

8. Lima, Peru

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8.1 INTRODUCTION

Lima, the capital city of Peru, with a population of almost 10 million, was founded in 1535 by Francisco Pizarro in a fertile valley a few kilometres east of the Pacific Ocean. Its strategic location gave the Spanish conquistadores control over vast expanses of South America. Through its pre-colonial, colonial and recent history, the city has had its fair share of economic ups and downs, disasters and civil disorder. However, throughout these times, the city has demonstrated remarkable resilience – rebuilding, rejuvenating and developing, although not necessarily sustainably. Changes are happening to make Lima a more sustainable city. Lima is currently ranked among the top ten best cities for doing business in Latin America.

This chapter explores the current state and dynamics of change in the economic, physical, social, environmental and governance systems of Lima. It explores recent development, and highlights some examples of sustainable city development projects. These include the busway systems and inner city restoration that are giving back to the city the functionality and character that it has been lacking for many years. Finally, it draws some conclusions about Lima, and what it can offer by way of lessons for making cities in the Asia-Pacific region, and especially South America, more sustainable.

Photo 8.1 Larcomar Shopping Mall, Miraflores, Lima – A Commercial Highlight



Credit: Wikimedia Commons / shoestring.

8.1.1 Lima in Context

Peru has a population of 30,135,875 people. It has almost all climates types and important natural, mineral and energy resources. The economy of Peru is classified as upper middle income by the World Bank and is the 39th largest economy in the world. In recent years, Peru has been one of the world's fastest-growing economies, thanks to an economic boom in the 2000s. It has a high Human Development Index of 0.734, based on 2014 data.³⁶⁹ Historically, the economy has relied heavily on exports.

Peruvian economic policy has varied widely over the past decades. Since the 1990s, the economy has liberalized, and ended price controls, protectionism, restrictions on foreign direct investment, and most state ownership of companies. The reforms have permitted sustained economic growth since 1993, except for a slump after the 1997 Asian financial crisis.

Peru's GDP in 2014 was estimated at USD 202,859 million. Services accounted for 60 percent of its GDP, followed by manufacturing (14%), the extractive industries (12%) and taxes (16.5%). Recent economic growth has been boosted by a period of macroeconomic stability, improved terms of trade, and rising investment and consumption. Peru's free trade agreements with the United States; China; Mercosur; and Chile have played, and will continue to play, a significant role in its success in trade.^{370,371}

In terms of international competitiveness, Lima has room for improvement. In the Economist Intelligence Unit's 2012 study, *Hot Spots – Benchmarking Global City Competitiveness*, which analyses 120 major cities in the world, Lima comes in at 88th, which makes it 5th among South American cities.³⁷² Lima ranks above the global mean in 'economic strength' and 'global appeal', but substantially below New York which leads in the overall competitiveness ranking (Table 8.1). In all other indicators, Lima falls below the global average, with the gap particularly wide on the 'financial maturity' and 'environmental and natural hazards' attributes. However, the projection for 2025 shows Lima moving up to rank 48th on the world scale.³⁷³

Table 8.1 Economic Competitiveness of New York and Lima, 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
88	Lima	42.5	40.0	66.1	16.7	45.2	58.3	64.2	37.5	10.2
	Global	49.1	35.9	77.25	50.0	63.25	63.75	63.7	66.7	9.0

Source: Economist Intelligence Unit, *Hot Spots 2025: Benchmarking the Future Competitiveness of Cities* (London: Economist Intelligence Unit: 2013).

Lima is a primate city, and dominates Peru's system of cities. It is home to 31.6 percent of Peru's population, produces 45 percent of its GDP, and 79.6 percent of its banking portfolio.^{374,375,376} The city contributes about 80 percent of the total taxes collected in Peru, 61 percent of Peru's manufacturing activities (through its nearly 7,000 factories), 55 percent of the construction sector's output, 53 percent of the retail and service sector outputs and 52 percent of gross value added (2007 data). While the average national product per worker was PEN 15,519 (USD 4,961) in 2007, Lima averages more than PEN 20,000 (USD 6,393). The Port of Callao handles more than 80 percent of Peru's shipping container traffic, including 19 percent of Peru's mining exports; and this has been growing with recent port expansions.

8.2 ECONOMIC ENVIRONMENT

Lima is Peru's leading industrial, financial and retail centre. Many of Peru's industrial complexes are located in and around the capital city region; and most of Peru's imports and exports are channelled through the Port of Callao.³⁷⁷ Despite its importance, Lima's economy has experienced significant ups and downs. Unemployment is high, as is the size of the informal sector economy.

The government was traditionally the main employer. However, since the 1990s, the private sector has become the leading employer. In the early 1990s, the reform of the Peruvian government included the privatization of most state-owned companies and a reduction in the number of workers in government institutions such as ministries and other agencies. The size of the government went down sharply in the early 1990s. The government even had a programme to encourage resignations in the public sector.

The privatization of state companies left thousands of people out of work in the mid-1990s, as many of these companies were old, inefficient and lacking the capital to modernize. While Lima's economy grew rapidly during the mid-1990s, it has never been able to recover fully from the recession that began in 1997, and which left one in every two Peruvians living in poverty. More recently, Lima has experienced improvements, due mainly to the flow-on effects of a booming mining industry, and increased trade. Sectors like agriculture, textiles (apparel, among others) and the expanding services sector (commerce, improvements in telecoms, professional services, etc.) also contributed. Table 8.2 shows key facts on the city's economy.

Table 8.2 Key Economic Facts – Lima

	Local Government Area (The province of Lima)	Greater Region (The ‘department’ or region of Lima)
Value of the economy (June 2013)	USD 70,124,741,639 (45% of Peru’s GDP)	n.a.
Estimated residential population (June 2013)	8,617,310	n.a.
GDP per capita	USD 5,120	USD 8,137
Employment (2013)	4,607,100	n.a.
Unemployment rate (2013)	4.7%	n.a.
Number of businesses (June 2013)	n.a.	842,522
Key export sectors	n.a.	Traditional mining, oil and natural gas, agriculture and agroindustry, clothing and apparel, and chemicals

Source: Compiled from the following INEI (Instituto Nacional de Estadísticas e Informática) publications: *Evolución de la Pobreza Monetaria 2007–2012* [Evolution of Monetary Poverty] (2013); *PBI por Departamentos 2001–2012* [GDP by Region] (2013); *Perú: Estructura Empresarial 2013 – Análisis de la estructura empresarial de Lima Metropolitana* [Peru: Business Structure – Analysis of Metropolitan Lima’s Business Structure] (2013); *Situación del Mercado Laboral en Lima Metropolitana, Junio-Julio-Agosto 2014* [Metropolitan Lima’s Labour Market] (2014); *Principales Indicadores Departamentales 2008–2014* [Main Region’s Indicators] (2015); and from: A. Segura, *Perspectivas Económicas 2014* [Economic Perspectives] (Lima: Ministry of Economy and Finance, 2014)

Figure 8.1 Map of Peru



Note: This map shows the *department* (region) of Lima. The region of Lima has 10 provinces, one of which is the province of Lima. The province of Lima comprises Metropolitan Lima and the constitutional province of Callao. This is what we refer to as the city of Lima.
Source: Wikimedia Commons / Huhsunqu.

