,228,250	37,180	18.5%
Home services	2,785,309	5,386	6.1%	4,922,844	9,519	4.7%
Personal services	6,007,289	11,616	13.1%	10,998,735	21,267	10.6%
State administration	1,653,835	3,198	3.6%	4,199,103	8,119	4.0%
<b>Total GDP<sup>1</sup></b>	<b>45,734,113</b>	<b>88,431</b>	<b>100.0%</b>	<b>103,963,086</b>	<b>201,023</b>	<b>100.0%</b>

Note 1: Chain-linked prices; total GDP for the economy includes value-added tax and import duties.

Note 2: 2011 average exchange rate CLP 517.17 per USD.

Source: Central Bank of Chile, Cuentas Nacionales, PIB Regiones [*National Accounts: Regional GDP*] (Santiago: Central Bank, 2014).

## 12.4 COMPETITIVENESS OF THE ECONOMY

Santiago ranks 68th (equal to Delhi) in the Economist Intelligence Unit's Hot Spots index measuring the competitiveness of 120 cities around the world.<sup>602</sup> Table 12.3 shows the rankings for Santiago, New York and Buenos Aires, the most competitive Latin American economy. Santiago performs reasonably well in human capital development globally and performs about the Latin American median in most other categories. However, in areas like 'global appeal' and 'environmental and natural hazards', it falls below the global median for the survey. The weakness in the city's competitiveness is reflective of other Latin American economies, indicating the need for improvement if the city is to compete more effectively for business and investment in the future.

The city ranks 24<sup>th</sup> in terms of 'physical capital', no doubt helped by its well-developed telecommunications infrastructure. It also ranks highly on 'human capital' (35<sup>th</sup>). It scores less well on 'global appeal' (65<sup>th</sup>), and this is attributed to its relative isolation.<sup>603</sup> Plans by the government to increase the capacity of Santiago's airport should help it improve on this measure in the future.

**Table 12.3 Economic Competitiveness of New York, Buenos Aires and Santiago, 2012**

		Overall								
			Economic strength	Physical capital	Financial maturity	Institutional effectiveness	Social and cultural character	Human capital	Environmental and natural hazards	Global appeal
Category weight (%)			30.0	10.0	10.0	15.0	5.0	15.0	5.0	10.0
1	New York	71.4	54.0	92.0	100.0	85.8	95.0	76.5	66.7	35.7
60	Buenos Aires	49.2	34.6	69.6	50.0	54.4	66.7	66.6	66.7	21.0
=68	Santiago	46.7	32.0	71.4	33.3	63.1	60.0	70.1	50.0	11.7
Median	Global	46.7	35.6	70.5	33.3	54.4	57.1	61.8	66.7	7.4

Source: Based on data from Economist Intelligence Unit, *Hot Spots – Benchmarking Global City Competitiveness* (London: Economist, 2012).

### 12.4.1 Constraints and Opportunities

The existence of mineral resources has been the driving force in the development of Chile. The economy's growth significantly depends on the price of mining products, particularly copper. Notwithstanding this, Santiago's economic base is dominated by services and trade. Personal, financial and home services represent over 50 percent of the economic activity in the region, followed by trade with 15 percent. This distribution reveals a source of opportunity for Santiago. The capital brings together expertise in almost every area. In

Chile, it is said that ‘Santiago is Chile’ since many of the decisions related to the development of other cities and regions are made in the capital. In Santiago, it is relatively easier to perform any action than in any other area of Chile.

On the other hand, this centralization has resulted in over 30 to 35 percent of Chile’s population living in the capital. The city’s population and the urban area will continue to grow, resulting in longer commuting distances and time, and increased costs. Sustained growth in Chile and opportunities in the capital are reflected in immigration. According to the Casen survey,<sup>604</sup> the number of international migrants doubled between 2006 and 2013, growing from 1 percent of the total population to 2.1 percent. There are 354,581 registered migrants, of which more than 60 percent reside in the capital. As for the origin of the immigrants, 33.3 percent come from Peru. This is followed by Argentina (15%); Colombia (13.8%); Bolivia (7.4%); and Ecuador (4.8%). The challenge for the capital is to improve the living conditions of its inhabitants, especially given the connection this has to economic development, a concern discussed later in this chapter.

## 12.4.2 Exports

Santiago is a significant export economy, with the metropolitan region accounting for 15 percent of Chile’s exports. As shown in Table 12.4, mining is the most significant exporting sector in the metropolitan region, contributing 36 percent of the total value of exports, followed by manufacturing at 29 percent. Metalworking products represent almost half the region’s manufacturing exports.

Table 12.5 shows the destination of exports from the metropolitan region. Most of the metropolitan region’s exports went to other South American economies. However, exports to Asia and Oceania (APEC region) grew 565 percent from 2007 to 2013.

**Table 12.4 Exports by Industry Sector, Santiago Metropolitan Region, million USD**

Industry sector	USD FOB million 2012	USD FOB million 2013	USD FOB million 2014	% Change 2014/2013	% Share 2014
Forestry	183.8	197.1	176.2	-11	1.5
Manufacturing industry	3,576.1	3,272.3	3,425.2	5	29.3
Mining	4,408.9	3,796.5	4,195.9	11	36.0
Non-trade	220.5	211.3	229.0	8	2.0
Agro-industrial products	1,613.0	1,756.4	1,636.3	-7	14.0
Products of the sea	68.1	53.0	50.8	-4	0.4
Services	979.1	1,014.4	965.6	-5	8.3
Wine	954.5	1,008.8	991.7	-2	8.5
Total metropolitan region	12,004.0	11,309.8	11,670.7	3	100.0

FOB=’Free on board’, meaning seller pays for cost of loading and transportation.

\*Includes goods, services and copper.

Source: *Inteligencia Comercial* [Commercial intelligence], based on data from Servicio Nacional de Aduanas [National customs service].



**Table 12.5 Value of Exports from the Santiago Metropolitan Region, by Geographical Zone, million USD**

	Dec 2007	Dec 2010	Dec 2013
Africa		14.4	13
Central America and the Caribbean		72.8	93
North America	390.8	417.8	442
South America	728.3	889.8	917
Asia and Oceania	104.1	214	693
Eurozone	357.2	322.6	416
Other Euro economies		65.6	103
Others	334.7	43.6	54
<b>Total</b>	<b>1,915.1</b>	<b>2,040.6</b>	<b>2,729</b>

Source: Based on data from INE [National Institute of Statistics, Chile] and *Encuesta Económica Regional* [Regional Economic Survey] 2013, 2010, 2007, 2010, 2013.

### 12.4.3 Free Trade Agreements

As of 2015, Chile is part of 24 trade agreements involving more than 60 economies.<sup>605</sup> With these agreements, the economy reaches more than 60 percent of the world's population in preferential terms. In addition to these, it has signed a number of conventions for the avoidance of double taxation, a move which favours trade.

