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Mexico City

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The Metropolitan Zone of Mexico City (MZMC), with 20.3 million inhabitants in 2015, is one of the most populated in the world. It is located in the Mexico Basin, with an area of 9,600 square kilometers, which constitutes the geographical support for its 1,823 square kilometers of urban fabric. In 2013, this built-up area comprised 5.1 million dwellings and 69,885 manufacturing and 787,560 commercial and service establishments, in addition to the road system, infrastructure, equipment, and green areas.

This urban fabric is the most formidable artifact Mexico has built in its history, constituting a colossal instrument to accommodate its population and a true factor of production accounting for 23.1 percent of the national gross domestic product (GDP) in 2013, and 30.4 percent of the tertiary sector.

DEMOGRAPHIC AND URBAN EXPLOSION

Mexico City contains the highest concentration of economic activities and population since its establishment as the capital of New Spain in 1521, which housed 30,000 people in 1548. Four hundred years later, in 1950, it concentrated 2.9 million people in 20,500 hectares (ha), distributed among 11 boroughs in the Federal District and the municipality of Tlalnepantla, State of Mexico, the first demarcation that marked the start of its metropolitan process. The central borough is Cuauhtémoc, which was the most pop-

ulated area of the city, giving the emerging metropolis a monocentric urban pattern.

The 1950s saw the start of its rapid demographic and urban expansion, extending to 37,200 ha and housing 5.1 million inhabitants in 1960 (Table 1). In the Federal District, the population was primarily located in the boroughs of Cuauhtémoc, Venustiano Carranza, Miguel Hidalgo, and Gustavo A. Madero (Figure 1).

Between 1960 and 1970, the population continued to grow at a rapid pace of 5.5 percent annually, reaching 8.6 million inhabitants spread over 70,800 ha (Table 1). This marked the end of the first stage of metropolitanism, since the absolute population of two of the central boroughs declined. The demarcations in the first ring surrounding them saw an enormous increase (Figure 1).

The 1970s saw the start of a second stage of metropolization, since the four central boroughs experienced a decline in absolute population, although the total population of the MZMC rose to 13.0 million in 1980 (Table 1).

In 1990, the MZMC population stood at 15.3 million, in an area of 127,700 ha, although the growth rate in the 1980s fell to 1.7 percent (Table 1). This period is known as the “lost decade” since the country’s GDP growth was almost nil and its capital city was severely affected.

At this stage, a third phase of metropolitanism took place, and its political demarcations in the west overlapped with the Metropolitan Area of Toluca, forming the Mexico City Megalopolis (MCM). It is estimated that it will concentrate approximately 30 million people in 2020.

In 2000, the MZMC extended to 149,344 ha, inhabited by 17.9 million people (Table 1).

Table 1 MZMC: Population and urban fabric by political entities, 1950–2015^a

Year	Total		Federal District		State of Mexico		Rate of growth ^c
	Population	U. fabric ^b	Population	U. fabric ^b	Population	U. fabric ^b	
1950	2,952,199	20,500	2,923,194	19,400	29,005	1,100	
1960	5,125,447	37,200	4,816,617	30,700	308,830	6,500	5.7
1970	8,623,157	70,800	6,840,471	46,000	1,782,686	24,800	5.5
1980	12,994,450	93,000	8,362,711	58,700	4,631,739	34,300	4.0
1990	15,274,256	127,700	8,351,044	64,400	6,923,211	63,300	1.7
2000	17,946,313	149,344	8,591,309	55,716	9,355,004	93,627	1.6
2010	19,388,943	174,106	8,851,080	62,736	10,537,863	111,370	0.8
2015 ^d	20,349,188	182,321	8,918,653	63,253	11,430,535	119,068	1.0

Source: Population Censuses and Geographic Information System Unit at El Colegio de México.

^aIn 2015 the MZMC comprises 16 boroughs (*delegaciones*) of the Federal District, 40 municipalities of the State of Mexico, plus one of the State of Hidalgo (included in the former).