8.2.1 Economic Dynamics of Lima

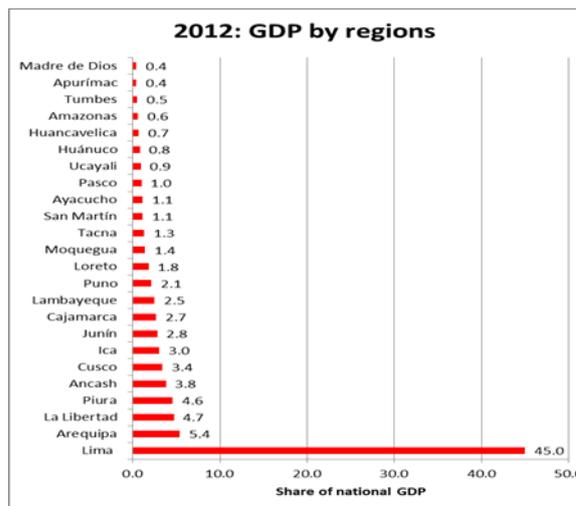
The city of Lima concentrates the largest share of economic activity in Peru. In 2013, it contributed USD 70,125 million to the national economy or approximately 45 percent of national GDP. There is no available data on the share of GDP provided by the metropolitan Lima area. Figure 8.1 shows the size of the economy of the Lima region

compared to other regions in Peru. The Lima region has an economy eight times that of Arequipa's, the next largest.

In 2013, metropolitan Lima's real per capita income was about USD 8,137 compared to the provincial level of USD 5,120 (Table 8.2). However, it should be noted that per capita income figures have been bloated by the strong performance of the mining industry, and distribution of income is inequitable, as shown by Peru's Gini coefficient, which was 45.1 in 2012.³⁷⁸ In 2011, 4.9 per cent of the households in Lima had an annual income of USD 49,724; 18.8 per cent had USD 24,083; and 40.7 per cent had USD 14,932.

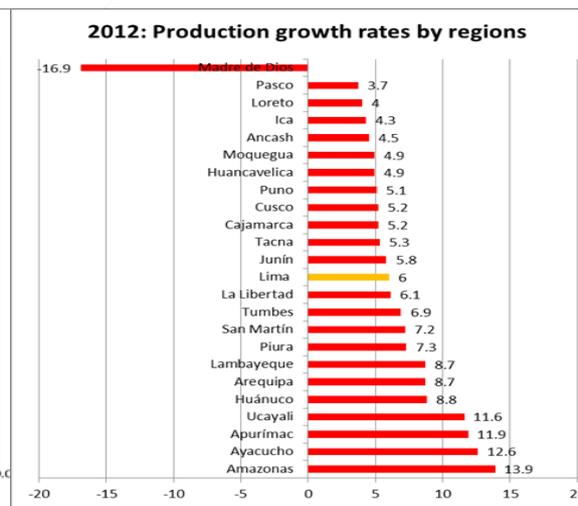
During the last decade, there has been rapid growth in other regions (Figure 8.2). In 2012, Lima ranked 12th (6.0%) in production growth rates in Peru. Regions like Amazonas (13.9%), Ayacucho (12.6%), Apurímac (11.9%) and Ucayali (11.6%),³⁷⁹ which used to be low performers, have experienced a major recovery. Other regions that outperformed Lima include Arequipa (8.7%), Lambayeque (8.7%), Piura (7.3%) and La Libertad (6.1%).

Figure 8.1 The Dominance of Lima in Peru's Economy, GDP by Region



Source: Data from A. Segura, *Perspectivas Económicas 2014* [Economic Perspectives] (Lima: Ministry of Economy and Finance, 2014)

Figure 8.2 Production Growth Rates in Peru, by Region



Source: Data from INEI (Instituto Nacional de Estadísticas e Informática), *Producto Bruto Interno por Departamentos 2001–2012* [GDP by Departments] (Lima: INEI, 2013)

8.2.2 Key Industry Growth Sectors

As indicated, almost half of all production in Peru takes place in Lima. In addition, economic activity is concentrated in Lima. The inner circle of Figure 8.3 shows Lima's GDP breakdown by economic activity. The outer circle shows Lima's share with respect to the Peruvian economy as a whole.

Manufacturing represents 31 percent of Lima’s GDP, but 68 percent of all manufacturing in Peru. In the same way, even when restaurants and hotels represent only 5 percent of Lima’s economy, they account for 63 percent of all Peru’s economic activity in that sector. Even primary industries such as mining and fishing, which depend on the availability of location-specific resources, conduct many associated activities in Lima (e.g. processing) since many mining and fishing firms are headquartered there.

8.2.3 Trade

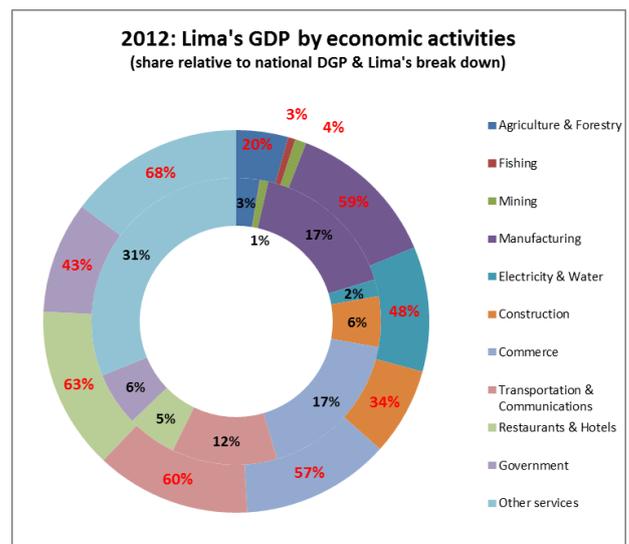
During the 2000s, Peru’s international trade increased sharply. Free on board (FOB) exports in 2000 were USD 6,995 million; in 2005 they were USD 17,368 million, and in 2012 they reached USD 47,411 million.³⁸⁰ This increase in trade is due to the signing of bilateral trade agreements. To date, Peru has 14 ongoing trade agreements (Andean Community, Mercosur, United States, Canada, China, Korea, Singapore, European Union, Mexico, Chile, Japan, Cuba, Thailand and Panama). Four recently signed agreements (European Union, Costa Rica, Guatemala and Venezuela) are waiting for implementation. Two major multilateral agreements are under negotiation – the Pacific Alliance and the Trans-Pacific Partnership, as well as two bilateral trade agreements (El Salvador and Honduras).³⁸¹ Peru has experienced a setback in exports in the last two years, in part due to the fall of commodity prices and the slowdown of some of Peru’s most important partners (e.g. China, United States, the European Union).

