

10. Mexico City, Mexico

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10.1 INTRODUCTION

Mexico has the second-largest economy and population in Latin America, after Brazil. For the past few decades, Mexico has been trying to lift its economic performance, as a partner to the North American Free Trade Agreement (NAFTA). However, it is still struggling with economic reforms, lack of infrastructure to enhance competitiveness, and governance reforms.

Mexico's economy has benefited greatly from the outsourcing of US manufacturing industries to provinces and cities close to the border. However, with its economy so tied to the US, its GDP decreased significantly during the 2007 global financial crisis; since 2011, its rate of growth has been less than 3 percent on average. Its GDP per capita in 2014 was USD 10,361.⁴⁷¹ This is USD 1,358 more than, or 15 percent above, the Latin America and Caribbean average of USD 9,003.⁴⁷² Nevertheless, many parts of the Mexican economy have been growing, especially industries associated with aviation and automobiles.

Photo 10.1 City Centre of Mexico City– Main Square with City Hall and Cathedral



Source: Florian Steinberg.

Mexico City, the capital city, also known as the City of Palaces due to the considerable number of palaces built during the Spanish occupation that started in the sixteenth century, is one of the world's biggest megacities. The urban footprint of Mexico City, with a population of over 20 million,⁴⁷³ has expanded from its original jurisdiction (Federal District¹) to the Estado de México (State of Mexico). The Federal District, which covers a relatively small area of around 1,500 square kilometres and has a population of almost 9 million, is one of the strongest economies in Latin America.

This chapter explores the dynamics and change to Mexico City's economy, its physical and social systems development, and its environmental and governance challenges. The city is beginning to address these challenges and has introduced programs and activities involving several types of partnerships to boost its economic, infrastructure, planning and development and governance performance. Some of these examples of sustainability partnerships are outlined in the latter section of the chapter along with directions the city needs to take to support sustainable development, to enable it to engage more beneficially from being a partner in the APEC region.

10.1.1 Mexico City in Context

Mexico City has a large and diverse economy. Its gross state product (GSP) reached USD 200 billion in 2013, which is larger than the GDP of New Zealand, Ecuador, Viet Nam or Bangladesh.⁴⁷⁴ The Federal District is a sophisticated urban economy; its tertiary (services) sector represents 89 percent of the GSP. Moreover, the GSP per capita, of around USD 22,500 in 2013, is well above the average for Mexico of USD 10,100,⁴⁷⁵ and equivalent to the gross national income (GNI) per capita of developed economies like Portugal, Malta or Greece.⁴⁷⁶

Estado de México, with a population of 16 million, has a lower GSP per capita (USD 6,800) than the Federal District;⁴⁷⁷ nevertheless, its GSP of USD 112 billion⁴⁷⁸ is larger than the GDP of Morocco, Ecuador, Croatia or Bolivia.⁴⁷⁹ The economy of Estado de México is driven by the manufacturing sector, which represents 34 percent of its GSP.⁴⁸⁰ For instance, Ford, Nissan, Chrysler and General Motors have motor vehicle manufacturing plants in Estado de México.

One of the most recent expansions of the city is the business district of Santa Fe, located in the Federal District. Santa Fe has five university campuses and houses the headquarters of many companies that manufacture in Mexico, for example, Chrysler, Ford and Coca-Cola.

In the coming decades, Mexico City will grow further and develop to become part of a huge economic corridor linking the Federal District to six states: Hidalgo, Morelos, Puebla, Queretaro, Estado de México and Tlaxcala (Figure 10.1). In 2013, this economic corridor – the Central Region – represented a GSP of USD 402 billion, or 34 percent of Mexico's economy. The GSP of the Central Region is larger than the GDP of Thailand,

¹ The Federal District was renamed Mexico City in the first half of 2016. To avoid confusion, this volume will use 'Federal District' to refer to the area.

Colombia, Iran, Malaysia or Philippines.⁴⁸¹ The population of the Central Region is expected to reach 43 million by 2030.

Figure 10.1 Map of the Central Region, Mexico



Source: Wikimedia Commons / Alex Covarrubias (modifications by Fernando Ramirez).

Mexico City expanded rapidly during the twentieth century, but investment in infrastructure did not keep pace. For example, although the Mexico City Metro is one of the longest subway systems in the world with a length of around 225km,⁴⁸² more than 90 percent of the metro system is concentrated in the Federal District.⁴⁸³ Estado de México has less than 20km of the metro system to serve its population of 16 million.

Moreover, despite the tremendous success of the Santa Fe business district, there is not enough infrastructure in place to accommodate the more than 100,000 persons who travel daily to the area for work or study.⁴⁸⁴ Only a few roads link Santa Fe with the rest of the city; there is no metro or dedicated busway (or bus rapid transit system).

Recently, the federal government announced plans to invest more than USD 550 billion in the next five years to fast-track the delivery of roads, rail and pipelines in Mexico.⁴⁸⁵ This opens many opportunities to create better infrastructure to link Mexico City with cities in the Central Region.

Photo 10.2 Reforma Street (left) and Santa Fe Business District (right) in Mexico City



Credit: Wikimedia Commons (left); Fernando Ramirez (right).

10.2 ECONOMIC ENVIRONMENT

After being hit by the effects of the global financial crisis, Mexico's GDP has gradually improved at an annual average growth rate of approximately 3 percent. Despite this relatively slow recovery, PricewaterhouseCoopers has forecast that Mexico will be the 66th largest economy in the world by 2050⁴⁸⁶ and Moody's has recently lifted Mexico's credit rating to an A. Table 10.1 shows some key economic facts.

These signs of confidence are driven by many factors. The federal government's major structural reform package which was recently approved, and cited above, is one of them. Other reforms are taking place in the energy, telecommunications, education and financial sectors. It is expected the reforms will strengthen Mexico's potential growth and fiscal fundamentals. Moreover, the Organisation for Economic Co-operation and Development (OECD) Economic Survey states that 'Mexico has embarked on a bold package of structural reform to break free from three decades of slow growth, low productivity, pervasive labour market informality and high-income inequality'.⁴⁸⁷

The package of reforms also includes criminal justice and transparency reforms, which will be needed to improve Mexico's governance and institutional capacity to ensure effective implementation of the reforms.

Table 10.1 Key Economic Facts – Mexico

| | Federal District | Estado de Mexico | Central Mexico Region | Mexico as an Economy |
|--|---|---|--|---|
| Value of the economy (2013, billion USD) | 200 | 112 | 402 | 1,196 |
| Area (km ²) | 1,485 | 22,357 | 94,653 | 1,959,248 |
| Urban area (km ²) | 792 | 2,370 | 6,246 | 22,241 |
| Estimated resident population (June 2015, million) | 8.85 | 16.87 | 38.08 | 121.01 |
| Urban density (persons per km ²) | 11,175 | 7,119 | 5,925 | 5,275 |
| Persons employed 15 yrs+ (Q4 – 2014, million) | 4.06 | 6.88 | 15.91 | 49.82 |
| Unemployment rate (Q4 – 2014) | 6.0% | 5.3% | 5.0% | 4.4% |
| Number of businesses (2014) | 449,989 | 666,795 | 1,797,993 | 5,664,515 |
| Value of exports (2013, million USD) | 2,627 | 18,508 | 43,084 | 329,583 |
| Key export sectors | Manufacturing Particularly, chemical products. | Manufacturing Particularly motor vehicles. | Mining and manufacturing Particularly motor vehicles and chemical products. | Petrol, mining and manufacturing Particularly motor vehicles, computers, video displays and medical equipment. |

Source: Based on data from the National Council of Population; Mexican Bureau of Statistics; and Mexican Central Bank.