^bUrban fabric in hectares (ha).

^cRate of growth of the total population

^dThe urban fabric was calculated using the 2010 density of the Federal District (141 inhab/ha) and the State of Mexico (96).

Municipalities in the State of Mexico also became more important, accounting for a greater share of the population. Part of Mexico City's reduction was due to its decentralization toward the surrounding cities, consolidating it as a megalopolis.

In 2010, the metropolis increased its urban fabric to 174,106 ha and its population to 19.4 million. Its growth rate fell to 0.8 percent, and that of the national population to 1.4 percent, thereby reducing its share to 17.3 percent.

In 2015, the metropolis had a population of 20.3 million people and a density of 112 inhabitants/ha.

ECONOMIC STRUCTURE AND INTRAMETROPOLITAN ORGANIZATION

The MZMC produced 33.3 percent of the total GDP in 1960, during the "economic miracle" that lasted until 1980. By sectors, it accounted for 40.9 percent of the secondary activities and 37.5 percent of the tertiary. Within its macroeconomic structure, tertiary activities constituted 73.3 percent of GDP,

following the pattern of the World Tertiary Revolution (Table 2).

Between 1970 and 1980, the country's economic growth rate was 6.5 percent, and marginally higher in the city (6.6 percent), enabling it to slightly increase its share of the GDP to 37.7 percent, the highest percentage ever achieved. During this last decade of rapid growth, the city increased its share of the national product to 42.3 percent in the secondary and 40.3 percent in the tertiary sector, also record figures (Table 2).

In the "lost decade" between 1980 and 1988, the GDP experienced marginal growth of 0.9 percent, but the MZMC was severely affected and decreased – 1.2 percent, which meant a drop in its share of national GDP in 1988, although the decline in the secondary sector was even more pronounced (Table 2).

During the period from 1988 to 1993, which saw relative recovery due to the full implementation of the neoliberal model, Mexico City partially improved, achieving a GDP rate of 3.8 percent, the same as the