The region of Lima accounts for 24 percent of all Peruvian exports (USD 9.33 billion out of USD 38.18 billion in 2014). About 9 percent of Lima’s exports are made up of non-traditional products, such as agro-industrial products; apparel and textile manufacturing; chemicals, metallic, iron and steel products; and mechanical products. Exports that are considered more traditional include minerals, fishmeal, oil and natural gas.³⁸²

8.2.4 Investment Environment

The World Economic Forum’s 2013–2014 report on competitiveness has Peru maintaining its global position at 61st. The following reasons are listed: strong macroeconomic performance, and high levels of efficiency in the real estate, finance and labour markets. Further, positive points are seen in the strict rules governing hiring or dismissal of labour. Negative factors are deficiencies in public sector administration, the

Figure 8.3 Economic Activities in Lima, 2012



Source: Data from INEI (Instituto Nacional de Estadística e Informática), *Producto Bruto Interno por Departamentos 2001–2012* (Lima: INEI, 2013).

inconclusive fight against corruption, weak infrastructure, the poor quality of the education sector, a low capacity to innovate, and low investment levels for research and development.³⁸³

In an effort to translate the Doing Business indexes to the municipality level, Herrera³⁸⁴ estimated the balance between attractiveness factors (i.e. first order factors such as basic infrastructure, energy, roads and productive infrastructure; and second order factors such as level of education, size and specialization of the labour force, and public goods) and expelling factors (i.e. first order factors such as city insecurity, vulnerability to natural disasters, environmental pollution and lack of basic infrastructure) within 1,686 municipalities in Peru. He found that the top 10 municipalities were located in Metropolitan Lima (i.e. San Isidro, La Punta, Miraflores, Jesús María, Lince, Santiago de Surco, La Molina, Pueblo Libre, Santa María del Mar and Los Olivos).

A report by the Asian Development Bank (ADB) and Corporacion Andina de Fomento (CAF) in 2015 on *The Competitiveness of Cities in Asia and Latin America* analysed Lima as a case study.³⁸⁵ Interestingly, the result regarding the cost of doing business in Lima is that the rate of corruption, a serious problem that affects economies in Latin America, is lower compared other cities studied. Land costs in the city are considered very reasonable for the region, as are the costs of starting a business.

The local economy is dynamic and entrepreneur friendly with a high-quality workforce. The population of the city is relatively educated and has the required managerial capacities. The illiteracy rate was equal to 2.9 percent in 2010 and is still falling. The population older than 15 years of age has an average of 11 years of schooling, reflecting increased spending on primary and secondary education, and high school attendance rates.³⁸⁶ These outcomes are reflected in the Economist Intelligence Unit's Hot Spots index, which puts Lima at 39th in both the 'economic strength' and 'human capital' categories.

8.2.5 Innovation and Business Support

The 2015 ADB-CAF study found that support for research and development in Lima was underdeveloped. It was only in 2007 that a funding scheme was established to support R&D by academic institutions and firms. The programme, known as the Science and Technology Fund for Competitiveness³⁸⁷ (FINCyT and now converted into Innovate), was created with resources from an Inter-American Development Bank loan and Peruvian government resources. The scheme, currently finishing its second phase, has seen increased government support. Funding of science and technology activities through the Council of Science, Technology and Innovation has also risen, with its budget having risen eightfold, from around USD 5 million in 2012, to USD 40 million in 2015. By the end of 2012, the government had also created the USD 100 million Framework Fund for Innovation, Science and Technology, or FOMITEC. Despite these positive developments, and an attempt to create a Science, Technology and Innovation Council for the city of Lima, at present there are no major initiatives to promote research and innovation in the city.

Support for business has been more forthcoming. The Municipality's Office of Business Development has developed a number of initiatives, including a business development programme, the development of clusters, human resource development, and the promotion of SMEs. In addition, the Ministry of Production has a series of Innovation Centres that provide support to agglomerated firms in specific lines of business, such as leather and shoes, wood and furniture, agro-industrial, and textile manufacturing.

The municipality also promotes large investment projects with private participation. The Office of Promotion of Private Investment is responsible for facilitating large projects and the procedures that will rule the participation of private investment in such projects. The coordination among agencies and between the municipality and the private sector could be improved.

The Metropolitan Lima Municipality has been planning to establish industrial and technological parks, one in the northern end of the city (next to Ancón) and another one at the southern end (next to Pachacamac and Lurín). These projects are still at the blueprint stage. Two private universities are also planning technological parks in the Santa María district, 45km south of Lima.

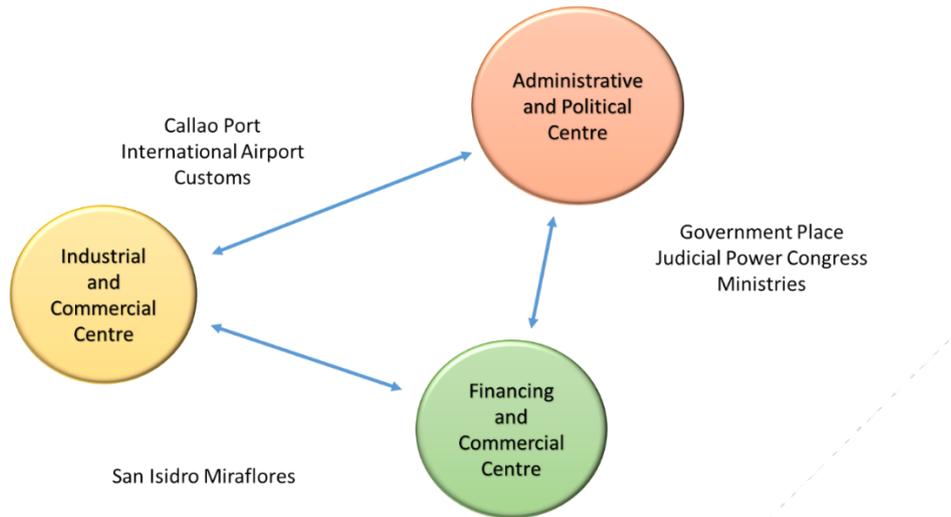
There is now a strong pro-investment climate in Peru, including a favourable legal framework for foreign investment and non-discriminatory treatment. There is unrestricted access to most economic sectors and no performance requirements. Investors can enjoy free transfer of capital; free competition; respect for private property; freedom to purchase stocks from locals; freedom to access internal and external credit; freedom to pay royalties; and a network of investment agreements.³⁸⁸ According to a World Bank survey and the World Economic Forum, Peru stands second in the Latin America region, and 15th in the world, in protecting investors. Peru is first in the region in government readiness for private investment.³⁸⁹

Red tape and bureaucracy have reduced significantly in the past 15 years. However, doing business in Lima still requires patience and persistence, even though a culture of 'no bribes' is taking root. According to a World Bank study, Peru ranks 50th in 2016 in terms of the ease of doing business, compared with the year 2007 in which it ranked 65th. These findings are consistent with the results of the Economist Intelligence Unit's Hot Spots index, which ranks Lima 55th in terms of 'global appeal'.