The package of reforms also includes criminal justice and transparency reforms, which will be needed to improve Mexico’s governance and institutional capacity to ensure effective implementation of the reforms.

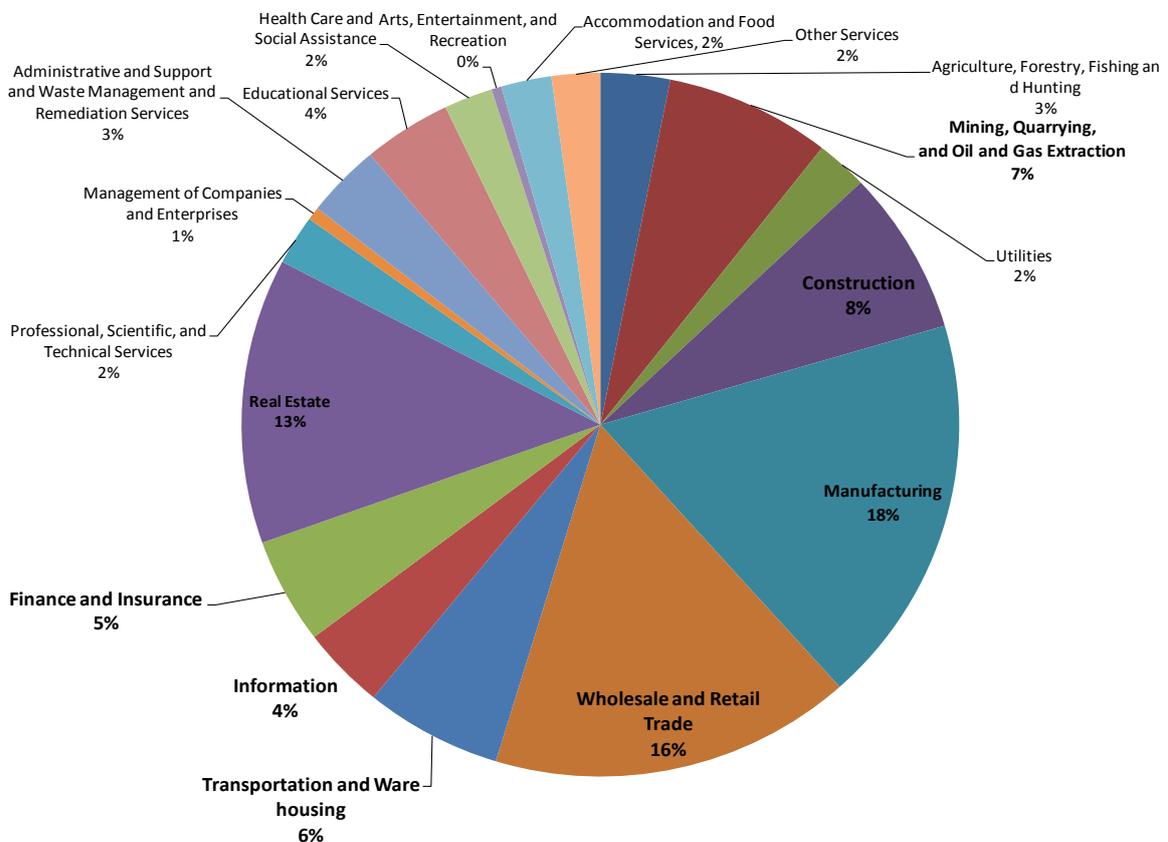
10.2.1 Key Industry Growth Sectors

Mexico has become a significant manufacturing economy. Its manufacturing sector accounts for 80 percent of all advanced manufactured exports in Latin America. Mexico is the leading producer of flat screens and refrigerators in the world, and the fourth largest exporter of motor vehicles.⁴⁸⁸

Figure 10.2 shows the breakdown of Mexico’s GDP using the North America Industry Classification System (NAICS). At the beginning of 2015, the manufacturing sector contributed 18 percent of Mexico’s GDP, followed by wholesale and retail trade (16%) and real estate (13%).

The structure of Mexico’s economy has changed since its entry into NAFTA. The wholesale and retail trade sector increased from 12 percent to 16 percent of GDP. Mexico’s financial and insurance and information sectors increased significantly, from 3.9 percent in 1993 to 8.1 percent in 2015.

Figure 10.2 Breakdown of GDP (%) of Mexico’s Economy, First Quarter 2015



Source: Based on data from the Mexican Bureau of Statistics.

In the late 1930s, the Mexican government embarked on an expropriation of all oil resources and facilities from foreign companies; and created PEMEX, a monopolistic oil company run by the state. Unfortunately, the Mexican government had been depending on revenue from PEMEX's profits. This had resulted in a lack of investment in the company, and in the sector. After many years of underinvestment, the mining, quarrying, oil and gas extraction sector decreased from 12 percent of GDP in 1993 to 7 percent in 2015. The decline in oil production and its profits are significantly impacting the government's finances. In response, the Mexican government passed energy reforms allowing the nation's vast oil resources, including offshore and unconventional fields, to be operated by international companies.

10.2.2 Employment

Table 10.2 shows the employment numbers, the regional mix and the employment location quotient (LQ),⁴⁸⁹ a measure of employment in the region relative to the national average for various industry sectors, for the Federal District and the Central Region. The table does not include the public administration sector and partially covers the agriculture and forestry sectors (only includes the support activities for these sectors). The Economic Census data used is 2008 and 2013 so the regional mix analysis has been influenced highly by the impact of global financial crisis.

While the Central Region is heavily dependent on the manufacturing sector, that is not its largest industry sector. The region's LQ for manufacturing is only 0.8, as many of Mexico's factories are located in cities closer to the US border. The retail sector dominates in the Central Region while finance and insurance (LQ of 2.1) is also a significant player.

Mexico City is the seat of federal government, with the Federal District area having the highest level of concentration of public administration employees in Mexico City. The private business services sector has tended to concentrate in and around the Federal District, with the headquarters of many companies located there. Consequently, the Federal District has an even a smaller LQ for its manufacturing sector (0.4) than the Central Region, and a higher finance and insurance LQ of 4.1.

The Federal District labour force (about 360,000 employees) is concentrated in the tertiary sector that provides governance, financial, retail, information, administrative, management, professional, scientific and technical services to the rest of Mexico, and that depends highly on the manufacturing sector. Given its dependency and competitive advantage in the information sector, the Federal District would be likely to benefit from the telecommunications reforms that passed in 2014.