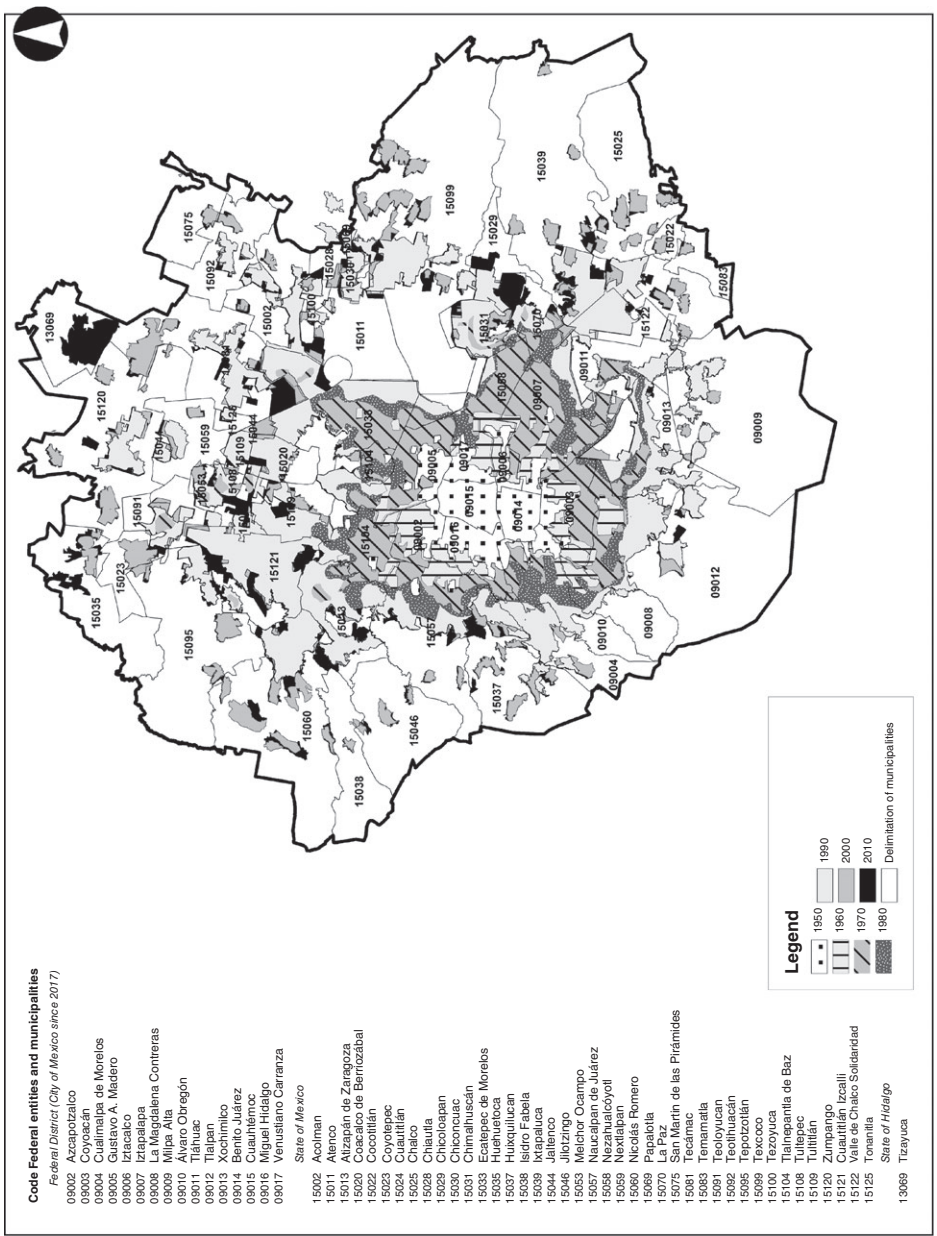


Figure 1 MZMC: Urban fabric expansion, 1950–2010 (source: mapped by Raúl Lemús, Department of Geographic Information Systems, El Colegio de México)

Table 2 MZMC: Percentages of the gross domestic product by sectors, 1960–2013

<i>Sectors</i>	<i>1960</i>	<i>1980</i>	<i>1988</i>	<i>1993</i>	<i>2003</i>	<i>2008</i>	<i>2013</i>
<i>Relative to the national</i>							
Total	33.3	37.7	31.9	31.8	28.9	24.6	23.1
I. Primary	1.6	2.3	1.3	1.8	2.2	1.7	3.0
II. Secondary	40.9	42.3	32.9	32.5	27.7	18.4	14.7
III. Tertiary	37.5	40.3	35.4	35.0	32.2	30.4	30.4
<i>Relative to the city</i>							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
I. Primary	0.7	0.5	0.3	0.4	0.5	0.6	0.4
II. Secondary	26.0	29.2	25.6	26	24.7	19.9	17.5
III. Tertiary	73.3	70.3	74.1	73.6	74.8	79.5	82.1

Source: from 1960 to 2003, Garza 2008, 177; 2008 and 2013, National Accounts by States, INEGI.

national figure. The rapid decline experienced during the crisis of the 1980s was curbed (Table 2).

The economic results of the neoliberal “structural adjustment” are limited and involve periodic crises, such as the 1995 crash, the 2001–2002 recession, and the collapse of 2009. This explains why the national GDP observed a modest annual rate of 2.6 percent between 1993 and 2013, about a third of the one achieved during the “economic miracle.”

During these 20 years of national “recovery–recession” period, the MZMC witnessed a distinct reduction of its high economic importance, its contribution to the GDP declining to 23.1 percent and its share of the secondary sector plummeting to 14.7 percent in 2013, although its share of the tertiary sector remained high (Table 2). Some of this relative loss was decentralized to Toluca and Cuernavaca, within the MCM, and Puebla and Querétaro, inside the subsystem of surrounding cities.

In the MZMC’s productive structure, the tertiary sector concentrated 73.3 percent of its GDP in 1960, rising to 82.1 percent in 2013, much higher than the 67 percent for the country as a whole (Table 2).