8.2.5.1 Productive Development Policies

In the first half of the twentieth century, as shown in Figure 8.4, Lima followed a triangular expansion pattern with the following vertices: Downtown Lima, where many political and administrative entities are located; Callao, the industrial and trade centre; and the districts of San Isidro (Photo 8.2) and Miraflores, as financial centres.³⁹⁰

Figure 8.4 Traditional Centres of Lima’s Urban Economy

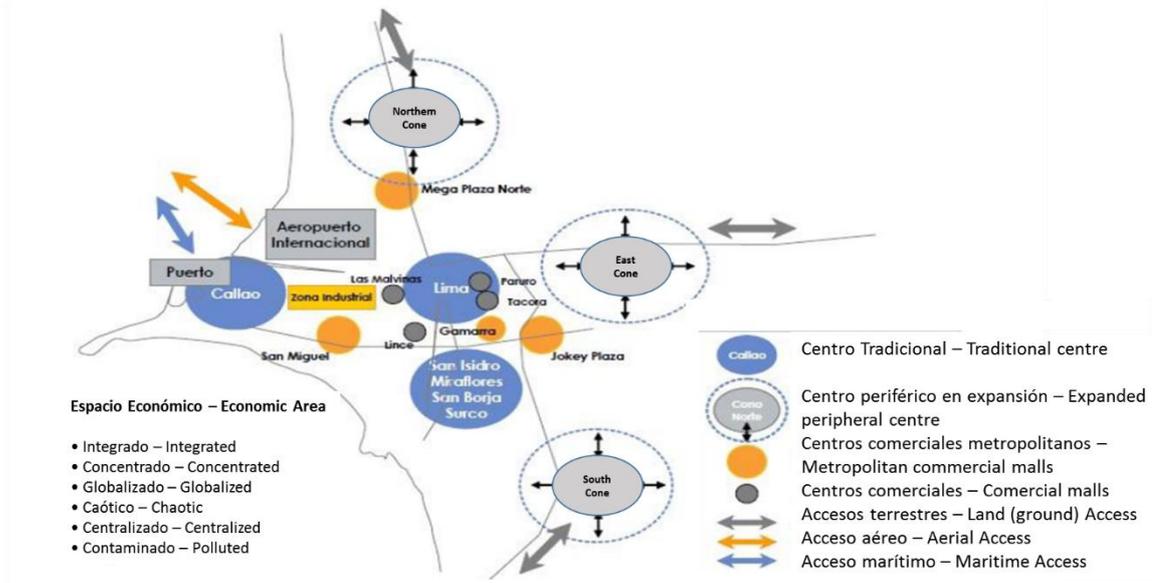


Source: Data from PROTRANSPORTE, *Estudio de Corredores Complementarios – Caracterización de la estructura y dinámica urbana* [Complementary Corridors – Characteristics of the urban structure and dynamics] (Lima: PROTRANSPORTE, 2013).

The urbanization process of Lima, together with the migration process from the regions to the capital, has intensified this pattern of economic development. Some authors analyzing the concentration of employment in the city found that the employment density decreased in the districts that were more distant from these centres of the urban economy.³⁹¹ However, they also realized that other urban centres were developing quickly, such as Los Olivos (in the north) and San Miguel (in the west) and Gamarra ana Ate (centre and east).

After the liberalization process in the 1990s, Lima attracted investment and new developments as commercial centres (e.g. shopping malls) consolidated the new urbanization areas that once were invaded lands. The emergence of Lima as a polycentric city became evident.

Figure 8.5 Lima: Local Productive Development Policies



Source: Data from PROTRANSPORTE, *Estudio de Corredores Complementarios – Caracterización de la estructura y dinámica urbana* [Complementary Corridors – Characteristics of the urban structure and dynamics] (Lima: PROTRANSPORTE, 2013).

Figure 8.5 shows three different expanding urban centres in the north, south and east, with 26 percent, 17 percent and 20 percent of the population of the city respectively. Each of these centres has significant investments in shopping malls, which have consolidated their position as centres of consumption as well as centres of employment generation. Based on figures of the Development Plan for Metropolitan Lima, 55.6 percent of the 2010 value of production generated in the city comes from districts different to those which have traditionally been considered as business centres, such as San Isidro, Miraflores and downtown Lima.³⁹²

Another major constraint is a lack of funding. Even when the Metropolitan Lima Municipality speeds up the approval of large investment projects, the central government may not release the financial resources or provide clearance for certifying international loans. For example, Metro Line 2, which will be funded by a World Bank loan, was initially programmed for 2015, but will be delayed by one year. In some cases, the delay in the approval by the central government is related to the lack of proper studies to justify the viability of the projects.

Photo 8.2 San Isidro's Financial District



Credit: Wikimedia Commons / Sen67howard.

8.2.6 Industry Clusters

Since the economic stabilization process experienced in the 1990s, Peru has rejected the idea of any industrial policy that promotes the development of specific sectors. In the 2000s, there was some interest within sectors of the central government on the development of industrial clusters, but there has not been a clear policy to promote emerging ones. The National Council for Competitiveness (CNC, its Spanish acronym) recently prepared a report to map and assess the level of development of existent clusters. The report identified 41 industrial clusters throughout Peru. Fourteen of these clusters were located exclusively in Lima (Table 8.3). In the case of some other clusters, like mining-related services and canned and frozen vegetables, their locations were dispersed among Lima and elsewhere.

Today, the CNC's efforts to promote clusters has lost some momentum, as a new major initiative from the Ministry of Production to promote economic diversification³⁹³ has received direct support from the central government, with significant financial resources allocated to it. (In 2014, the government created a fund to strengthen SME's productive development amounting to PEN 600 million, or USD 211.3 million. A fifth of that is devoted to promoting technology diffusion and cluster development. An existing fund to promote SME investment was also increased to PEN 1.2 billion, or USD 422.6 million.) This diversification plan is expected to develop from the information gathered by the CNC's cluster studies.

8.2.7 Constraints to Economic Development

The major constraint to economic development in the city of Lima is the lack of continuity in policies. New administrations taking office after municipal elections often do not carry on with the policies implemented by the previous administration. In many cases, the

priorities of new administrations differ and long-term policies cannot be properly implemented (e.g. the reorganization of the public transportation system).

The lack of funding does not only apply to major investment projects. The Peruvian productive structure is made up of mainly micro and small businesses which have difficulty in accessing credit. Implicit interest rates reach 20.8 percent and 32.9 percent monthly for small and micro business respectively³⁹⁴ while rates charged to corporations, large firms and medium-sized businesses are, respectively, 5.3 percent, 7.3 percent and 11.3 percent.³⁹⁵

In addition, business development services are scarce for micro and small firms. The Ministry of Production has a set of technology innovation centres that provide information, training and technological services for small firms. There are only 15 such centres that are active throughout Peru, which is not enough to meet demand. More than half of these centres are located in Lima and are undergoing a major reorganization.