Table 10.2 Employment, Regional Shift and Location Quotient (LQ), by Industry Sector, in the Federal District and the Central Region, 2013

| Sector (North America Industry Classification System) | Federal District | | | Central Region | | |
|---|------------------|--------------|-----|----------------|--------------|-----|
| | Jobs | Regional mix | LQ | Jobs | Regional mix | LQ |
| Finance and insurance | 355,347 | -9% | 4.1 | 381,952 | -7% | 2.1 |
| Management of companies and enterprises | 36,596 | -54% | 3.3 | 41,170 | -57% | 1.7 |
| Utilities | 109,613 | 235% | 2.9 | 136,872 | 52% | 1.7 |
| Information | 100,120 | 22% | 2.6 | 123,604 | 7% | 1.5 |
| Administration and support and waste management and remediation | 689,255 | 5% | 2.3 | 890,773 | 0% | 1.4 |
| Professional, scientific, and technical services | 212,370 | -2% | 2.0 | 295,123 | -5% | 1.3 |
| Transportation and warehousing | 172,221 | -13% | 1.5 | 284,350 | -5% | 1.1 |
| Educational services | 113,130 | -16% | 1.0 | 279,282 | -10% | 1.1 |
| Arts, entertainment, and recreation | 41,799 | 3% | 1.1 | 93,247 | -4% | 1.1 |
| Wholesale trade | 205,826 | -10% | 0.9 | 459,168 | -7% | 1.0 |
| Real estate and rental leasing | 39,780 | -9% | 0.9 | 91,036 | -4% | 1.0 |
| Retail trade | 575,568 | -8% | 0.7 | 1,783,098 | -7% | 1.0 |
| Healthcare and social assistance | 95,804 | -2% | 0.9 | 210,663 | -5% | 0.9 |
| Other services | 160,976 | -14% | 0.7 | 451,986 | -10% | 0.9 |
| Accommodation and food services | 257,794 | -8% | 0.8 | 607,682 | -5% | 0.9 |
| Manufacturing | 360,664 | -25% | 0.4 | 1,486,890 | -14% | 0.8 |
| Construction | 65,845 | -21% | 0.7 | 134,123 | -10% | 0.7 |
| Mining, quarrying, and oil and gas extraction | 6,323 | 1% | 0.2 | 17,462 | -26% | 0.3 |
| Agriculture, forestry, fishing and hunting | 101 | 88% | 0.0 | 5,806 | -14% | 0.1 |

Source: Based on data from Mexican Bureau of Statistics 2013.

10.2.3 Trade

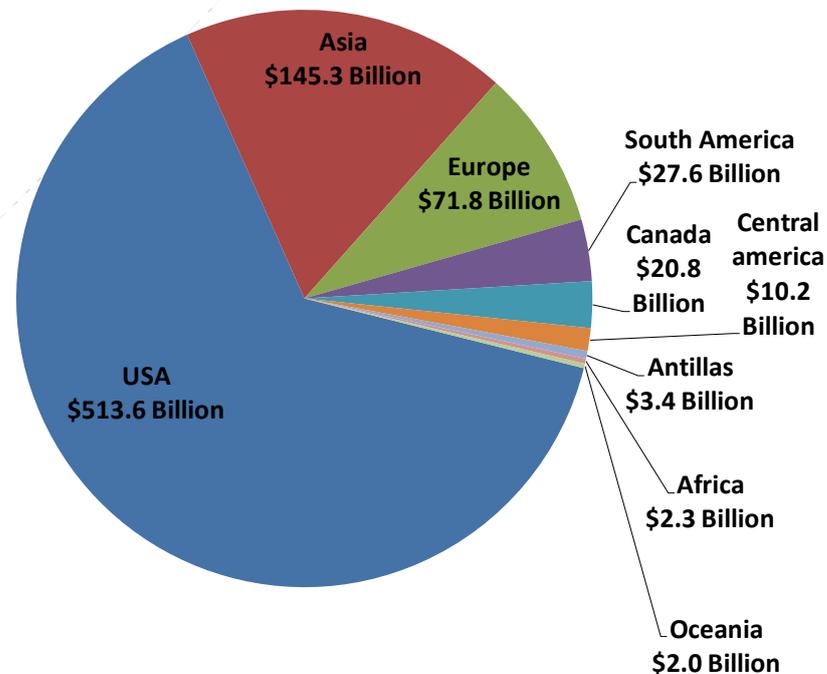
Over the last 18 years, Mexico has made a dramatic transition from a relatively closed economy to become an open economy. Mexico has embraced international free trade

agreements as a means of promoting industrial competitiveness and export-oriented growth.⁴⁹⁰ Mexico has 10 free trade agreements with 45 economies, 30 reciprocal investment promotion and protection agreements (RIPPAs) and 9 trade agreements (economic complementation and partial scope agreements) within the framework of the Latin American Integration Association. In addition, Mexico is an active participant in multilateral and regional organizations and forums such as the World Trade Organization (WTO), APEC and OECD.⁴⁹¹

The policy to become an open economy has resulted in Mexico’s trade increasing from USD 117 billion in 1993 to USD 797 billion in 2014. Clearly, NAFTA has been a very productive agreement for Mexico. Trade between the USA and Mexico increased from USD 88 billion in 1993 to USD 514 billion in 2014. Mexico has also diversified since NAFTA was signed; the USA accounted for 75 percent of Mexico’s trade in 1993, compared to 64 percent in 2014 (Figure 10.3).