In 2003, the MZMC consisted of 4,418 basic geostatistical areas (Spanish acronym: AGEB), 3,867 of which were engaged in manufacturing activity. The city comprised 46,201 industrial units and 757,630 workers and produced US\$13.7 billion. In this activity, 55 AGEB displayed high production levels, accounting for 71 percent of GDP, 29 percent of the employees, and just 3 percent of the manufacturing establishments. These comprise six major productive polygons (Figures 1 and 2). They are grouped into nodes and corridors that constitute a pattern of manufacturing organizations forming a large Y north of the metropolis, on the highway connecting to Laredo, Texas (Figure 2).

In 2008, trade and services in the MZMC were distributed among 5,005 AGEB. These activities were undertaken in 634,311 economic units, employing 3,041,059 workers and producing US\$35 billion. Unlike manufacturing, their spatial configuration is highly concentrated in the Central Business District (CBD), where only 73 AGEB account for 52.9 percent of GDP in just 5.2 percent of the establishments. The CBD has three ramifications with discontinuous production intensity to the south and west, culminating

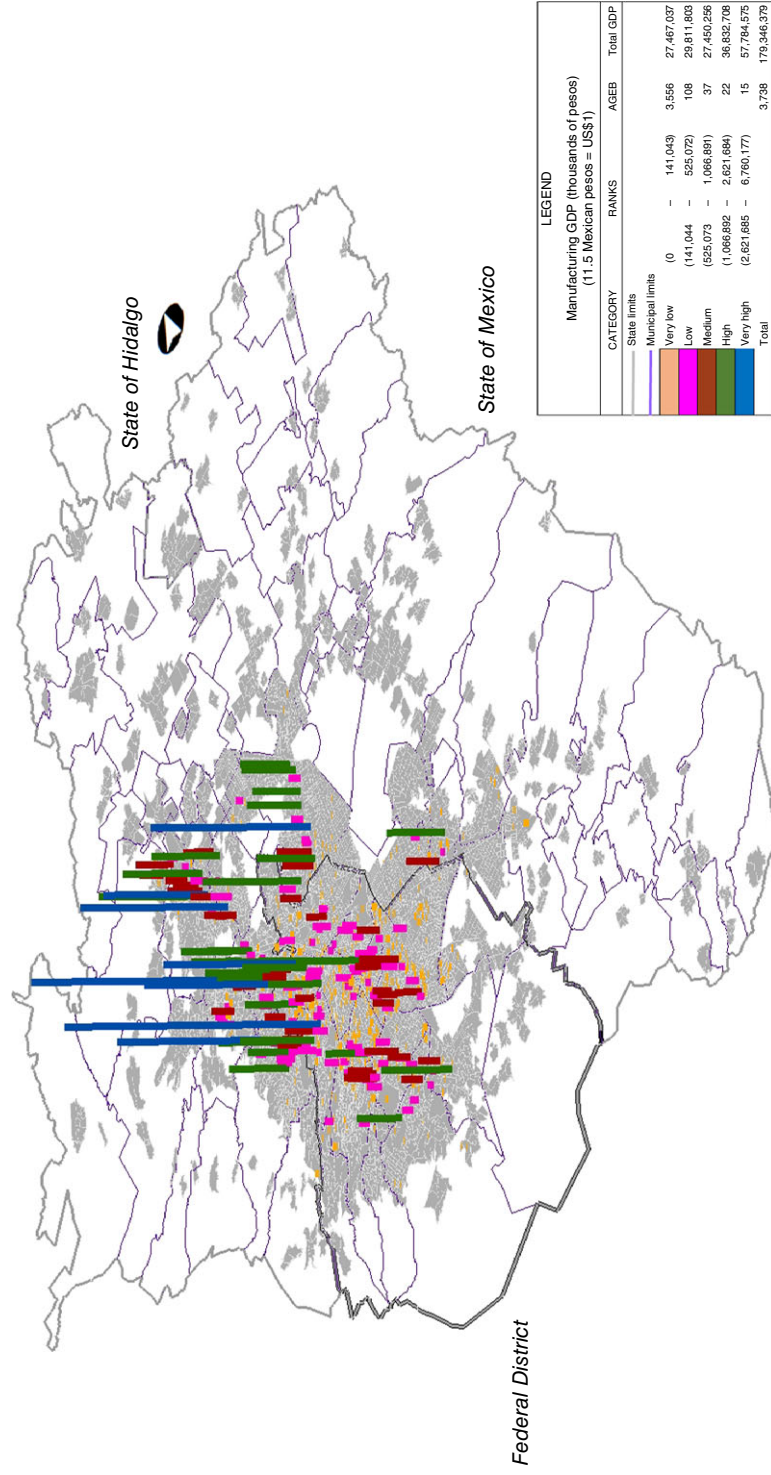


Figure 2 MZMC: Manufacturing gross domestic product by basic geostatistical areas, 2003 (source: Manufacturing Census, 2004, INEGI, México, México. Mapped by Raúl Lemús, Department of Geographic Information Systems, El Colegio de México)

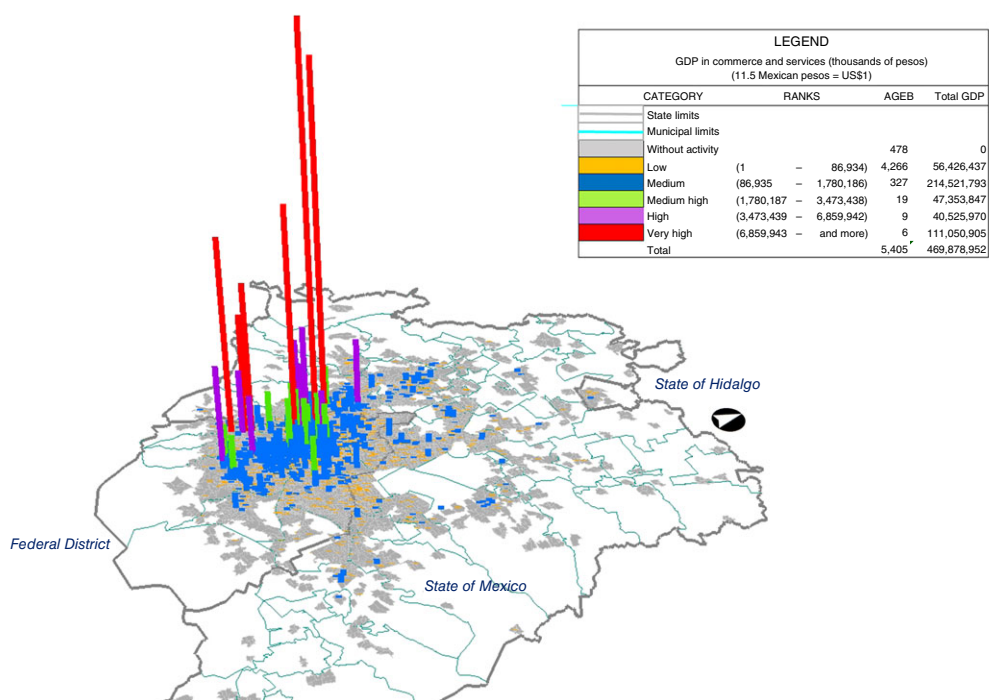


Figure 3 MZMC: Commerce and services gross domestic product, by basic geostatistical areas, 2008 (source: Commercial and Services Censuses, 2009, INEGI, México. Mapped by Raúl Lemús, Department of Geographic Information Systems, El Colegio de México)

in two subcenters in the areas of Santa Fe and Periferico Sur (Figure 3).