### 12.4.4 Investment Environment

Santiago ranks as the most attractive city for investment in Latin America,<sup>606</sup> well above cities in Brazil, Mexico and Argentina. The World Bank's ease of doing business index ranks Chile 34th in the world as of 2014.<sup>607</sup> The privatized national pension system has encouraged domestic investment and contributed to an estimated total domestic savings rate of approximately 21 percent of GDP.<sup>608</sup>

As mentioned earlier, Chile and therefore Santiago – since it accounts for a significant percentage of Chile's activities – is an attractive investment destination. Since the 1980s, under the military government and the democratic governments that followed, Chile has made significant structural changes. It introduced, among others, export promotion policies, boosted free trade through agreements and instituted reforms to pension and health security systems, all of which favoured growth and halved poverty rates. Many state-owned companies were also sold, except for a few companies like the copper giant CODELCO. The government's role is thus mainly limited to regulation.

According to Chile's Central Bank, the economy grew at a rate of 5.3 percent between 2010 and 2013. However, 2014 was a challenging year, mainly due to the end of the global mining boom, the fall of commodity prices and growing domestic uncertainty. From January 2014 to March 2015, the economy grew at an average annual rate of 2 percent. Major reforms in tax, education and labour by the new government have undermined business confidence, and this is reflected in lower rates of investment. Legislation on education and labour is proceeding. Tax reform has increased the tax burden for companies from 17 percent to 35 percent, which runs contrary to the trend in most OECD economies, which is to reduce business taxes.

Foreign direct investment (FDI) is critical to the development of the metropolitan region's economy. Since 2011, the region has received an average of USD 3,300 million in investment, mainly in the chemical, rubber and plastic, financial services, transport, public utilities and mining sectors.<sup>609</sup> The metropolitan region received 27 percent of FDI in Chile in the period 1974–2014. The United States; Japan; Spain; and Canada are the main sources, with Australia also being important.

#### **12.4.5 Innovation and Business Support**

Chile is known for its economic and political stability, and has a strong financial system. Its international credit ratings are high; and public debt is relatively low at only about 5 percent of its GDP in 2013.<sup>610</sup> Chilean firms are able to raise funds abroad (to finance domestic investment), through bank loans, the issuance of bonds and the selling of stocks in US markets through American Depository Receipts. Following the 1982 economic crisis, Chile strengthened the regulation of its financial system, creating a healthy framework to develop a robust market for banks, insurance companies and pension funds.

Chile's financial sector has grown quickly in recent years. A reform to its banking law in 1997 broadened the scope of permissible foreign activity for Chilean banks, and in 2001, the government liberalized the capital markets. This sophistication is reflected in its capital city's rank of 32 for 'financial maturity' in the Economist Intelligence Unit's Hot Spots index.

Beyond emphasizing its economic and political stability, the government has promoted Chile as an 'investment platform' for multinational corporations planning to operate in the region. It has been very successful in instilling investor confidence: in 2014 the United Nations Conference on Trade and Development ranked Chile 17th among the economies that received higher foreign investment during 2012–2013.<sup>611</sup>

Its Foreign Investment Law has been key to attracting FDI. The law gives foreign investors the same treatment as Chileans. Business registration is also simple and transparent; and there are provisions for repatriation of profits and capital. According to the 2013 Heritage Foundation Index of Economic Freedom, Chile also provides the strongest private property rights in Latin America.<sup>612</sup>

To attract further investment to new parts of the economy, the government has formed a Council on Innovation and Competition to identify new sectors and industries to promote. It has also introduced tax reforms to encourage domestic and foreign investment in research and development.

### **12.5 STRATEGIC INFRASTRUCTURE**

While the development performance of Chile and the Santiago region over recent years has been strong, it nevertheless faces significant challenges in the development of strategic infrastructure. The region has a well-developed network of roads and urban services, and a good international airport with services to most Latin American and key North American destinations and Australia. The region has 35 universities, which

produce 50 percent of Chile’s graduates.<sup>613</sup> It also has excellent research facilities and community services infrastructure.

The World Economic Forum’s Global Competitiveness Report ranked Chile 27th on infrastructure investment in 2006–2007.<sup>614</sup> In the 2014–2015 report, it ranked 33rd among 144 economies.<sup>615</sup> The decline in the level of competitiveness of Chile’s strategic infrastructure calls for an increase in the level of investment, especially in network systems that improve communications, logistics and knowledge development.

### 12.5.1 Public Infrastructure Investment

In the 1990s, the government tried to improve Santiago’s public transport system, and introduced new bus routes. However, the system was beset by problems. Complaints ranged from overlapping routes to high levels of noise and air pollution and safety issues. In response, a new system, called Transantiago, was introduced in 2007. It combined core services across the city – bus lines, the metro network and local feeder routes – with users paying for all these services using a contactless smartcard. Users were not impressed. Problems included a lack of buses, too many bus-to-bus transfers and reduced route coverage. Some issues were resolved, but the system earned a bad reputation. As of 2011, fare evasion rate was high.

Since 2000, Santiago has made important progress in the development of its road infrastructure, thanks to the contributions of the private sector through urban expressways concessions. The free-flow Regional Metropolitan highway network provided 199km of new roads that enlivened the activity of the capital (Figure 12.2).

During the last decade, the following major urban investments were implemented:

- *Costanera Centre*. A mega-project in Santiago’s financial (Sanhattan) district.
- *Revitalization of the historic city centre*. Roads and basic infrastructure were improved with support from private investors.
- *Modernization of the railway system*. Trains arrive and depart from Central Station, which is well connected with the city’s bus lines and the metro, and provides modern connectivity between Santiago and several cities in the south-central part of the economy.

**Figure 12.2 Regional Metropolitan Highway Network**



Source: Copsa A.G. [Association of public works concessionaires].

- *Interurban buses.* Several modern bus terminals (Terminal San Borja, located close to the Estación Central Metro station; Terminal Alameda; Terminal Santiago; Terrapuerto Los Héroes; Terminal Pajaritos; Terminal La Cisterna; Terminal La Paz), which provide buses to all destinations in Chile and to some towns around Santiago.
- *Free-flow toll-based highway network.* The Vespucio Norte, the San Cristobal Tunnel and the Vespucio Sur A series of three highways surround the city in an almost complete circle. Autopista Central, a section of the Pan-American highway crosses Santiago from north to south, and divides into two highways 3km apart. The Costanera Norte, which runs next to the Mapocho River, crosses the city west to east and connects it with the international airport, the downtown and wealthier areas of the city to the east, where it divides into two highways. Other non-free flow toll roads connect Santiago to other cities, particularly Valparaiso, San Antonio and Rancagua.
- *Social housing programme.* This is a government initiative that provides targeted subsidies using a much-acclaimed voucher system.<sup>616</sup>
- *Santiago Centro Oriented Project.* This aims to improve road connections in the neighbourhoods of Providencia, Vitacura, Las Condes and Lo Barnechea. The USD 500 million investment is developed through a public-private partnership (PPP).
- *Parklands.* For example, a new park is being built along the Mapocho River, which will be navigable for leisure purposes.

These initiatives have improved Santiago's image and performance, and quality of life for many of the city's inhabitants. However, a pressing need remains to extend such innovations to the whole city. The coming years will see more major development projects, especially in transportation. There will be a complete renewal of the international airport and an expansion of railway services, including a proposal for a high-speed rail connection with the port city of Valparaiso and the resort city of Viña del Mar. Added to these are urban highways (Vespucio Oriente and Costanera Central) and new metro lines.