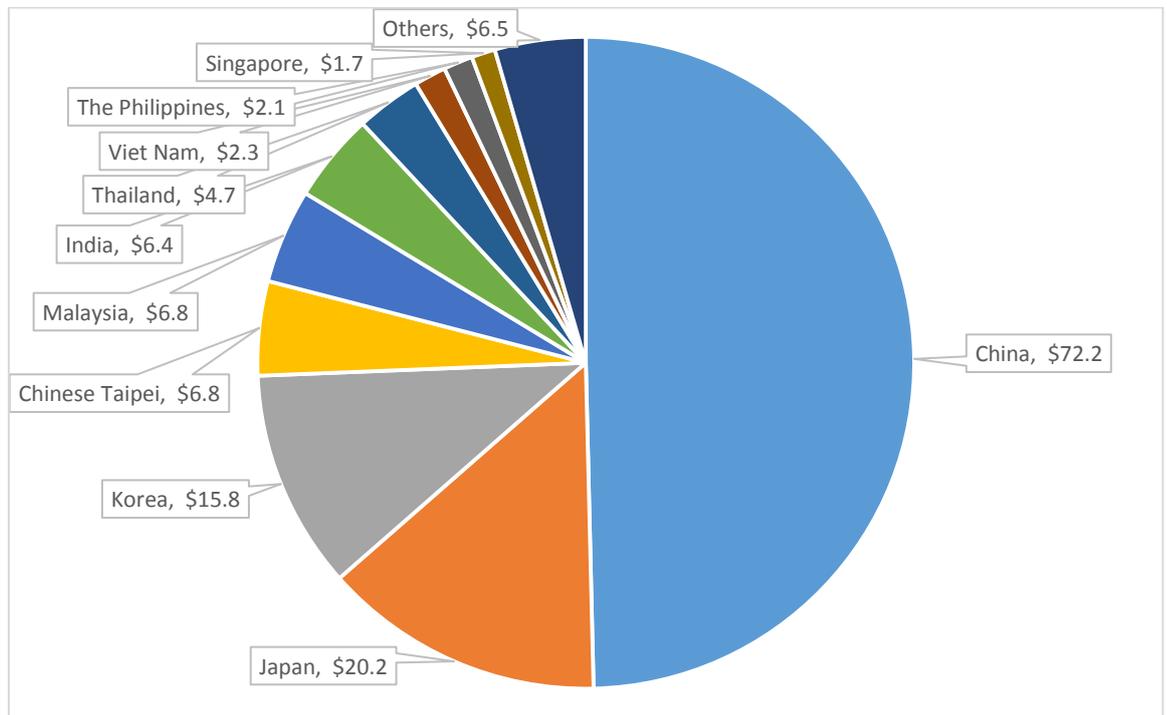
Figure 10.4 shows that Asia has also become a very important trade partner for Mexico. Its trade with Asia increased from USD 8.7 billion in 1993 to USD 145.3 billion in 2014. Asian economies represent 18 percent of all Mexican trade. China (USD 72.2 billion) accounts for around 50 percent of all Mexican trade with Asia. Currently, Mexico and China do not have a free trade agreement with each other.⁴⁹² However, Mexico wants to strengthen ties with China, the world’s second-largest economy, especially since China has been investing more in Central and South America in recent years. Mexico is working to export more tequila and pork to China and attract investment in industries such as energy, infrastructure and tourism.⁴⁹³

Figure 10.3 Mexico’s Trade, by Region/Economy, 2014



Source: Based on data from Mexican Bureau of Statistics.

Figure 10.4 Mexico's Trade with Asia, by Economy, billion USD, 2014



Source: Based on data from Mexican Bureau of Statistics.

10.2.4 Mexico City's Exports

Mexico relies heavily on exports, which are composed mainly of manufacturing goods and oil. In fact, exports represent almost 30 percent of its GDP. The Federal District of Mexico City does not rely as heavily on the export sector to support the economy as the rest of Mexico. Exports represent only 1.3 percent of its GSP. The Central Region has a slightly higher dependency on exports (11%), which includes vehicle manufacturing and chemical products.

The Brookings Institution estimates that trade between Estado de México, Hidalgo and the Federal District and the USA was worth USD 55.9 billion in 2013. Electronics was the largest sector (USD 13.4 billion), followed by machinery and tools (USD 11.5 billion); chemicals and plastics (USD 6.4 billion); motor vehicles and parts (USD 5 billion); and energy products (USD 4.8 billion). The major US metropolitan trading partners were Los Angeles, San Jose and Houston.⁴⁹⁴

10.2.5 Human Capital Management and Development

Mexico has a dual economy, comprising a skilled population that has been able to find jobs in high value-added sectors, and a low-skilled population with weak productivity that largely has been forced to work in the informal sector.

The Mexican economy experienced a slowdown in growth from the 1980s to 2000s, causing Mexico to fall behind other economies and adversely impacting the population's relative living standards.⁴⁹⁵ A main reason for this was the erosion of Mexico's comparative advantage in low-end production as imports from China and elsewhere in Asia entered its market. In response, the manufacturing industry in Mexico is increasingly turning to subcontracting work for more upstream industries in North America, where it still has a cost advantage.⁴⁹⁶

Mexico City experiences similar issues. Historically, Mexico City's demand for employees has attracted more rural migrants than there have been jobs available. Since the Mexican social security system is weak, low-skilled migrants are forced to work in the informal economy, which is estimated to be around 25 percent of Mexico's GDP.⁴⁹⁷ Migrants take up jobs as domestic workers, construction builders, street vendors and artisans. They have developed independent economic activities quite different from the traditional productive activities of their rural communities.⁴⁹⁸

On the other hand, Mexico City has a strong demand for skilled labour. Mexico City remains the leading centre of tertiary employment. For instance, employment is concentrated in finance and insurance (LQ=4.14); management of companies and enterprises (LQ=3.27); information (LQ=2.6); professional, scientific and technical services (LQ=2.03); and administrative and support to business (LQ=2.33).

Productivity of workers in the city in many service sectors of the economy is lagging. There is need for comprehensive skills improvement programmes in all sectors of the labour market, schools, technical colleges and universities. Education reforms are crucial to increase the quality and relevance of education, and to motivate students to pursue education.⁴⁹⁹ Reforms to improve teaching and learning, curricula and lifelong learning are critical to lifting the performance of the city's economy.

Increased training opportunities for low-skilled workers are also crucial, as they are currently not getting opportunities to improve their skills and productivity. This requires a commitment to invest in workers, not only by the authorities but also by businesses and society at large. This is important not just from the growth and wellbeing perspectives, but also to face the demands of the information economy and the profound changes in the global economy.⁵⁰⁰

10.2.6 Investment Environment

Due to low oil prices in the early eighties, Mexico was in economic turmoil. In the mid-nineties, a strong devaluation of its currency, and a current account deficit, led to an economic crisis (known as the Peso or Tequila Crisis). After this crisis, Mexico undertook a series of economic reforms. It floated its currency and instituted reforms to the financial sector (mainly banks and superannuation funds). These culminated in an impressive turnaround for the Mexican economy. As a result, Mexico was relatively unaffected by the 1997 Asian financial crisis, with its GDP growing an annual average of 5 percent from 1996 to 2000.⁵⁰¹

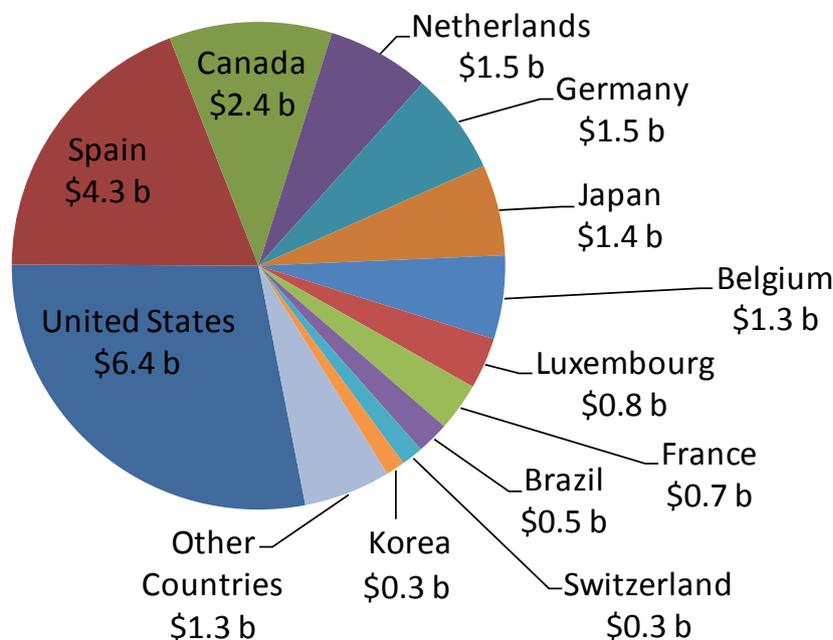
However, Mexico took a heavy hit during the global financial crisis. Its major trading partner, the US, entered into recession. Foreign direct investment (FDI) plummeted from