Table 8.3 Clusters in the City of Lima

LINE OF BUSINESS	CLUSTERS
Design manufacturing	Fashion
	Show
	Furniture
	Jewellery
Food and agriculture health	Meat
	Gastronomy & food services
	Health services
Creative industries and support industries	Logistics
	Software
	BPO
	Digital and audio visual contents
Other industries	Construction
	Automotive related
Tourism	Corporative tourism
	Cultural tourism

Source: Based on data from Metis Gaia, *Elaboración de un mapeo de clusters en el Perú – Informe Final* [Cluster map for Peru – Final Report (Lima: Ministerio de Economía y Finanzas, Consorcio Cluster Development, 2013)].

8.3 STRATEGIC INFRASTRUCTURE

As the largest city in Peru, Lima has the highest level of physical infrastructure to support the economic activities of its population. Nevertheless, like the rest of Peru, it has a severe infrastructure shortfall. Peru has a projected infrastructure deficit of USD 88 billion for the period 2012–2021,³⁹⁶ and an estimated 35 percent of this deficit is in Lima.³⁹⁷

Lima is Peru's central logistics node. The Port of Callao moves 85 percent of all in and out shipments in Peru (around 1.8 million containers in 2012).³⁹⁸ As shown in Figure 8.6, all the logistics nodes in Peru are connected to Lima. Four nodes provide direct access to markets in neighbouring economies: Piura-Tumbes in the northwest which connects to Ecuadorian markets; Iquitos in the northeast to Brazilian markets; Puno in the southeast to Bolivian markets; and Tacna to Chilean markets.

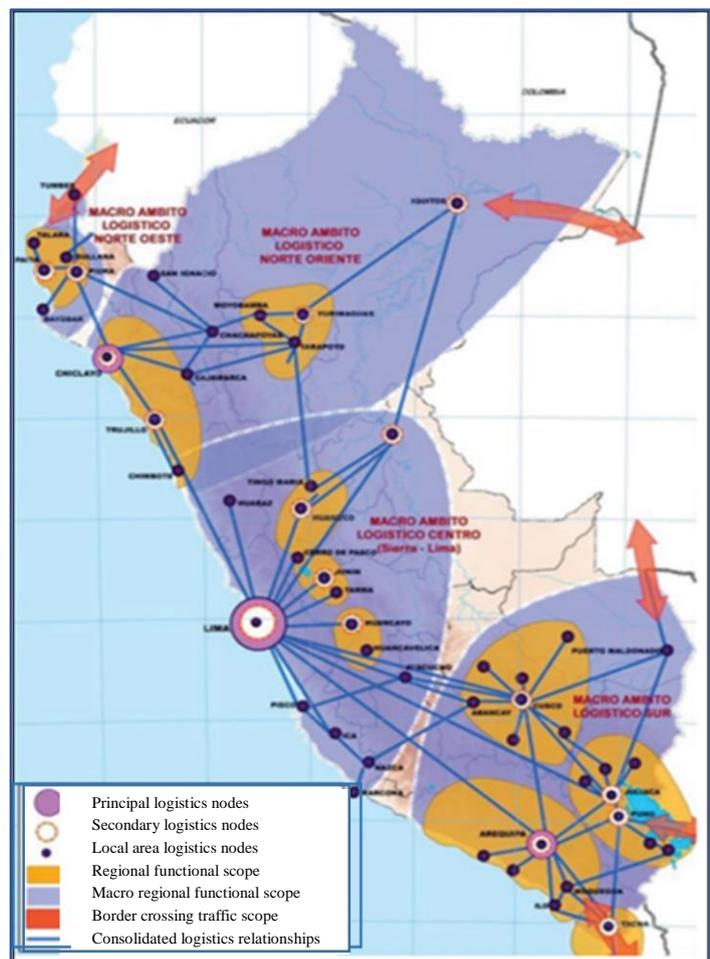
Furthermore, Lima is also a major consumption and production centre, so there is intense trade between Lima and the various regions, most of which is made by land. Thus, vital infrastructure is crucial.

To improve the efficiency of logistics services, the Plan for Logistic Services has identified the main investment projects that need to be executed in Lima. Table 8.4 shows that these short- and medium-term projects include investments in ports, airports and logistic zones amounting to USD 2.9 billion.

The projects are expected to be built with the participation of the private sector, mostly via concessions. This modality of private participation ensures that maintenance costs will be met by the concession contracts. As will be explained later, the municipality has included institutional initiatives to facilitate private investment.

There is a master plan to improve Lima's vital infrastructure through land corridors that include vital rings, connector roads, ring roads and expressways. Figure 8.7 shows the corridors that connect to the main highways in Peru (the Northern and Southern Pan-American Highway and the Central Highway).

Figure 8.6 Peru's Logistics Nodes



Source: IMP (Instituto Metropolitano de Planificación), *Memoria de Análisis y Diagnóstico – Plan Metropolitano de Desarrollo Urbano 2035* [Aide Memoir – 2035 Metropolitan Plan for Urban Development] (Lima: Municipalidad Metropolitana de Lima – IMP, 2014).

Table 8.4 Lima’s Required Logistics Investment

Project	Investment (USD, million)
Logistic Zone – Callao	155.20
Northern Multipurpose Terminal – Port of Callao	749.00
Southern Containers Terminal – Port of Callao Phase 1	355.00
Southern Containers Terminal – Port of Callao Phase 2	216.00
Minerals Terminal and Conveyor Belt – Port of Callao	120.33
Jorge Chavez Airport – Phase 1	265.38
Jorge Chavez Airport – Phase 2	796.14
Logistic Zone – Callao	171.95
Lima North Truck Centre	32.50
Lima South Truck Centre	32.50
Total	2,894.00

Source: Author compiled from data Advanced Logistic Group, *Plan de Desarrollo de los Servicios Logísticos de Transporte – Plan de Mediano y Largo Plazo* [Development Plan for Transport Logistic Services] (Lima: Ministerio de Transportes y Telecomunicaciones and BID, 2014).