Financing for infrastructure may be from public and private sources. The aforementioned initiatives are leveraged by different financial arrangements. Public infrastructure projects are generally financed using public funds, which come from different levels of public administration, such as ministries, regional government and municipalities. For example, affordable housing programmes and urban parks by the Ministry of Housing, and the metro by the Ministry of Transportation, are mainly financed using public resources through the Ministry of Housing and the Ministry of Transportation respectively.

Projects may also be financed through public-private partnerships (PPPs). The Ministry of Public Works (Infrastructure), for example, develops roads, bridges and water resources with funding from both public and private resources. The private sector has been involved in funding major public infrastructure such as intercity routes, urban highways, prisons, hospitals and airports.

The private sector has also played a key role in developing other strategic infrastructure. Development of projects such as the Costanera Centre was totally private, through the

issuance of private debt, which is traded on the domestic capital market and in some cases also internationally.

### 12.5.2 Future Infrastructure Needs

Currently, Santiago shows a significant deficit of urban transport. Travel and waiting times have progressively deteriorated due to the continued increase in the rate of vehicles per household; this was 0.46 in 2001 and 0.57 in 2012.<sup>617</sup> Though still low compared with the OECD region, the greater metropolitan region accounted for 1,721,328 vehicles in 2013, 40 percent of the economy's total and 41 percent more than 2007 (an average annual growth of 7 percent).<sup>618</sup> The percentage of daily trips performed by public transport is 29.1 percent, very similar to the 28 percent performed by private transport. The bus remains the most important public transport mode, though bicycle trips doubled in 10 years, reaching 747,000 in 2012.

According to estimates by the Chilean Chamber of Construction (CCHC), the relative deficit of investment in public mass transportation in Santiago compared to the OECD is 71.4km, or 82km for the capital's city's underground metro network (Table 12.6). An additional 809km of roads will also be required for private transportation. Five hospitals are needed, three of which will be developed through PPPs.

**Table 12.6 Infrastructure Deficit Projection in Santiago**

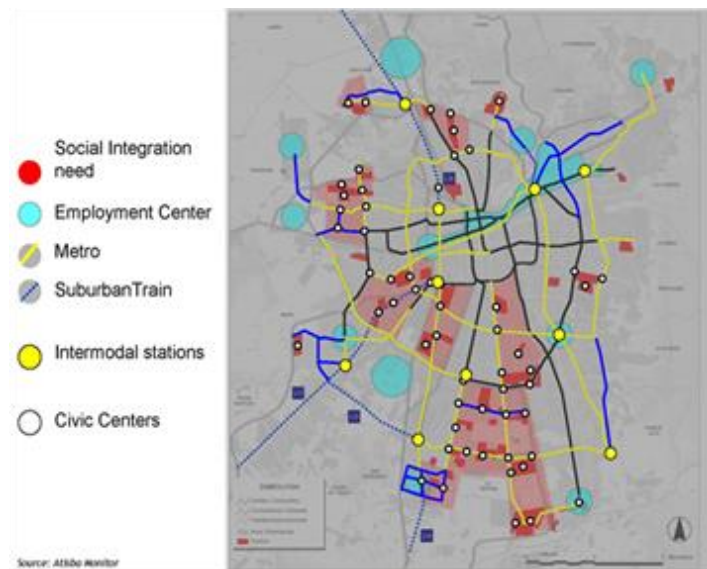
Type of infrastructure	Deficit (km)	Estimated cost (million USD/km)	Required investment (million USD)	No. of projects
Urban road infrastructure for private transport	809	0.8	647	-
Underground public transport network (Metro)	82	85	6,970	-
Hospitals	-	-	2,483	5

Source: CCHC (Chilean Chamber of Construction), *Infrastructure critical para el desarrollo 2014–2018* [Infrastructure for Development] (CCHC, 2013), 72.

As the *Atisba Monitor* urbanist, Ivan Poduje stated, if this deficit is viewed from the perspective of social development, you should plan what is needed: a network that improves the connectivity of the most vulnerable residential areas with the city's employment centres.<sup>619</sup> The scope of this challenge is shown in Figure 12.3 which suggests that Santiago's infrastructure would need to encompass suburban trains, intermodal stations and civic centres. The investment required would be USD 21.6 billion.

These resources are not available, so it has become necessary to create a Fund for State Infrastructure involving public financial instruments such as bonds to finance new projects. These proposals are under development and are expected to materialize shortly.

**Figure 12.3 Infrastructure and Social Development Needs, Santiago**



Source: I. Poduje, 'Long-term vision in infrastructure' (presentation at the 2015 conference of the Chilean Council of Infrastructure Policies, Santiago: CPI, 2015)

### 12.5.3 Logistics and Information Systems

As Santiago is an inland city, most of its trade is reliant on land transport. In the 1980s, the government began to close the railway network; and it now accounts for only 2 percent of the freight transport in Chile. Santiago is the economy's principal international airport and receives more than 17 million passengers annually. The region is serviced primarily by two ports: Valparaíso and San Antonio. Santiago is also connected to Mendoza (Argentina) through the Cordillera de Los Andes, though the road is closed several days a year due to weather conditions, especially in winter.

There is a need to improve the region's logistics systems, thus increasing the efficiency of its urban transport and freight systems. The ports of Valparaiso and San Antonio are 127km and 100km respectively from the capital and account for 55 percent of the national movement. However, they are currently accessed mainly through two concession toll roads (Routes 68 and 78 respectively). Significant investment is needed to expand transportation options to those ports.

There is growing momentum to build a low-level rail tunnel through under the Andes between Chile and Argentina. It is expected to cost an estimated USD 3 billion and, if built, the railway would carry some 80 percent of the freight between Argentina, Brazil and Chile.<sup>620</sup> The railway is a critical piece of strategic infrastructure needed to open up Pacific trade for Argentina, Uruguay and Brazil along the emerging Mercosur corridor.

#### **12.5.4 Operation and Maintenance of Infrastructure**

Most of Santiago's public infrastructure is state-owned. The infrastructure operated by the state is affected by short-term budgetary constraints that affect its long-term life. For example, public hospitals suffer from low budgets for operation and maintenance, resulting in the deterioration of those assets. Also, most infrastructure is not covered by insurance and lacks sinking funds for replacement, so in the event of a natural disaster, the restoration of infrastructure will need to be financed with public funds.

In the case of concession arrangements governed by the terms of PPPs, private operators are responsible for much of the operation and maintenance of infrastructure. Concession agreements cover insurance as well as standards of operation and maintenance for the duration of the contract. Such assets are in much better condition than public assets.

The benefits of the PPP model in Chile could be clearly seen in February 2010, when an earthquake severely affected infrastructure, causing damage of more than USD 6 billion.<sup>621</sup> About 1,500km of roads were cut off, 200 bridges affected and 9 airports damaged. The long and narrow Chile was divided into two. The concessions, supported by insurers, reinstated provisional connectivity in hours, and complete connectivity in 10 months. In contrast, non-PPP public infrastructure shows damage even after five years.

### **12.6 SOCIAL ENVIRONMENT**

Employment and equity are critical issues that affect social sustainability. Santiago, like most cities, experienced high levels of unemployment during the 2007 global financial crisis, but nothing like many other OECD economies. The mining boom boosted growth and demand for labour, bringing skilled and unskilled migrant labour from other economies in the region. Real wage and labour markets have grown steadily. However, they remain distorted, leading to significant inequality and inequity in income and wealth distribution. Poverty, affordable housing and accessibility to essential services have become significant social issues, impacting on the sustainability of development. This following section discusses briefly labour market and poverty issues affecting sustainability in the Santiago region.