USD 32 billion in 2007 to USD 17 billion in 2009, and workers' remittances to Mexico dropped from USD 26 billion in 2007 to USD 21 billion in 2009.⁵⁰² Workers' remittances have not recovered to pre-crisis levels, but FDI has started to improve. Mexico received USD 22.8 billion in FDI in 2014 and USD 7.6 billion in the first quarter of 2015. Historically, the Federal District receives more than 50 percent of Mexico's FDI, while the Central Region (which includes the Federal District) receives more than 65 percent.

After the Tequila Crisis of the mid-nineties, Mexico has been open to FDI in most economic sectors and has consistently been one of the largest recipients of FDI among emerging markets.⁵⁰³ Figure 10.5 shows the FDI flows into Mexico in 2014. The USA is clearly the largest contributor, with its investments going mainly to the manufacturing sector, followed by Spain (financial and insurance services) and Canada (mining).

Mexico has not recovered from the global financial crisis at the same speed as it recovered from the Tequila Crisis. Moreover, its poor level of competitiveness does not augur well for a quick recovery. Its weak competitiveness can be attributed to corruption, relatively poor governance, low educational attainment, and the relatively poor quality of physical capital. In 2012, Mexico City was ranked 71st in terms of overall international competitiveness by the Economist Intelligence Unit in its Hot Spots study (Table 10.3), with its projected 2025 ranking remaining unchanged.⁵⁰⁴ Institutional effectiveness ranks well below the global median of a sample of 120 world cities.

Figure 10.5 Foreign Direct Investment (FDI) Flows into Mexico, by Economy, billion USD, 2014



Source: Based on data from Secretariat Ministry of Economy (2015) 'FDI Flows into Mexico by source country and industry', accessed 3 June 2016, <http://www.economia.gob.mx/trade-and-investment/foreign-direct-investment/official-statistics-on-dfi-flows-into-mexico>.

Mexico City's competitiveness is adversely impacted by its poor performance in respect to human capital relative to cities like Santiago (Chile), although overall the city performs relatively well in the Hot Spots 'human capital' category, at 52nd. Factors likely to further limit the city's competitiveness in future include restrictions on employment of foreign workers, a decline in working age population and low levels of educational achievement. The primary education system in Mexico City receives the major part of the city's budget for education, with the result that effectively all children in the city complete primary school. The concern now is post-primary level education, with only about 22 percent of the city's population graduating from high school, 25 percent achieving a professional level education and 2.5 percent a graduate level education.⁵⁰⁵

In 2014, the main public university in Mexico, the Autonomous National University, rejected 91 percent of the 126,683 applications for enrolment in a bachelor's degree programme.⁵⁰⁶ While some of those who were rejected will pay for education at a private university, most will not be able to afford to do so. Mexico needs to invest more in human capital. The Autonomous National University is currently 'free' for those fortunate enough to get into the system; however, there are insufficient resources to provide university places for the majority of the younger generation. Mexico could consider implementing a scheme like the Australian Higher Education Contribution Scheme that was introduced during the mid-nineties. The system allows students to enrol in a course without paying fees until they earn a level of income defined by the Australian government. The loans paid back by students are redirected to the tertiary education system.

Table 10.3 Economic Competitiveness of New York, Los Angeles and Mexico City, 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 |
| 19 | Los Angeles | 61.5 | 45.7 | 88.4 | 50.0 | 85.8 | 95.0 | 76.9 | 54.2 | 20.5 |
| 71 | Mexico City | 46.2 | 35.5 | 65.2 | 50.0 | 47.1 | 55.8 | 64.6 | 58.3 | 15.5 |
| Median | Global | 46.6 | 35.7 | 71.4 | 33.3 | 54.4 | 56.7 | 61.9 | 66.7 | 7.7 |

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

The relative cost of doing business in Mexico City has improved since 2012, due to many recent reforms supporting business development. According to a World Bank study in 2014, Estado de México and Puebla (both in the Central Region) showed the most improvement in the ease of doing business. Estado de México was also the most improved for construction permits.⁵⁰⁷ Mexico’s performance is now well above the average performance of Latin American economies. The regulatory environment for business in Mexico is also coming close to the average performance of high-income OECD economies.

10.2.7 Innovation and Business Support

Mexico City is the hub for research in Mexico. The city accounts for 80 percent of Mexico’s total R&D activities, and is the largest contributor of patents.⁵⁰⁸ However, despite being home to many science and technology training institutes, the rate of innovation remains low. This has been attributed, in part, to the lack of a business-oriented mindset and culture within academia.⁵⁰⁹ The bureaucratic processes in the patent system may also be an impediment to innovation.⁵¹⁰ Business support is significant and effective but delivered mainly through federal government agencies.⁵¹¹ The city ranks 41st in the ‘global appeal’ category of the Hot Spots index.

10.2.8 Constraints to Economic Development

A boost to economic development in Mexico is desperately needed to reduce income inequality, improve the quality of education, encourage participation in the formal sector and reduce poverty. Investment in physical and human capital is a key constraint for Mexico's economic development. Total investment as a percentage of GDP in Mexico has gone from 25 percent for the 1979–1981 period to 20 percent in the 2004–2007 period.⁵¹² Mexico City has experienced similar declines, with the most significant reduction being capital investment in infrastructure.

Mexico City's infrastructure faces major challenges, with upgrades and replacement urgently needed for its public transportation system as well as its water and sanitation system. Traffic is a serious problem. In IBM's Global Commuter Pain Survey, Mexico City was considered the worst in commuting time, start-stop traffic, and drivers angered by traffic.⁵¹³

10.3 STRATEGIC INFRASTRUCTURE

10.3.1 Highways

The road infrastructure, which spans 377,660km,⁵¹⁴ facilitates the movement of the majority of the freight in Mexico (55%) and most of the population (98%). The road network of Mexico City is well-connected to the USA and Canada.

Figure 10.6 Map of Mexican Road Corridor to the NAFTA Region



Source: Adapted by authors from Mark Robinowitz, 'Peaked traffic and transportation triage: NAFTA superhighways I-69, I-35 and the rest of the network of highway expansions between Canada and Mexico', peaktraffic.org, accessed 3 August 2015, <http://www.peaktraffic.org/nafta.html#top>

10.3.2 Public Transport

There are two important systems of public transport in Mexico: the subway (Metro) and the rapid bus transit network (Metrobus). Mexico City Metro operates one of the longest subway systems in the world, at around 225km. Annual ridership was 1.685 billion trips in 2013. It recorded a peak daily ridership of 4.4 million in 2012.⁵¹⁵ The Metrobus network is more modest. It covers 105km and transports around 900,000 passengers daily.⁵¹⁶ However, the Metrobus is slow, due to congestion on streets and poor signalling at intersections. Accident rates are also high, which adds to traffic holdups.