8.3.1 Lima’s Vital Corridors

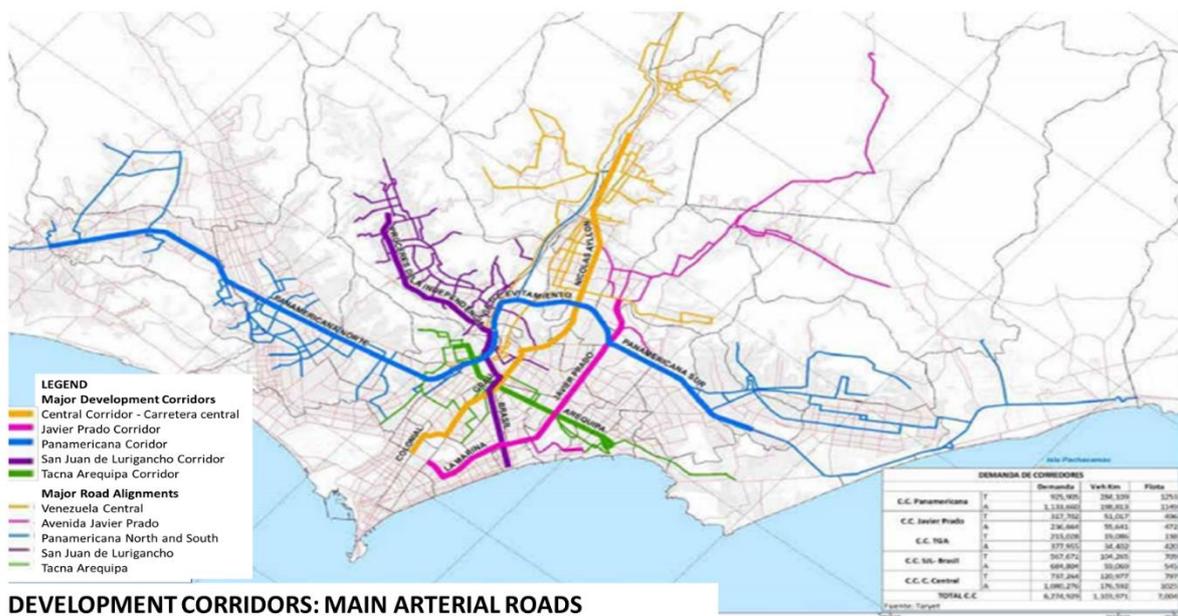
With regard to information and telecommunications infrastructure, Peru is lagging among the emerging and Latin American economies. Peru ranks 103rd (out of 144) in the Networked Readiness Index 2013.³⁹⁹ Regulation is a weak point, with Peru coming in 121st in ‘political and regulatory environment’ in the index. In fact, the Ministry of Transportation and Communications found that regulations inhibit the shared used of infrastructure, especially fibre optics, thus increasing access fees for final consumers. A recent Inter-American Development Bank document suggests that an increase of 10 percent in broadband services could generate a 3.2 percent increase in GDP and 2.6 percent increase in productivity.⁴⁰⁰ It also states that broadband penetration is not widespread in Lima and that considerable improvement is required. In fact, penetration levels in modern Lima districts such as Miraflores, San Isidro and Magdalena are 44.6 percent, 41.3 percent and 24.6 percent, respectively.⁴⁰¹

One of Lima’s main weaknesses is the absence of well-articulated transport corridors and the existing poor transport infrastructure. Lima’s Metropolitan Municipality has commenced two projects to incorporate new urban land into the city. These projects are located at the northern and southern areas of the city; at the New City Park in Ancon–Santa Rosa and the New Productive City in Lurin, respectively. Both projects envisage the creation of complexes of industrial and technological parks. The New City Park of

Ancon–Santa Rosa will include 764 hectares for an industrial park hosting light and medium industry, and 105 hectares for hosting university centres and firms involved in research, development and innovation projects, and for offering incubation services for new business. Estimated investment for these two sub-projects amounts to USD 3,560 million, of a total of USD 7,480 million for the New City Park, which also includes the development of urban development projects.

The New Productive City of Lurin has an area of 2,021 hectares which is being developed for light and large industries. In addition, 34 hectares have been zoned for technologically intensive industries.⁴⁰² The industrial and technological park of the New Productive City in Lurin will generate complementarities with the two projected technological parks from the Pontificia Universidad Católica del Peru (PUCP) and Universidad Particular Cayetano Heredia (UPCH) in the southern district of Santa Maria del Mar.

Figure 8.7 Lima’s Complementary Vital Corridors



Source: IMP (Instituto Metropolitano de Planificación) *Movilidad Sostenible – Plan Metropolitano de Desarrollo Urbano 2035* [Sustainable Transport] (Lima: Municipalidad Metropolitana de Lima – IMP, 2014)

Lima has the largest number of universities in the economy. Of the 120 universities in Peru, more than 50 are located in Lima and 8 of them are ranked among the 200 best universities in Latin America, according to the 2013 QS university rankings. Some of these universities like the PUCP have more than 90 laboratories and research centres in science, architecture, communications, social and administrative sciences and humanities. UPCH has four highly reputed institutes and several joint laboratories with entities such as IRD from France and the University of Berkeley from the United States. In the same way, the Universidad Nacional de Ingeniería has 48 laboratories and the Universidad

Nacional Agraria de La Molina has 52 laboratories.⁴⁰³ A number of public research institutes are located in Lima, such as the Institute of Agriculture Innovation, the International Centre of Potato, the Institute of the Peruvian Sea, the Technological Fishing Institute, the Geophysical Institute and the Nuclear Energy Institute.

8.3.2 Public Infrastructure Investment

The ADB-CAF study⁴⁰⁴ found that while Peru has a projected infrastructure gap of USD 55 billion over the next 10 years, much of this infrastructure is in – or linking through – Lima; and significant action has already been taken to improve the city’s infrastructure.

Lima is at the centre of Peru’s road system, and has the largest port and airport in the economy. However, its roads and public transportation system remain deficient, with the latter mostly served by privately owned units with an average age of 19 years.⁴⁰⁵ Facilities for collection of physical waste and the drainage system are also inadequate. In terms of other public services, the successful management of the electricity supply stands out, covering 99 percent of the population.⁴⁰⁶ The water system covers 93.1 percent of the urban population.⁴⁰⁷ Less favourable are the results for the communications infrastructure, where the penetration of cellular, fixed telephony and the Internet is still relatively limited, reaching 82.1 percent; 53.8 percent and 41.4 percent of the households; respectively.⁴⁰⁸

To resolve some of these limitations, major urban investments have been undertaken over the last decade:

- Development of an urban bus rapid transit system and a metro as part of an integrated metropolitan transport system
- Restoration of the colonial city centre, a UNESCO-recognized World Heritage site, incorporating innovations like street greenery
- Development of a tourist seaside shopping and entertainment centre, Larcomar
- Development of major extensions to water supply and electricity networks into vast informal settlement areas
- Introduction of a land titling programme for the legalization of informal settlements, with World Bank support.

More than USD 12.5 billion have been invested in less than 10 years, much of it in large-scale projects (Table 8.5). Examples of mega-projects in Lima include the expansion of the port and international airport at an estimated USD 1.5 billion, and the expected metro line 4 to connect the central business district with the airport. The city’s mega-projects are expected to boost GDP through the construction sector.⁴⁰⁹ These mega-projects should also enhance Lima’s overall competitiveness. Currently, the city still ranks low, at 77th place, in the ‘physical capital’ category of the Hot Spots index.

To finance the infrastructure works selected by the municipality, the Metropolitan Lima Municipality counts on a fund for major investments called INVERMET. An office has also been established to promote private investment and public–private alliances among the regional and local governments and the private sector and/or the civil society. All

large municipality projects are expected to be evaluated according to the procedures of the Public Investment System (SNIP). Public bids are required for the participation of private investment in large municipality projects. Direct adjudication is only considered if no suitable bidders are identified. In the specific case of concession projects, contracts can be signed for as long as 60 years.