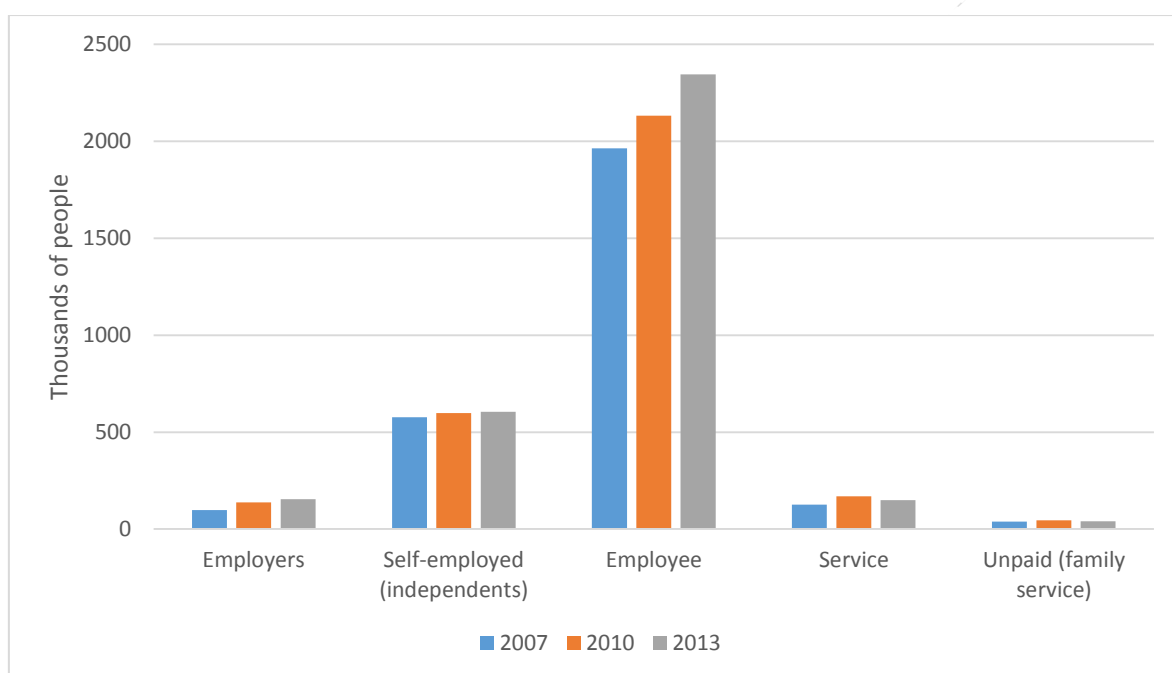
#### **12.6.1 Labour Markets and Human Resource Development**

In December 2013, the metropolitan workforce was around 3.5 million, with 5.2 percent unemployment. The economic sectors with the highest levels of employment are trade (22.7%), manufacturing (13.1%), real estate and business activities (9.9%) and construction (8.9%). These four sectors make up almost 55 percent of total sector employment in the region. By occupational category, employees represent the largest

share of the total employed workforce, at 71.2 percent, or 2.3 million workers. Almost 18.4 percent of the active workforce, or 605,520 people, are self-employed.

Figure 12.4 shows the changes in employment structure since 2007. Salaried positions (employees) show the greatest increase, due mainly due to the growth of the national economy from the mining boom. Unemployment rates have increased to 6.5 percent following the end of the mining boom in early 2014.

**Figure 12.4 Labour Market Occupied Persons by Occupational Category, Santiago Metropolitan Region**



Source: Based on data from INE (Instituto Nacional Estadísticas [National Institute of Statistics]), *Informe Económico Regional* [Regional Economic Report] 2007, 2010, 2013; and *Encuesta Económica Regional* [Regional Economic Survey] 2007, 2010, 2013.

### 12.6.2 Labour Market Reforms

GDP productivity per hour in Chile is still below the average among OECD economies. This is having a direct impact on the competitiveness of Chile’s, and Santiago’s, labour market. Labour productivity is a central issue since it represents the best tool to increase the salaries of workers and enhance growth; and regulations aimed at improvements in this area are essential.

The administration of President Bachelet proposed labour market reform in December 2014. Key reforms include an increase in the scope of collective bargaining rights for apprentices and contracted workers, and greater negotiating rights for labour unions.



Nevertheless, national labour market policies are still not inclusive. They do not ensure improvements in the wages and participation of women and youth, nor do they support young people in the transition from education to employment.

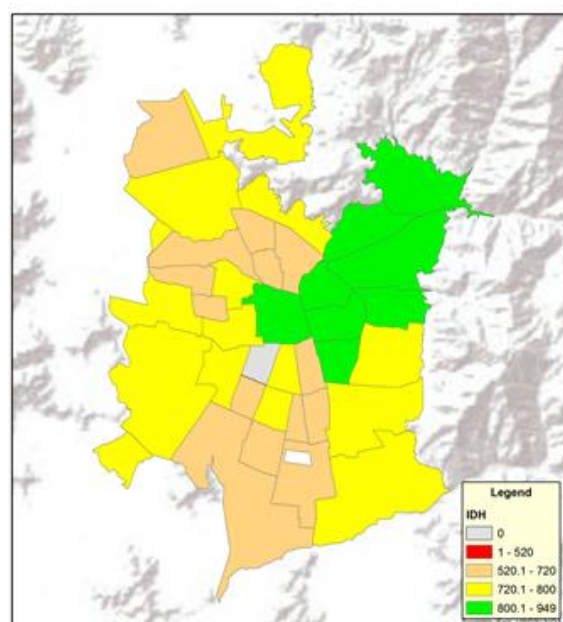
### 12.6.3 Poverty and Inequality

Measured by the Gini index, economic inequality is high although in the regional mean.<sup>622</sup> In 2011, the Gini coefficient was 0.51 for Chile and 0.47 for Santiago, which reveals significant deficiencies in the economy and the distribution of wealth. In the same year, the richest population decile earned 27 times the income of the poorest decile. In 2008, 2.7 percent of the population lived on less than USD 2 a day.<sup>623</sup>

As shown in the map of the distribution of Human Development Index scores (Figure 12.5), the city is separated between eastern and southern poor communes and western rich communes, where better public and private facilities are concentrated.

Santiago reflects the socioeconomic inequality and geosocial fragmentation of Chile as a whole.<sup>624</sup> From the late 1990s onwards, a large middle class developed; but income inequality worsened. Despite the city's unquestionable competitiveness, the obscure social reality is persistent poverty. Despite good economic indicators, and a notable reduction in poverty from 38.6 percent in 1990 to 15.1 percent in 2009, a persistent 11.4 percent of the population still live below the poverty line. The Economist Intelligence Unit's Hot Spots index ranks Santiago 65th in the 'social and cultural character' category.

**Figure 12.5 Human Development Index of Santiago by Commune (District)**



Source: Authors, based on data from: UNDP (United Nations Development Programme), *Human Development Report 2014* (New York: UNDP, 2014).