Photo 10.3 Mexico City's Metro (left) and Metrobus (right)



Credit: Wikimedia Commons / Daniel Manrique (left); Wikimedia Commons / ProtoplasmaKid (right).

10.3.3 Infrastructure Issues

Among factors limiting the city's competitiveness between 2012–2025 is the relatively low quality of its physical capital (95th in the Economist Intelligence Unit's Hot Spots rankings). It is not surprising, therefore, that lack of investment in infrastructure has created some issues for Mexico City:

- **Airport:** Mexico City's airport is the busiest in Latin America.
- **Energy:** Mexico's oil sector has suffered after years of underinvestment by the state monopoly company.
- **Hospitals:** Around 23 percent of the population in the Federal District do not have access to health services. This jumps to 30 percent in Puebla.⁵¹⁷
- **Housing:** Measured by the number of rooms per person, Mexican houses are overcrowded. For instance, the average Mexican home contains 1 room per person, which compares to 2.3 in the USA or 2.6 in Canada. Even across Latin-American economies, this figure is relatively low, for instance, Brazil has 1.4 bedrooms per person.⁵¹⁸

- **Communications and transport:** Mexico invested only 1.1 percent of its GDP in infrastructure for transport and communications from 1992 to 2011, which compares to 5.02 percent in China.⁵¹⁹
- **Water and sewerage:** Mexico's growing population has led to over-exploitation of groundwater resources
- **Seaports:** There is a need to upgrade seaports, and these are far away from Mexico City.

10.3.4 Recent Infrastructure Projects

During the last decade, the following major urban investments have been implemented:⁵²⁰

- Santa Fe business centre
- Revitalization of the historical centre
- Two-tier motorways
- Extension of the Metro (subway)
- Introduction of the Metrobus
- Cultural centre: The Factory of the Arts and Crafts of the East (Faro de Oriente)
- The densification of the urban area surrounding the CBD (Bando Dos)
- The Housing Improvement Program.

10.3.5 Future Infrastructure Projects

Under the National Infrastructure Program 2014–2018, USD 550 billion will be invested over the period to meet some of Mexico's infrastructure needs. The plan encompasses the 'development of an enhanced national network of highways and roads, in addition to other transportation and telecommunication projects to turn Mexico into a global logistics platform'.⁵²¹ Mexico City will benefit from these projects:

- **New airport.** This USD 9.2 billion project – probably the largest infrastructure development in Mexico – will include six runways and have the capacity to handle 120 million passengers.⁵²²
- **Mexico City–Querétaro high-speed rail.** This project involves the construction of a 210km line for high-speed trains (300km per hour) that can meet a daily demand of 23,000 passengers. However, this project had been deferred.⁵²³
- **Mexico City–Toluca inter-urban train.** This USD 2.9 billion project involves 57.7km of new railroads connecting Mexico City to Toluca. The line will have six stations and meet a daily demand of 270,000 passengers.⁵²⁴
- **New fibre optic cable.** This USD 750 million project by the Federal Electricity Commission will expand the current network by around 57,500km.⁵²⁵
- **New subway in Estado de México.** This will expand the metro system to the east of the city at an estimated cost of USD 750 million.
- **Valle de México II.** This project involves an estimated investment of USD 650 million in the construction of an electric plant with a capacity of 543 MW in Estado de México.
- **Highways around Mexico City.** There are plans to build and expand a series of highways in the Central Region to connect better Mexico City to its surrounding cities.

- **Expansion of the Veracruz Port.** The plan is to invest more than USD 700 million in expanding the Veracruz seaport to better connect it to the train system and provide facilities to support the oil platforms.
- **Improvements to the water and sewerage systems.** The plan outlines an investment of more than USD 2.6 billion to improve the water and sewerage systems of Mexico City.
- **Hospitals.** New hospitals are planned in the Central Region. The investment outlined in the plan is more than USD 500 million.
- **Energy.** The energy sector is the main pillar of the National Infrastructure Plan; and the plan suggests an investment of around USD 250 billion to extend and develop infrastructure for the extraction, exploration and transformation of hydrocarbons.

10.3.5.1 Financing the National Infrastructure Program

The plan for Mexico's National Infrastructure Program⁵²⁶ proposes that the government will provide 63 percent of the cost of new infrastructure with the rest coming from private investment. The plan sets out infrastructure investment for the Central State Region. A federal public-private partnership (PPP) law was enacted in December 2013 which contains features to give developers and investors greater certainty to invest in infrastructure, transparency in the bidding process and clearer rights for investors.

Mexican local, state and federal governments are familiar with the use of PPPs to fund public goods. For instance, many of Mexico's highways are funded by the private sector, which in return obtains fees from highway tolls for an agreed period.

10.4 SOCIAL AND ENVIRONMENTAL SUSTAINABILITY

Mexico City's high level of income inequality is shaping society in the city. Environmentally, Mexico City is no longer the most polluted city in the world. However, there is urgent need for further pollution reduction.

10.4.1 Social Environment

Despite its poor overall human capital performance, Mexico has a large well-educated workforce. However, many decide to work abroad because of a lack of opportunity at home. Remittances by Mexican citizens working in the USA are significant. They amount to 0.2 percent of Mexico's GDP (USD 26 billion in 2007⁵²⁷), and are the economy's 10th largest source of foreign income.⁵²⁸

The average income in a typical urbanized area of Mexico City (i.e. the Federal District) is around USD 22,500 per year;⁵²⁹ while the average income of the poorest 20 percent of the rural population is less than USD 500 per year.⁵³⁰ Since 2006, Mexico City has imposed broad quality-of-life measures to improve the liveability of the city, some of which have impacted on the poor. These measures include bans on smoking in bars and restaurants, closure of many streets on weekends to allow joggers and cyclists to use them,

barring out-of-state cars from entering the city on certain days from 5 to 11 a.m. to cut down on pollution, outlawing plastic bags in stores and evicting thousands of vendors from public streets. New traffic laws have outlawed talking on mobile phones while driving, and banned children under 12 from riding in the front seats. However, crime and water shortages remain major problems despite these high-profile efforts to make the capital more liveable. Owing to these continuing problems, Mexico City scores 72nd in the 'social and cultural character' category of the Economist Intelligence Unit's Hot Spots index.