The central government has also implemented a mechanism to encourage private firms to finance public works. Private firms can deduct up to 50 percent of their income tax via this mechanism. Projects can be presented by the firm or can be selected from the investment portfolio of the municipality. They must be cleared by the SNIP. Projects will need to present a conformity report once finished.

Table 8.5 Lima's Mega-Projects

Project	Status	Type of Project	Estimated budget (million USD)	Level of government involved
Metro de Lima (Line 1)	In progress	Public transportation	950	Central government
Metro de Lima (Line 2)	Announced, to be tendered in 2013	Public transportation	5,000	Central government
'Metropolitano' Segregated Bus Line	Delivered	Public transportation	300	Metropolitan government
Via Parque Rimac	In progress	Private transportation	700	Metropolitan government
Via Nuevas de Lima	Tendered	Private transportation	500	Metropolitan government
Southern expansion of the Paseo de la Republica express highway	Tendered	Private transportation	196	Metropolitan government
Javier Prado–La Marina–Paucett axis express highway	Announced	Private transportation	902	Metropolitan government
Huachipa potable water plant	Delivered	Water	190	Central government
Chillon potable water plant	Tendered	Water	54	Central government
Interceptor Norte Taboada wastewater plant	Delivered (partially)	Sanitation	165	Central government
Huascacocha water channel	Delivered	Sanitation	94	Central government
Upgrading of 5,000km of pipeline from the	In progress	Sanitation	5,200	Central government

metropolitan water and sewerage networks				
Nuachips potable water plant	Delivered	Sanitation	281	Central government
South Pier of Callao Port	Delivered	International connectivity	305	Central government
North Pier of Callao Port	Delivered	International connectivity	307	Central government
Jorge Chavez airport expansion	In progress	International connectivity	830	Central government

Source: L. Miranda Sara, G. Takano and C. Escalante, *Metropolitan Lima and the Sustainability Challenge, Growing Cities in Growing Economies – City Report: Metropolitan Lima and Callao*. (Bonn: European Association of Development Research and Training Institute and Chance2Sustain, 2014)

Despite the existing mechanisms for tax reductions for private infrastructure investments, it seems the financial sector does not support them decisively, as not all of them have convincing financial structures and returns. Lima’s financial institutions have much room for improvement. As a result, they are ranked less well than regional competitors, at 77th in the Hot Spots index.

8.3.3 Future Infrastructure Needs

The Metropolitan Plan Lima 2035 set the investment priorities for the city based on certain criteria. First, Lima’s future configuration is that of a polycentric city. As mentioned before, the city has expanded into three differentiated centres. However, more expansion is being seen in the north, south and east, creating new centres for the city. One challenge this new configuration poses is the lack of a proper transportation network. The current transportation system has collapsed and infrastructure is not growing at the same pace as growing population needs. The plan considers major improvement in public transportation to decrease the average time of trips by 25 percent via the construction of massive transportation systems. The latter aims to reduce to less than half the number of the public transportation vehicles (from 38,000 to 16,500).

In addition to enhancing transportation, the plan considers the provision of services to the new areas of development. The development of the industrial and technological parks in Ancon and Lurin will expand the economic development infrastructure necessary to create job opportunities and consolidate the new centres in the city. In addition to the development of new areas, the plan considers the rejuvenation of inner city areas so as to improve the quality of life of the population settled there.

8.4 SOCIAL AND ENVIRONMENTAL SUSTAINABILITY

8.4.1 Industrial Labour Market Reforms

Labour market conditions are an important factor in social sustainability. Peru has ratified the International Labour Organization (ILO) Convention No. 2138 on the minimum age of workers, which imposes stiffer regulations against child labour. Workers aged 15 years and above qualify to work in non-industrial plants, and those 16 years and above can work in more high-risk jobs in factories and mines. Children between 12 and 14 years must get special permission to work at certain menial jobs while furthering their education. Minimum wages are protected by law. Only an estimated 15–20 percent of the labour force are unionized, making that group a rather privileged sector of the working class.⁴¹⁰

Underemployment has been high for decades, and only 58.7 percent of Lima's economically active population is fully employed.⁴¹¹ The problem is particularly serious among youths. The unemployment rate of young people aged 15–24 is two or three times that of older persons of working age. The labour participation of young persons is also determined by inequality. Those from poorer social backgrounds find it more difficult to enter and prevail in the labour market; and many of them remain marginalized, and are forced to engage in illicit activities. These conditions place serious difficulties on institutions that are dedicated to helping with labour formation, education and integration into the labour market.⁴¹²

A quality of life survey of South American cities ranks Lima in 8th position.⁴¹³ This low ranking can mostly be attributed to inadequacies in urban transport services and environmental degradation due to the informal growth of the city.⁴¹⁴ In addition, there is an increasing perception that the city is becoming dangerous. In a recent 2014 survey, 82 percent of Lima inhabitants report that delinquency and insecurity are the main problems in the city, with 43.1 percent reporting that they have been victims of delinquency.⁴¹⁵

The Metropolitan Lima Municipality facilitated several plans to promote employment via the formalization of informal commerce units. However, success has been limited. Even when some of these programmes have reduced significantly, and even eliminated, the cost of licenses, street vendors prefer to continue working informally.⁴¹⁶ The Ministry of Work and Social Promotion also introduced programmes to promote employment, especially among young people. Jóvenes Productivos enhances employability through providing training in sectors such as agriculture, commerce, construction, industry, fishing, services, transportation, logistics and communications. The programme does so through strategic alliances with universities and training centres. The number of young people trained under this programme reached 14,000 in 2014.⁴¹⁷ Another employment programme is Trabaja Peru, which aims to provide those in extreme poverty with temporary jobs in basic infrastructure projects. The programme generated almost 472,000 temporary jobs between January 2006 and June 2014.⁴¹⁸

8.4.2 Environmental Management and Sustainability: Policies and Measures

Greater Lima is very susceptible to the impacts of climate change. Peru is considered the one of the most vulnerable economies in the world to climate change because of low rainfall and water availability. Its rivers are being fed from the rapidly disappearing glaciers of the Andes mountains. Lima's rapid urban expansion has also caused a reduction of agricultural land near the city. The contamination from inadequate waste disposal and industrial pollutants threaten the health and wellbeing of citizens. The ecological footprint of Lima has been calculated at more than 12 million hectares (or 1.47 hectare per inhabitant per year).⁴¹⁹

Lima also suffers from poor air quality, with a 2014 World Health Organization (WHO) study suggesting that it has the worst air pollution in Latin America.⁴²⁰ According to the WHO, the amount of atmospheric dust present is over the permitted limit (14.1 tonnes per square kilometre per month against the benchmark of 5.1).⁴²¹ The relatively poor performance in these areas is reflected in Lima's ranking in the 'social and cultural character' and 'environmental and natural hazards' categories of the Hot Spots index – at 65th and 111th respectively.