CHARACTERISTICS AND VALUE OF THE URBAN STRUCTURE

The basic elements of the urban structure, in addition to private firms, are the hydraulic network, electrical system, oil infrastructure, data communications platform, roads, health and education facilities, the housing inventory, cultural and government buildings, the public transport system, and green areas. It is important to estimate the value of the investment required in the MZMC to understand its link with private productive capital and therefore its high economic and demographic concentration and growth dynamics.

Water infrastructure. The water supply system consists of a network of 31,645 kilometers of primary and secondary networks, 1,818 aqueducts, 1,355 liquid extraction wells, 597 storage tanks, 388 pumping stations, and 58 water treatment plants. This scaffolding made it possible to provide 70.5 m³/sec of potable water to 19.4 million people living in the city in 2010. The cumulative investment in the water system was estimated at US\$10,068 million in 2010, at constant prices of 2003 (the following values will be in US dollars at prices for that year; see Garza 2014 and 2015 for data sources and estimation methods).

Electricity supply. Electricity-generating plants for energy consumption totaled 51 in 2008, which, together with the network of cables, substations, and all the properties of

the state-owned provider, were estimated at \$10,430 million.

Hydrocarbon use. The MZMC only accounted for 14.5 percent of gasoline and fuel sales for the whole country in 2008, as a result of the decentralization of manufacturing. The oil infrastructure to meet its demand is estimated at \$8,737 million.

Connectivity. In 2006, the road network had a length of 11,330 kilometers, 10 percent of which was classified as primary and the rest as secondary roads. The value of the road infrastructure is estimated at \$55,061 million.

Metro and Metrobus. In 2012, this system transported 7.6 million passengers per working day. To this end, the metro has a network of 226.5 km of tracks and 195 stations. Net accumulated investment in 2010 stood at \$14,769 million. That year, the Metrobus transported 700,000 passengers per weekday, over a distance of 95 km with 152 stations and a vehicle fleet of 335 units. Total investment in the four lines of the Metrobus amounted to \$610 million.

Data communications network. The MZMC is the master node of the entire wireless and wired communications system and, on the basis of the use of the service, it is estimated that it accounts for 27 percent of this activity, meaning that it would have accounted for \$7,294 million of the entire national investment in 2010.

Housing inventory. In 2010 the city had 5.1 million dwellings, whose value is estimated at \$587,940 million. This is therefore the most valuable urban structure feature, including all the fixed capital of all manufacturing, commercial, and service companies, valued at \$118,107 million at 2003 prices (Garza 2015, 594).

School facilities. In 2010, there were 20,992 schools with 5.4 million students in preschool, primary, middle and high school, and higher education, with the value

of school properties being estimated at \$7,909 million.

Medical units. In 2013, there were 2,369 public and private medical units, distributed among outpatient clinics, hospitals, and social assistance entities, whose investment in property and equipment was estimated at \$44,424 million.

Cultural property. In 2012, the MZMC had 880 libraries, 288 cultural centers, 52 museums, and 182 auditoriums. The total estimated value of the 1,402 buildings is \$3,496 million.

Government structures. The capital of the country has an inventory of 680 buildings used by the federal government in 2012, with an estimated value of \$5,000 million. That year, the Federal District also had 529 constructions, with a replacement value of \$3,905 million, while municipalities in the State of Mexico conurbation have 103 totaling \$629 million.

Green areas. Finally, there is the category of parks, gardens, ecological reserves, and agroindustrial zones in the MZMC, covering an area of 129 square kilometers and valued at \$48,946 million.

In short, in 2010 the total value of the infrastructure and equipment in the MZMC was \$809,412 million including the value of dwellings and \$221,472 million without them. It is important to note that, in 2010, the ratio between the latter figure and the census value of the fixed assets of the companies in the city was 1.9 (6.9 if dwellings are included). This implies that the value of infrastructure and equipment (“social capital”) is almost twice that of the private fixed capital. The scope of the link between social and private capital makes evident the nature of the city as a monumental production factor, without which the production process would be impossible (Garza 2015, 594–595).