10.4.2 Industrial Labour Market Reforms

In the past, businesses were reluctant to hire staff due to the difficulties in dismissing them. Some employers opted to hire from the informal sector, with many of those employees' suffering discrimination and unfair treatment. In 2012, the Mexican Congress passed labour reform legislation that includes:

- **Curbs on outsourcing.** Companies which use outsourcing arrangements to avoid labour obligations could face major fines.
- **Changes in laws affecting hiring and firing.** Previously, Mexico's labour laws made it difficult to dismiss poor performers or lay off workers. As a result, some employers preferred to hire workers informally. The new contract modalities allow probation periods of up to 6 months. Companies can now hire workers by the hour, something not previously allowed. The new laws also cap the amount of money employers must pay workers who are dismissed.
- **Modernization of the administration of labour justice.** Resolving labour disputes in Mexico could be a lengthy process. To address this, reforms in justice administration were introduced and incentives provided for the parties involved to seek more efficient and swift rulings.⁵³¹
- **Anti-discrimination provisions.** The minimum acceptable conditions that any employment relationship must meet are specified. The legislation also adopts the concept of 'decent work' established by the International Labour Organization, which is based on respect for the dignity of workers, and prohibits discrimination based on gender, sexual preferences, disabilities, race or religion.⁵³²

10.4.3 Environmental Management and Sustainability: Policies and Measures

In 1992, the United Nations declared Mexico City the most polluted city on the planet. In response, the government prohibited old cars, removed lead from gasoline, embraced natural gas, expanded public transportation and relocated refineries and factories to outside the city. The introduction of more fuel-efficient buses has reduced dioxide emissions. Today, air pollution in Mexico City has improved, but particle emissions levels are still high.

The Federal District also has a major water supply problem. To address this, the city has developed a plan for a 'City of Lakes' that draws inspiration from Aztec times, when a system of interconnected lakes, and dikes to separate fresh water and control floods, served the population. This plan would increase water supply, create new parklands, and improve air quality.

The Ministry of the Environment and Natural Resources estimates that 40 million tonnes of waste are generated annually in Mexico, of which only 15 percent is recycled.⁵³³ It is estimated that the Federal District produced more than 10,000 tonnes of waste every day while Estado de México produced more than 16,500 tonnes per day. After the closure of a huge landfill (Bordo Poniente) that used to receive more than 12,500 tonnes daily, illegal dumping became widespread practice in Mexico City.

In addition to these environmental threats, Mexico City is very vulnerable to earthquakes; it has a long history of seismic events, with the most recent major earthquake occurring in 1985.⁵³⁴ Given the different threats and risks, Mexico City scores 81st in the 'environmental and natural hazards' category of the Economist Intelligence Unit's Hot Spots index.

10.5 URBAN GOVERNANCE

The governance structure of metropolitan Mexico City is dysfunctional. The main issue is that Mexico City is spread over two federal entities or states – Estado de México and the Federal District. Most projects need to be endorsed and monitored by these two federal entities, which leads to governance inefficiencies. States are also responsible for regulating their own municipalities, which causes further fragmentation of governance in the greater metropolitan area.

Figure 10.7 Map of Mexico City's Urban Footprint and Its Local Government Boundaries



Source: Wikimedia Commons / Yavidaxiu.

The percentage share of infrastructure investments as part of overall GDP has gone up steadily since 2000, from 3 percent to 4.8 percent in 2013.⁵³⁵ And, as discussed earlier, the second National Infrastructure Program 2014–2018 envisages further ambitious investments that would benefit Mexico City. More than USD 100 billion of the investment is expected to come from PPPs. In 2012, a new PPP law was enacted that provides more clarity and protection for the private sector. This law delineates more clearly the rights, obligations and risk that each party assumes. It also grants greater flexibility if a long-term contract needs to be modified once a project is underway. The PPP law also streamlines the process for land acquisition – a major obstacle that has delayed many infrastructure projects in the past.⁵³⁶

However, despite the positive initiatives by the government to create the conditions for development, corruption remains a hallmark of Mexican governance and is adversely affecting business and service delivery. A survey of households in 2011 by Transparency International's Mexican branch found that, while Mexico's level of corruption is

‘average’ by Latin American standards, the estimated cost of the corruption exceeded MXN 32 billion (approximately USD 2.5 billion) in 2010.⁵³⁷ Corruption varies widely by state, with the most corrupt being Mexico City and the adjacent Estado de México.

A Transparency International survey showed that the poor are particularly vulnerable to demands for bribes. However, the situation has been improving, particularly with respect to federally run programmes. Less corruption is evident in the provision of government aid, the postal service and the electricity market.⁵³⁸ The city scores 86th in the ‘institutional effectiveness’ category of the Hot Spots index.

10.6 GOOD PRACTICE FOR SUSTAINABLE DEVELOPMENT

10.6.1 GLOBAL CITIES ECONOMIC PARTNERSHIPS

Sister cities are a form of legal and social agreement between cities to promote cultural and commercial ties. Mexico City (Federal District), as a megacity, has many sister cities including Chicago, Los Angeles, Athens, Beijing, Beirut, Berlin, Rio de Janeiro, Sao Paulo, Seoul, Tel Aviv, Istanbul, Lisbon, Paris, Rome, Sydney, Bogota and Buenos Aires.⁵³⁹

10.6.1.1 Bogota–Mexico Partnership

Mexico and Colombia have strong connections economically and culturally. Not only do Mexico and Colombia have a free trade agreement and share the same language, but it is also common to hear Mariachis (Mexican music) in Bogota and to see Colombia’s famous writer Gabriel Garcia Marquez as the subject of homework for Mexican students. Mexico and Bogota are very similar cities with similar problems. To tackle its traffic problems, Bogota introduced a bus rapid transit system (or Transmilenio) in 2000. After the success of this system, Mexico built the Metrobus. Colombian urban planners have helped to shape Mexico City, and Mexico has invested in Bogota. In 2014, Mexican direct investment in Bogota reached USD 430 million.⁵⁴⁰ Bogota and Mexico clearly are a good example of sister cities. Given the success of this relationship, Mexico and Bogota signed an agreement of cooperation in 2014 to expand those relationships further to include transport, environment and health.⁵⁴¹

10.6.1.2 Chicago–Mexico Partnership

Mexico City and Chicago have had cultural ties as sister cities since 1991. In 2013, they announced a new partnership aimed at extending their economic ties. Both cities pledged to work together to facilitate trade and investment between shared industries, and to boost research, innovation and human capital. It is expected that these efforts will help create jobs and increase economic opportunities for both cities.

The similarities and complementarities between the two cities, economically and culturally, augur well for the success of this partnership. Chicago is home to the second-largest population of Mexican immigrants in the USA. There is also strong city-to-city trade, amounting to more than USD 1.7 billion worth of locally produced products. They

have both experienced deindustrialization, and are looking to develop new growth trajectories. They have both also had some success in attracting global firms, for example, Siemens in Chicago, and Motorola Solutions in Mexico City.⁵⁴²

10.6.2 Sustainable Transport: The Suburban Train

The federal government, Estado de México and the Federal District have partnered to build a ‘suburban train’ system (Photo 10.4). This is considered one of the nation’s most significant infrastructure projects; it connects the Federal District with Cuautitlan in the densely populated metropolitan area of Mexico City,⁵⁴³ and costs around USD 600 million.⁵⁴⁴

Photo 10.4 Suburban Train in Mexico City



Credit: Wikimedia Commons / Sofree.