## 12.7 SUSTAINABILITY AND ENVIRONMENTAL MANAGEMENT

Since the 1990s, Santiago has encountered growing environmental problems related to urbanization. Air pollution reached critical World Health Organization (WHO) levels, and smog has become a permanent feature in the winter months. The authorities have introduced legislative measures for industries and instituted control of vehicular movements. At times, the large number of private buses has caused paralysis in the city centre. To combat the chaos in urban transport, the city embarked on a major expansion of its public transport systems. The underground metro has been extended with three new lines to the southeast over the period 1997–2006, and a new line towards Maipú in 2011, augmenting the city's networks to 105km.

Environmental issues seem to plague Santiago.<sup>625</sup> This, combined with its vulnerability to earthquakes and other natural disasters, is reflected in the Economist Intelligence Unit's Hot Spots index where, for the 'environment and natural hazards' category, it ranks joint 85th.<sup>626</sup> Moreover, in the Latin American context, its environmental performance has been assessed as average.<sup>627</sup> Nevertheless, the city has implemented policies in areas such as waste, water and sanitation, transport, energy efficiency and climate change, green buildings and urban regeneration, which are relevant to this review.

### **12.7.1 Air Quality**

Air pollution fell by about a third in the 1990s, but progress slowed considerably in the 2000s,<sup>628</sup> and Santiago's air is still one of the most polluted in Chile.<sup>629</sup> The Plan for Prevention and Atmospheric Decontamination<sup>630</sup> implemented since 1998 has helped improve air quality in the city. On average, monitoring stations have recorded declines – albeit slow – over the last 15 years in all regulated pollutants (PM10, O<sub>3</sub>, CO and SO<sub>2</sub>) except NO<sub>2</sub>.

The improvement had been made possible by implementing a series of measures to lower emissions from transportation, industry, fuels, volatile organic compounds and residential heating, among others. This included the replacement of public transport buses and of the transit system starting in 2005.

### **12.7.2 Potable Water and Sanitation**

Water management in Chile is based on the principle of transferable rights as a way to enhance its efficient use. Water services have been provided by private enterprise since 1998; and in Santiago, the water supply is managed by Spanish-owned Aguas Andinas.

More than 99 percent of Santiago's population have access to potable water, and 97 percent to sanitation services. There is a 30 percent leakage rate, which is lower than the Latin American average. The government pays for the first 15 cubic metres of water used by families in extreme poverty, and between 25 percent and 85 percent of the bill for the first 15 cubic metres used by low-income households.<sup>631</sup> Aguas Andinas regularly monitors the quality of drinking water to ensure that it meets the standards set by the national environmental agency.

A significant environmental challenge for Aguas Andinas was the cleaning of Santiago's main river. The Mapocho River, a major source of water, had become contaminated by sewage and waste from copper mining operations and sewage upstream. Under the plan, the company decommissioned 21 pipes that had been discharging untreated wastewater into the river. Though illegal dumping into the river persists in some areas, there is an ongoing public programme to clean and monitor further dumping.

In 2007 almost 40 percent of Santiago wastewater was untreated. In response, the government implemented a strict national sanitation body, which in association with the private sector, increased wastewater treatment capacity. By mid-2012, the Mapocho wastewater treatment plant began operation. The increase in capacity resulted in Santiago becoming the first capital city in Latin America to treat all of its municipal sewage.<sup>632</sup> According to Agbar (the Spanish company that owns Aguas Andinas), this is a landmark

project in the southern hemisphere. It was made possible only because the investment cost could be transferred to end-users, increasing the bill by just USD 0.03 per cubic litre, or about USD 0.66 for an average household monthly water bill.

Moreover, the La Farfana treatment plant, which treats 60 percent of the city's wastewater, produces methane as a waste product of the treatment, covering the gas demand of about 35,000 households. The capture of methane and its use has been recognized by the United Nations Framework Convention on Climate Change (UNFCCC) as a strategy to reduce greenhouse gas emissions; in this case, part of the investment on the treatment plant came from selling carbon credits.

### **12.7.3 Waste Management**

The city generates a relatively large amount of waste; but its management and disposal is relatively efficient. The approaches vary with each commune. Some have founded their own company while others have contracts with private firms.<sup>633</sup> Santiago complies with central government guidelines on landfills and the disposal of hazardous waste. However, it needs to be noted that although Chile has strict regulations regarding waste, and while open-air dumps are illegal, an estimated 20 percent of waste in Chile is disposed of in inappropriate dumps.<sup>634</sup>

Several districts have also teamed up with charities to encourage community participation in recycling. The charities manage the process up to the transfer to recycling plants. Though more than 50 percent of the waste in Chile and Santiago could be recycled, the current rate is around 10 percent. The Ministry of the Environment has proposed a new law on Extended Producer Responsibility, which will cover waste from priority products such as oils, electronic waste, medicines, paper and cardboards, tyres, vehicles and so forth. Producers of these products will be liable for the management and disposal cost at the end of the product's lifecycle.

### **12.7.4 Transport and Noise**

As indicated earlier, the city's public transport system is underpinned by a metro and a bus rapid transit system, which are further supported by a large fleet of feeder buses. Santiago's overall network<sup>635</sup> is efficient, with metro and bus rapid transit lines extending an estimated 220 km, one of the longest in Latin America. In terms of environmental policies, authorities have reduced the total number of buses from 7,000 to 4,500 and are gradually replacing older vehicles with lower-emission models.<sup>636</sup> In addition to overhauling its mass transport system, and particularly, expanding its metro, the city has also adopted several traffic management measures, including a traffic information system and some toll roads. Moreover, investment in bicycle lanes has increased substantially, and some web-based car sharing private initiatives have arisen.

In terms of noise, more than 70 percent of Santiago's population are exposed to noise levels above the 55 dBA recommended by the WHO, and rising to 85 dBA in some areas of the city – mainly due to traffic noise. Many communities cite noise as the city's main environmental issue.<sup>637</sup> In response, the authorities have introduced several policies at the central-government level and more stringent city-level schemes, imposing noise limits for industries, construction work, vehicles and other sources.

### **12.7.5 Climate Change and Greenhouse Gas Emissions**

While Chile is not a major global emitter of greenhouse gases, climate change would have several impacts, particularly in the central area in which Santiago is located. They include a rise in drought frequency, more rainfall, a reduction in glacier mass, and an increase in average temperatures and desertification.

Chile has voluntarily committed to a 20 percent reduction in its greenhouse gas emissions by 2020. It has developed a Mitigation Action Plan and Scenarios, called MAPS-Chile, which includes actions in the private and public transportation system, land use and buildings, and waste. Besides the already mentioned La Farfana wastewater treatment plant, an innovative case is the Santiago Transportation Green Zone project. The initiative – a collaboration between the Chilean Ministry of Transport, its Ministry of Environment and the UK government – aims to reduce greenhouse gas emissions through a comprehensive plan that includes: the promotion of zero and low-emissions vehicles as well as non-motorized vehicles; the use of clean and energy-efficient public transport buses; and traffic redesigns and traffic management. The project, which will be partly financed by issuing carbon credits, is one of the Nationally Appropriate Mitigation Actions (NAMAs) recognized by the United Nations.