URBAN PROBLEMS

The inadequacy of Mexico's economic growth involves high levels of labor informality with low income workers, which has made it impossible to resolve the city's deep-rooted problems satisfactorily, especially the insufficiency of the infrastructure and equipment for the economic activities and the population.

Informal labor. In 2015, the number of employees in Mexico City stood at 8.7 million, 58.6 percent of which were classified within the informal labor market, with revenues of between \$0 and \$377 a month.

Poverty. In 2000, 60 percent of the population were located at the lower socioeconomic levels, while 25 percent were in the middle and 15 percent in the upper strata (Schteingart and Pirez 2015, 47). This stratification is reflected in their dwellings, so that while 40 percent are equivalent to those of cities in developed countries, 60 percent are self-produced, some in extremely poor condition, while 40 percent of its inhabitants live in conditions of poverty.

Transportation and traffic congestion. There were 31 million person-day trips in 2015. Seventy percent were made in public and 30 percent in private transport, mainly automobiles (Garza 2014, 222). The average cost of the trip is \$0.50 dollars by public transport (0.30 in the Metro). In 2015, there were 6.6 million vehicles, whose rapid growth has exacerbated traffic congestion, reducing the average speed to 17 kilometers per hour (8 kilometers in peak hours). The city has one of the worst levels of congestion in the world, with people spending an average of 3.5 hours per day on their trips. Moreover, the cost of transportation for the lower strata can sometimes exceed the amount spent on food.

Roads. In 2010, only 31 percent of roads were in good condition, meaning that the lack of maintenance and the growth of the city and

its vehicle fleet have made its road structure discontinuous and fragmented (Garza 2014, 247–248).

Water. The actual water supply is 268 liters per capita per day (l/h/d), although its distribution is extremely unequal: whereas the central boroughs have about 500 l/h/d, there are peripheral municipalities with less than 100. Moreover, 20 percent of the population has no indoor piped water.

Data communications. In 2010, only 31.8 percent of the 5.1 million dwellings were connected to the Internet. There is an enormous disparity in this service, since although one demarcation had 68.2 percent connectivity, in the most disadvantaged one only 7.3 percent of households had the Internet.

Housing inventory. Dwellings in low income neighborhoods account for 63.7 percent of the metropolitan population and 61.3 percent of the urbanized area. In this way, nearly two-thirds of the city have been built with the direct participation of the people, and are essentially self-built homes.

Health system. Only 45.0 percent of inhabitants were affiliated to a social security institution in 2010. In addition, 9.9 percent belong to the Popular Public Health Insurance. This leaves out approximately 10 million people that have to be covered by other open health facilities. As for general infrastructure, a sample of users and health service providers rated it as fair or poor in 67 percent of cases. To cover the deficit, an additional 20 public hospitals and 167 family clinics would be required (Garza 2015, 251, 299, 300).

Insecurity and crime. The National Survey on Urban Public Security 2015, which includes Mexico City, reports that 68 percent of the population aged 18 and older thought that living in their city was unsafe due to existing crime levels. Despite this alarming figure, the homicide rate was 19.7 per 100,000

inhabitants in 2014 (25.7 in the municipalities of the State of Mexico) as opposed to 113 in Acapulco.

Ecological deterioration and green areas. The city has only 2.2 square meters per inhabitant of green areas comprising parks and gardens that people actually use. In 2014, ozone exceeded the maximum level set on 123 days, while there were 117 poor air quality days due to small particles. In the Federal District, 31 million tons of carbon dioxide were issued in 2012. In addition, 26,152 tons per day of waste were generated, of which only about 60 percent are transferred to a final disposal site.

Competitiveness. In 2008, the MZMC ranked 74th in a competitiveness index of 500 cities worldwide. By 2011, the city had moved up slightly to 73th position, meaning that it has remained among the 100 most internationally competitive cities, although it is a long way from being in the group of major global cities.

SEE ALSO: Cities in Developing Countries; Collective Consumption; Critical Urban Theory; Deindustrialization; Latin American Cities; Megalopolis; Metropolitan Area; Neo-Marxian Analysis; Postindustrial Economy

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