Finding capital for the Mexican Metro has historically proved a real challenge for the government. Tickets for the Metro are about USD 0.23, which is very cheap when compared to New York (USD 2.50), London (USD 7.50) or Los Angeles (USD 1.50).⁵⁴⁵ However, with any fare increase seen as an impost on the poor, the government has continued to subsidize it. Thus, there has been no increase in revenue for years, either to improve the Metro or to provide proper maintenance. The prospects of cross-subsidizing the Metro expansion using profits from the state’s oil revenues did not occur because of inefficiencies, and more recently, falling oil prices. The city continues to grow; and congestion on the public transport system has continued to increase.

The suburban train service has broken that pattern. The government, by calling the service a ‘suburban train’ rather than a Metro train, has been able to set the ticket price at around USD 1 per trip. The train serves around 160,000 passengers daily; and the revenue is helping to fund the extension of this service to 50km.⁵⁴⁶

10.6.3 Improving Air Quality: PROAIRE

Three decades ago, Mexico City was one of the most polluted cities in the world. Vehicular and industrial emissions were out of control and there was no proper regulation for the protection of air quality.⁵⁴⁷ The pollution was having a major impact on public health, productivity and the quality of life for the city's residents. The federal and local governments were forced to act.

In 1990, the government developed its first programme, PROAIRE, to improve air quality and remove lead from petrol. This led to an immediate improvement with a drop in particulate matter and carbon monoxide levels. In 1995, the programme was updated, and again in 2001 and 2010. The latest iteration defines management policies to improve air quality to be implemented until 2020, and focuses on reducing ozone aerosols and greenhouse gas levels.

The results have been quite remarkable. The concentrations of pollutants such as lead, sulphur dioxide and carbon monoxide have dropped to levels below the limits set under domestic standards; and in the case of ozone and certain particles, a reduction of over 30 percent has been achieved.⁵⁴⁸ Reductions of black carbon emissions and carbon dioxide have exceeded the original goal.

Actions to be undertaken over the next six years include continued reductions in particulate matter, volatile organic compounds, carbon dioxide and black carbon. In 2013, Mexico City won the C40 Cities and Siemens 'City Climate Leadership Award' in the 'air quality' category, a remarkable achievement from previously being one of the world's most polluted cities in terms of air quality. Today, air pollution in Mexico City has significantly improved, but particle emissions levels are still very high.

10.7 POTENTIAL APEC PARTNERSHIPS

Mexico City has successfully partnered with cities with which it has previous economic and/or cultural ties like Chicago or Bogota. Under this pattern, Mexico City could strengthen or start new partnerships with the following cities:

- **Beijing** – Despite being Mexico's largest Asian trading partner and investing heavily in Latin America, China's direct investment in Mexico was only USD 15 million in the first quarter of 2015.⁵⁴⁹ There is thus substantial potential for increased investments, particularly given that China's reputation for its relatively new train network could be an advantage for Mexico's infrastructure plans.
- **Los Angeles** – Because of the cultural connections arising from Mexican migration to Los Angeles, many Mexicans call Los Angeles the 'Federal District' of the USA.
- **Manila** – Although currently there are no economic connections between Manila and Mexico, these economies have a similar culture, both having been conquered by the Spanish. Both cities have similar industry sectors (in centralized cities), and urban and government structures created under Spanish influence.

- **Seoul** – Korea’s direct investment in Mexico was USD 366 million during the first quarter of 2015,⁵⁵⁰ mainly in the manufacturing sector.
- **Singapore** – Singapore has a superb subway network, seaports and buildings. Its experience in these areas could be an advantage for Mexico’s infrastructure plan. Singapore invested USD 97 million in Mexico in the first quarter of 2015.
- **Sydney** – Some economic connections already exist between Sydney and Mexico. For instance, the Australian Macquarie Group manages the largest commercial and industrial property fund in Mexico; and this has led to interest in a USD 1 billion wind farm project.⁵⁵¹ In addition, Mexico could learn from Australia’s experience with its Higher Education Contribution Scheme.
- **Tokyo** – Japan’s direct investment in Mexico was USD 622 million in the first quarter of 2015, mainly in the manufacturing sector.⁵⁵²
- **Vancouver** – Currently Vancouver and Mexico City do not have a sister city agreement. Canada invested USD 184 million in the Mexican finance and insurance sector in the first quarter 2015.⁵⁵³ Mexico City could provide opportunities in its well-established financial and insurance sector to Canadian companies.

10.8 CONCLUSIONS

Mexico City is a city of opportunity, but its development is being held back by significant disparities in income and wealth, and lack of opportunities for education and training across the city’s population. This is reducing its economic competitiveness. Opportunities exist for Mexico City to learn from other economies and cities. For example, Korea was a developing economy that now enjoys a better distribution of income and a higher level of wealth than Mexico, and as mentioned earlier, Australia has implemented a higher education funding scheme that could be considered by Mexico.

From a sustainable development perspective, Mexico City has been able to improve the quality of its environment. It could use its experience to help cities that are suffering similar levels of air pollution, like Beijing. However, in the area of responsibility for water management, Mexico City needs to improve. After 10 years of drought, there are lessons that Mexico City could learn from Australian cities.

Mexico City has implemented urban planning and transport systems that were initiated in Colombia and other South American economies, and could help Manila to improve its transport system by substituting its jeepneys with a rapid bus transit system similar to the Metrobus. To expand its Metro system, Mexico City could take advantage of China’s expertise in building fast intercity trains.

Before the mid-1990s, Mexico was a relatively closed economy. There are still many taboos and barriers to improving trade, investment and partnerships with other economies that flow on from this period. Mexico, and Mexico City, needs to improve both productivity and competitiveness. While many sectors of the economy have gained from NAFTA, some have not reformed and continue to lose jobs due to competition. Much of the investment in Mexico City has been in low-wage manufacturing and services, with little investment in advanced manufacturing and services. The initiative to establish a

city-to-city partnership with Chicago, is the first of its kind, and is a very positive step in city-to-city trade development under NAFTA.

The Mexican government's infrastructure plan and its package of reforms will certainly help to provide a better platform for international trade and create stronger partnership opportunities for Mexico City. However, the success of Mexico's reforms and infrastructure plan will depend significantly on improved confidence in Mexico's institutions and governance. The problem of corruption involving Mexico's drug cartels has permeated all levels of society and undermined investor confidence. Mexico City can learn much from cities like Medellin in Colombia about cleaning up drugs and crime, and the beneficial effects this can have in attracting investment.

Mexico City urgently needs to improve its urban governance structure, which currently undermines the city's economy and its ability to achieve its development potential. It needs to overcome barriers and taboos that hinder trading and creating partnerships with other economies. Mexico is expected to become the fifth-largest economy in the world by 2050. Therefore, its cities, especially Mexico City, must embrace the opportunities to partner with other cities in the APEC region to ensure that development occurs in a sustainable manner.