### **12.7.6 Energy Efficiency**

The private and public sector have a shared view that clean, yet relatively cheap, energy, is a key condition for the further development of the economy. Along with structural changes in the energy market, enhanced connectivity and a more active role for the state, energy efficiency is an essential component of Chile's new Energy Agenda enacted in 2014, boosting the ongoing Energy Efficiency National Plan 2020 which covers the industrial and mining sector, housing and small business, as well as the public sector and national army.

It is important to note that those efforts started in 2005 with the Energy Efficiency Program, which became a formal institutional arrangement in 2010 with the creation of the Chilean Energy Efficiency Agency. The agency received in that same year the EE Visionary Award for the Americas, granted by the Alliance to Save Energy. The agency has implemented several projects in Santiago that have successfully reduced the energy consumption of a myriad of different buildings, such as hospitals, shopping malls, housing developments and public buildings.

### **12.7.7 Green Buildings**

Santiago has also addressed environmental concerns beyond energy efficiency, particularly with regard to non-residential buildings. The city is one of a number of non-US cities with buildings achieving and pursuing the Leadership in Energy and Environmental Design (LEED®) certification scheme established by the US Green Building Council. The trend toward green buildings is mainly driven by the real estate market for new office buildings and retail space, which has identified that energy efficiency and environmental design are not only good in terms of reducing operational costs, but also in terms of the market value of the properties.

Moreover, in 2014, Chile launched its own certification scheme for green buildings, known as CES, an initiative that started in 2008 as a collaborative effort between the major stakeholders in the construction sector, including private companies, public agencies, universities and consultants. This new and local system focuses on a different market than LEED. It aims to encourage the implementation of best environmental practices during the design, construction and operation stage of small- and medium-sized non-residential buildings, particularly for healthcare, primary education and public services.

### **12.7.8 Green Space**

Santiago has a low ratio of green areas per capita, below the 9 square metres per inhabitant recommended by the WHO. Moreover, since the management of most green areas is the responsibility of relatively small district councils, the rate varies significantly between one district and another. A typical low-income district has 1.8 square metres per inhabitant while the highest at 56 square metres per inhabitant is seen in Vitacura, a high-income district.

Several initiatives address this issue. By the end of 2014, a total of 396 hectares were added to the city's stock of green areas, increasing the total area by 16 percent, most of which was introduced in the low- and medium-income areas of the city, including the first park aimed at reducing flooding in surrounding areas. Furthermore, a local NGO has introduced a new and successful charity model for developing and financing small green areas in low-income neighbourhoods, raising the interest of different corporations to participate in the scheme.

### **12.7.9 Urban Regeneration**

To reduce counter-urbanization in the Santiago metropolitan region and tackle the decline in the population of the city's inner areas, several regeneration policies have been implemented. While most of them have been based on the densification of low-density inner-city areas through subsidies granted to middle-income households, some interesting culture-led regeneration processes have emerged in at least three areas: Bellavista, Barrio Italia and Lastarria. These areas have been able to capitalize on a particular sense of *genius loci* based on their existing physical characteristics to attract more residents and new businesses, particularly restaurants and art-related enterprises.

Santiago has also witnessed the growth of at least three business districts – Sanhattan, Rosario Norte and Ciudad Empresarial – complementing the functions of its main CBD area, Santiago Centro. These areas are well-served by public transport and connected to the city's main road infrastructure.

## **12.8 EFFECTIVENESS OF URBAN GOVERNANCE**

As indicated earlier, Greater Santiago does not fit neatly into any one administrative division. The major part of its 641.4 square kilometres (as of 2002)<sup>638</sup> lies within Santiago



**Table 12.7 Examples of Sustainable Development Partnerships, Santiago Metropolitan Region**

	Infrastructure and development	Research & innovation and entrepreneurship	Social and environmental
<b>Government</b>	<p>Infrastructure Partnerships  <a href="http://www.minvu.cl/opensite_det_20120607153314.aspx">http://www.minvu.cl/opensite_det_20120607153314.aspx</a></p> <p>Bajos de Mena rehabilitation programme  <a href="http://www.minvu.cl/opensite_det_20140819155335.aspx">http://www.minvu.cl/opensite_det_20140819155335.aspx</a></p> <p><a href="http://radio.uchile.cl/wp-content/uploads/2014/12/Plan-Integral-de-Reahabilitaci%C3%B3n-Urbana.pdf">http://radio.uchile.cl/wp-content/uploads/2014/12/Plan-Integral-de-Reahabilitaci%C3%B3n-Urbana.pdf</a></p>	<p>Fundación Chile  <a href="http://www.fch.cl/sobre-fch/">http://www.fch.cl/sobre-fch/</a></p> <p>Concurso Emprendedores Globales: Start-Up Chile  <a href="http://www.corfo.cl/programas-y-concursos/programas/concurso-emprendedores-globales-startup-chile">http://www.corfo.cl/programas-y-concursos/programas/concurso-emprendedores-globales-startup-chile</a></p>	
<b>Local business and community</b>	<p>Desafío Levantemos Chile  <a href="http://www.desafiolevantemoschile.cl/quienes-somos/conocenos/">http://www.desafiolevantemoschile.cl/quienes-somos/conocenos/</a></p>		<p>América Solidaria  <a href="http://chile.americasolidaria.org/pais/chile/">http://chile.americasolidaria.org/pais/chile/</a></p> <p>Chile Verde – Green Chile  <a href="http://www.porunchileverde.cl/">http://www.porunchileverde.cl/</a></p>
<b>Public utilities</b>	<p>Intervial Chile  <a href="http://www.intervialchile.cl/">http://www.intervialchile.cl/</a></p>		

Source: Authors.

### ***12.9.1 Infrastructure Partnerships for Santiago Metropolitan Region***

In the early 1990s, Chilean authorities agreed on a strategic goal: to turn Chile, and especially Santiago, into a business platform for Latin America. This challenge required significant improvement in public infrastructure. The Chilean Chamber of Construction (CCHC) estimated that there was a USD 11 billion deficit in available infrastructure. In this context and given Chile’s budget constraints, the government of President Frei Ruiz-Tagle focused on PPP infrastructure projects.

The first intercity highway – Route 78 from Santiago to San Antonio – was tendered to a private concessionaire in 1995. There are currently 27 projects in the metropolitan region under the PPP model, including an international airport; 6 intercity routes connecting the capital with different regions; 9 urban highways; and 12 public infrastructure buildings and public transport corridors. These were handed over to the private sector for an average term of 25 years and a total initial investment of USD 10.47 billion.

As a result of this PPP model, almost 500km of roads were built, enhancing the connectivity of the capital. PPPs have been a driving force in the growth of paved roads at local and national level. Before the implementation of the PPP model, paved roads

grew at a rate of 1.1 percent in Chile. After the PPP model was introduced, the rate increased to 2.5 percent.

Santiago's road infrastructure operating under concession was severely affected by the 2010 earthquake. However, connectivity was quickly restored by the private management and the relevant insurers at no cost to the state. The metropolitan region has experienced success with PPPs; international groups, mainly from Canada, Spain, France, Germany and Italy, manage most of these projects.