Lima's state water company, Sedapal, has built large treatment projects to solve the water quality problems. The Taboada plant treats water for almost 4.5 million people from 27 districts, representing 56 percent of the city's treated water. Its treatment capacity is 14 cubic metres per second. This plant recently received awards in the World Water Summit.⁴²² The Chira treatment plant is under construction. Its treatment capacity will be 11.3 cubic metres per second and will benefit 2.6 million people from 18 districts. By 2015, these works are around 80 percent complete.⁴²³ Besides the infrastructure projects, the municipality has several initiatives to reuse water in parks and other green areas.

8.5 EFFECTIVENESS OF URBAN GOVERNANCE

The steady economic growth of Peru may be traced to reforms initiated by President Fujimori in the 1990s, and the continuing support for pro-business and pro-investment policies by subsequent governments. In particular, the government has been highly supportive of public and private investment in infrastructure for a range of sectors – transportation, telecommunications, energy, sanitation, airports and ports. At the same time, poverty reduction and income inequality are being tackled through social spending and measures such as increasing mining taxes.⁴²⁴ The Peruvian government has encouraged integration with the global economy by signing a number of free trade agreements, such as the United States–Peru Trade Promotion Agreement (PTPA) and Pacific Alliance, and through membership in groupings such as APEC. Lima is recognized as having a key role in pursuing these policies.

In terms of city governance, which is the focus of the implementation of many of these policies, the ADB-CAF study found that the existing system of governance was not adequate to the task. The Metropolitan Lima Municipality is the body in charge of the

management of the city of Lima, although it shares this responsibility with the *department* (region) of Lima, which also has a regional government structure. Complicating this is the fact that Metropolitan Lima comprises 49 districts, 41 of which are under the Metropolitan Lima Municipality and the other 8 under the Callao Municipality. Added to that, both Metropolitan Lima and Callao have their own *majors* (governments) and each of the 49 districts have their own majors (governments) as well.

The Metropolitan Lima Municipality faces several urban governance problems, including effective coordination with the government of the Lima Region. A municipality must coordinate action with the region, a factor that complicates local management due to overlapping mandates. The municipality is also organized in a combination of 15 divisions with very specific objectives and a narrow focus. Where projects do not fall within specific remits or across mandates, specialized institutes reporting to the Municipal Council are used. Coordination of effective service provision within this structure is a challenge.

8.6 SUSTAINABLE DEVELOPMENT PARTNERSHIPS

The Municipality of Lima fosters public–private partnerships via international and domestic agreements. This is the responsibility of the Office of International Technical Cooperation, under the Direction of Planning. Priority is given to agreements that provide funding because the Municipality lacks resources. Agreements should be of at least three years' duration.

One such agreement relates to the Alliance for the Cooperation of Euro-Latin American Cities project.⁴²⁵ This project promotes city cooperation to improve public policy and territorial development by exchanging experiences. The participating cities are Bello Horizonte, Lima, Medellin, Mexico City, Montevideo, Moron, Quito and institutions representing cities in France and Andalucia. This programme strengthens local authorities' capacities in Latin America via network building with other authorities in the European region. Activities include sharing strategic participative internationalization plans and multi-actor agreement mechanisms for international cooperation. The programme promotes decentralized cooperation projects in three areas: sustainability; social inclusion; and territorial appeal.

The Municipality of Lima also participates actively in the Network of South American Cities, a platform for South American integration and the building of a common identity. Ten cities participate in this network: Asunción, Bogota, Buenos Aires, La Paz, Lima, Mexico, Montevideo, Quito, Santiago and Sucre. The network supports three areas: environment and climate change, security and urban planning. Within this network, the Municipality of Lima has signed an agreement with the Spanish government to establish the Lima Workshop School, aimed at training artisans in iron works and woodworking to refurbish old houses in the city.

The Municipality of Lima is also active in fostering partnerships with the private sector. To recover areas in the inner city, small printing shops that worked without keeping any basic environmental standards have been relocated. Old colonial houses are offered to the private sector for restoration and use as restaurants, jewellery shops, tourism agencies, hotels and other businesses. These actions are revitalizing various inner city areas.

The Municipality has also been active in positioning Lima as the gastronomic capital of Latin America, through its support of Mistura, an international gastronomic fair first organized in 2008. In 2014, it attracted more than 400,000 people over 9 days. Delegations came from Colombia, Bolivia, México, Costa Rica and Korea to learn about the development of the gastronomic model adopted in Peru. The International Gastronomic Congress, Qaray, attracts renowned international chefs.

8.7 POTENTIAL APEC PARTNERSHIPS

In 2012, Peru and Korea signed a five-year agreement to clean and remediate the Rimac River.⁴²⁶ This river, the most important in the city, is highly polluted by heavy metals released in the highlands, where mining operations abound, as well by the release of treated waters directly into the river stream. The City of Lima will directly benefit from this agreement. While the initiative is yet to yield major results, a technical commission has been established that integrates the National Water Authority, the Ministry of Mining and Energy, the Ministry of Agriculture, the Ministry of Production, the Municipality of Lima and the Municipality of Callao.

8.8 CONCLUSIONS

Over the last decade, Lima has enhanced its physical infrastructure through an impressive variety of public and private sector projects, but not fast enough to match the growing needs of the population. Improvements in the business climate and competitiveness factors have helped Lima to remain at the mid-level of worldwide rankings.

The prospects for further expansion of productive projects from different sectors, ranging from the extractive industries to agriculture, manufacturing and services, as well as the development of transcontinental road and pipeline connectivity from Peru's coast toward neighbouring Brazil, which is the biggest regional market, will favour the development of Lima and Peru, not only for transit, but also as a location for industrial development and trade.

Lima's challenge is to be better integrated with the rest of the world. Peru, as a member of the new Pacific Alliance (Mexico; Colombia; Peru; and Chile) and a member of APEC, will see significant benefits from participating in these regional groupings. Peru, and its capital city of Lima, will also be part of the new economic geography that will transform the South American region, and in the course of this regional transformation will see improved North–South and West–East connectivity toward its direct neighbours (Brazil;

Chile; Colombia; Ecuador; and Bolivia). Most of the international trade is conducted by sea or air transportation. Peru, and Lima, need to continue improving and expanding its airports and ports. Equally, more roads will be needed to bring products to airports and ports. The excessive traffic at the port and airport could be reduced not just by increasing capacity, but also by diverting some cargo to other ports and airports in the vicinity (e.g. to Pisco, two hours south of Lima by car).

The key recommendations for the City of Lima are related to the need to expand the transport infrastructure, and to deal with environmental threats and the future impacts of climate change that are likely to threaten the development of metropolitan Lima. Further, Lima needs to pursue more actively a full-employment strategy, to engage the labour force and bring the benefits of its macroeconomic development to its citizens. Ensuring sustainable development would require that the city tackles the issues of jurisdiction and coordination that are hindering effective governance of various projects and urban services.