### **12.9.2 Urban Rehabilitation of Bajos de Mena**

While Chile's public housing policy is internationally recognized for its success in increasing the availability of affordable housing at relatively low cost, its implementation has created externalities for major cities in Chile, particularly Santiago. One of those externalities is urban segregation, which is considered a socially unsustainable characteristic of many developing economies. In response in 2013, Chile's Ministry of Housing and Urban Development has included in the 2013 National Urban Development Policy, several measures aimed at enhancing urban integration, such as: improving the standard of the public services necessary to develop housing projects, increasing land availability for affordable housing, retrofitting public housing stock, increasing accessibility and mobility, and building the capacity of existing communities.

These new policies will boost public agencies such as the Ministry of Housing and Urban Development's Neighbourhoods Executive Office. They will also bolster programmes such as '*Quiero mi Barrio*' (I love my neighbourhood), a multi-agency effort that works toward the physical and social regeneration of neighbourhoods. The programme has already been implemented in more than 100 neighbourhoods in Santiago.

One of the most successful cases of regeneration is the Integral Plan for Urban Rehabilitation.<sup>640</sup> Between 1998 and 2004, this programme had built 25,466 units of social housing for more than 120,000 people in a 600-hectare area 20km south of the centre of Santiago in Puente Alto. One of the areas to benefit from the new urban rehabilitation policy is *Bajos de Mena*, a large social housing area experiencing high social vulnerability and poverty levels and a lack of public and private services. The area lacked connectivity and green spaces, and had poor quality housing with overcrowding. These problems had given rise to serious social problems. To remedy the situation, the Ministry of Housing and Urban Development proposed a housing and urban intervention plan worth CLP 44 billion for the families of *Bajos de Mena* to be implemented in the period 2012–2014. The plan included investment in roadworks and connectivity, new housing for families, public spaces and green areas, the installation of a police station and improved street lighting, among others.

### **12.9.3 Fundación Chile: Partnerships for the Creation of Innovative Companies**

Fundación Chile is a private non-profit organization that brings together the government of Chile and BHP-Billiton-Minera Escondida, one of the biggest mining companies in the world. The three main objectives of Fundación Chile are:



- To create direct value: This involves technology transfer to support the development of the economy, through creating companies that spread innovation, or patenting technologies that introduce and disseminate solutions.
- To create indirect value: This involves supporting enabling initiatives to generate the conditions for the installation of new technologies in Chile, and creating business ecosystems with more capacity to promote development through innovation.
- To provide innovative services: The vision is for these services to support the adoption of knowledge and technologies according to the needs of customers. The services should provide real-time connection to markets, and knowledge and information to support business innovation.

Achieving these objectives requires joint management with local and international networks, which in turn requires an organization operating independently from the public and private sector. Fundación Chile has directed efforts into areas such as mining, energy, aquaculture, human capital and entrepreneurship.

The initiative has been very positive and has led to companies in Santiago developing innovative projects and partnerships that reduce risk, and lead others in the use of innovation to drive change. Many of the companies that have participated in Fundación Chile are committed to addressing the future challenges facing Chile's development through the use of approaches that support sustainable and equitable development. The organization has been very successful in bringing government, international and local business together in partnership arrangements at arm's length from the political system and generating impacts that meet the challenges facing the economy.

## **12.10 INTERNATIONAL PARTNERSHIPS**

Santiago has sister city partnerships with 12 cities (Table 12.8). All but three of these are capital city partnerships. The capital city partnerships are extensively political and cultural, and involve knowledge and business exchange. The sister relationships do not have a strong trade, co-investment and business development focus, but trade missions and exchanges are conducted with sister cities. There is significant potential for Santiago to consider more direct trade development partnerships, especially with cities in other Latin American economies and also with Auckland (New Zealand) and Sydney (Australia), both of which are multicultural and cosmopolitan cities and have similar types of economies.

**Table 12.8 Sister City Partnerships for Santiago**

Buenos Aires, Argentina (1992)	São Paulo, Brazil (1998)	Tokyo, Japan	Guayaquil, Ecuador
Riga, Latvia	Warsaw, Poland	Ankara, Turkey	New York, United States
Paris, France (1997)	London, United Kingdom	Minneapolis, Minnesota, United States (1961)	Miami, Florida, United States

Source: Authors.

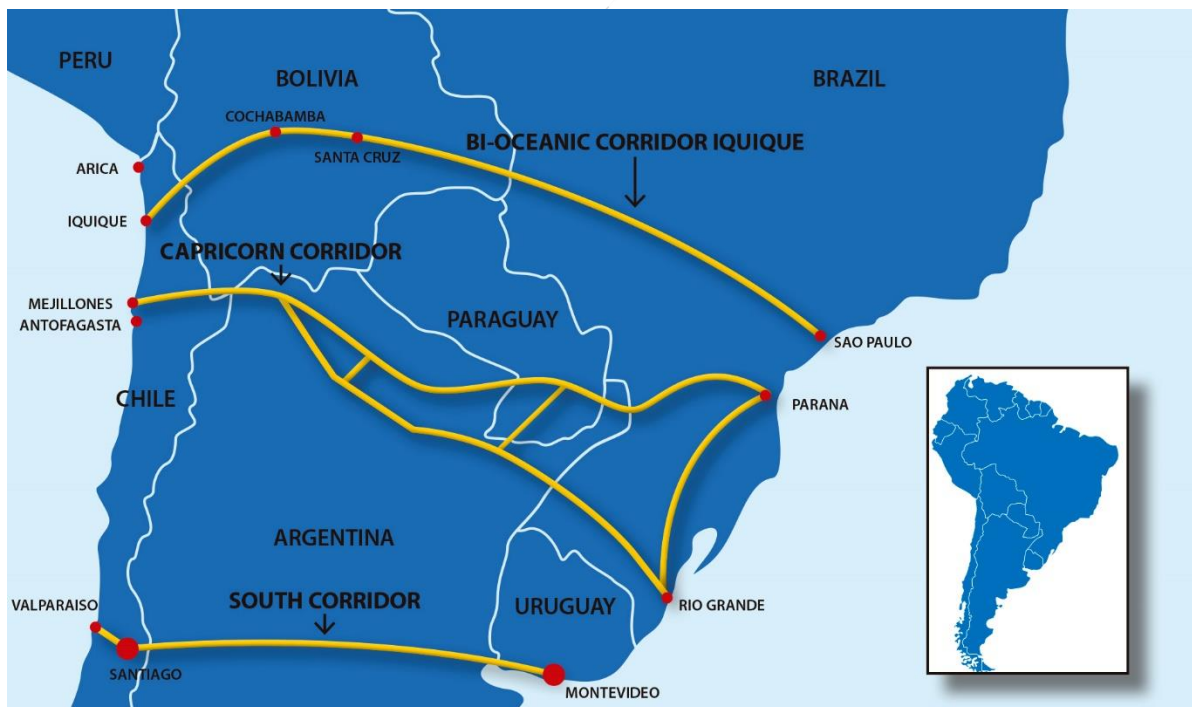
## 12.11 POTENTIAL PARTNERSHIPS THROUGH APEC

Several opportunities exist for the development of partnerships involving the Santiago metropolitan region that could be facilitated and supported by APEC.

### 12.11.1 Bi-oceanic Corridors

Opportunities exist in the metropolitan region to support the development of partnerships for the sustainable development of trade corridors. The most significant potential lies with intraregional city axes and bi-oceanic corridors (Figure 12.7).

**Figure 12.7 Bi-oceanic Corridors: Pacific–Atlantic Axes in the 1990s**



Source: Author.

Intraregional connectivity and access to port terminals present a major challenge for South America. Enhancing connectivity is part of Chile’s policy strategy. As noted by

President Michelle Bachelet at the APEC Summit in Beijing in November 2014, ‘Chile wants to be a port and bridge between Asia-Pacific and Latin America economies’.

The establishment of bi-oceanic corridors in South America takes into account the facilitation and intensification of trade to create a more integrated economic space and to achieve convergence between regional mechanisms and institutions. At the same time, it has meant expanding the platform of international integration, through strengthening land links between the various production centres to the ports of the Pacific and Atlantic Oceans, thus opening new connections to external markets. For example, a load from Chile to Europe routed through Argentine ports would take 12 days less to reach its destination compared with the Panama Canal route.

Currently, there are several bi-oceanic corridors being studied. From a strategic point of view, any one of these corridors is necessary, keeping in mind that Peru is working on the enlargement of the port of Callao. For Santiago and the metropolitan region, the best alternative is the one that passes through the Region V–South corridor, because it is closest to the area. Within these corridors, there is potential to develop secondary cities as growth nodes, which could serve as hubs and logistics centres that are fully integrated into regional supply chains. Three corridors that have significant potential to enhance the development of Santiago metropolitan region are the Capricorn, South and Iquique corridors.

- **Capricorn Corridor (Norte Capricornio)**

This would improve the connection between Mejillones in Antofagasta province and north-western Argentina through the Jama Pass, traversing the territories of Paraguay, Uruguay and southern Brazil. This corridor coincides with a significant portion of the geographic area of influence of the Capricorn corridor, which also incorporates areas of southern Bolivia.

In the Chilean stretch, the route from Antofagasta to the Jama border crossing is fully paved. A new border post close to the border has been planned, which would be ideal for the establishment of an integrated border control system. The total estimated cost of the Chilean stretch is of USD 13,700 million, an amount that includes both land and sea connections.<sup>641</sup>

- **South Corridor**

This includes the connection between Valparaíso Region V in Chile and the province of Mendoza and the Cuyo region in Argentina via the Cristo Redentor border crossing. From that point in Argentina, it converges with the main routes of the Mercosur economies.

There is a private project in the area, the Aconcagua Bi-oceanic Corridor,<sup>642</sup> which aims to develop a system of integrated transport and logistics that effectively links Buenos Aires to the Valparaíso, San Antonio and Ventanas ports. The initiative would cost an estimated USD 3 million. This corridor would directly benefit Santiago and the its metropolitan region since it is adjacent to the area passing through the region of Santiago.

- **Iquique Corridor<sup>643</sup>**

This is said to be the shortest and most economical and efficient way to transport products from Bolivia, Brazil, Argentina, Paraguay and Uruguay to the Pacific, and from there to the Asia-Pacific economies. The conditions along the corridor allow for the passage of large volumes of cargo using trucks and railway as it is located on a low plain and low slope of the Andes. It also allows mega-traffic of more than 14,000 TEUs.

### **12.11.2 City-to-City Partnerships**

Chilean trade statistics do not capture data on city of origin for exports or imports. It is difficult, therefore, for Santiago to know the magnitude and growth of trade between the city and other cities. If Santiago were to have better data on how and where it trades with other cities, this would improve planning. Such information could help the city establish priorities in building strategic infrastructure and supporting capacity to expand opportunities for trade and investment. It may also enable blockages to trade and investment flows to be identified and remedied.

Santiago has many city-to-city connections which have developed from the expansion of trade in mineral resources and agro-industrial products, its main exports. Opportunities exist to add value to existing supply chains in these industries if the nature of the trade flows and the gaps in critical strategic infrastructure supporting them can be identified. Partnerships for city-to-city development that appear to have good prospects for development under the umbrella of APEC include:

- **Santiago and Los Angeles**

The USA is an important destination for Chilean exports, especially fruit and wine. Santiago and Los Angeles already have a strong trade relationship. Opportunities exist to value-add to the food industry production and supply chain systems by identifying common user infrastructure where collaboration between export and import companies would help to reduce transaction costs. In addition, both cities are unlucky to be in a high-risk earthquake impact zone. There is much to be gained by collaborating in research and development in building design and emergency response capabilities.

- **Santiago and Sydney**

Santiago and Sydney are cities with large mining, tourism and food processing service industries and logistics centres. There are regular daily air connections between the two cities. The development of synergies between the two cities would create opportunities to develop sub-regional hubs to collaborate in service industry development.

## **12.12 CONCLUSIONS**

The government of Chile recognizes the importance of the tertiary sector in boosting its international connections, trade liberalization, and development and investment opportunities. Chile is geographically isolated from large markets that offer opportunities to expand merchandise trade. If the economy is to grow, it must develop its service exports, particularly in sectors where it has some competitive advantage – maritime and aeronautical services, tourism, retail (department stores, supermarkets and shopping

centres), engineering and construction services, informatics, health and education. Santiago, as the capital and largest city, could be expected to play a key role in leading the thrust into the development of a more service- and export-orientated economy.

This chapter has sought to provide insight into the state of the Santiago economy, covering its physical, social and governance environments. It describes some of the significant challenges facing the development of the economy. Despite having higher income levels than most of its regional competitors, Santiago has significant levels of inequality. Addressing the inequalities will be challenging and require further economic and social reforms. By 2025, the city is expected to have improved its competitiveness, based on the strength of its economic policies. However, it must address its social and environmental problems; this will be critical to ensuring greater inclusiveness, equality and prosperity.

By 2025, Santiago is expected to reach a population of about 8 million. The city will have to continue to support business innovation and provide for the maintenance of its public assets and strategic infrastructure, to make it the best Latin American city for investment, and ensure sustainable development. Key recommendations for Santiago governance are improved governmental coordination and concerted management of its long-term planning issues such as infrastructure development, environmental issues and infrastructure backlogs. Santiago's labour force will also need skills and competencies enhancement to reduce the service quality gap of existing human capital.

Santiago is a dynamic and proud city. However, the city recognizes that many of its development practices are not sustainable, and inefficiencies in its urban systems are holding back opportunities for investment, trade, jobs and economic development. Steps are being taken to introduce sustainable development practices. Government and private efforts are becoming increasingly focused on fostering innovation, entrepreneurship and start-ups, but there is still a way to go before momentum for change and reform gains traction and results. The strengthening of APEC economies' relationships and city-to-city linkages for trade and investment is a key element to fostering integration of Santiago to trade hubs such as Buenos Aires, Sao Paulo, La Paz and other cities of the APEC region. The city recognizes the importance of strengthening the linkages between cities and along trade development corridors to enable it to play a more dominant role in the sustainable development of cities in the APEC region.

APEC could play a significant role in the development of the economy of the Santiago metropolitan region. Opportunities exist for learning and information exchanges between Santiago and APEC cities with which it has direct links, especially by air. Several key areas for cooperation and collaboration are tourism, freight, light industries and the perishable goods trade. The development of regional corridors, especially the Mercosur corridor, would open up trade and investment opportunities, not only for Santiago but also for economies and cities in southern Latin America. APEC provides a mechanism for Santiago to work with other cities in the region to realize the potential for further trade and economic linkages. It is important that the development of the economy and new partnerships are underpinned by a focus on sustainable, equitable and inclusive growth.