

Chapter 2. The Society and Its Environment



*A representation of a Mexican mother and children from a painting by
David Álfaro Siqueiros*

PROFOUND CHANGES OCCURRED IN Mexican society during the second half of the twentieth century. A sharp decline in mortality levels, coupled with fertility rates that remained relatively high until the mid-1970s, produced a massive population increase. Indeed, the 1990 census total of approximately 81 million Mexicans was more than triple the figure recorded forty years earlier. Mexico's stagnant agricultural sector could not absorb the millions of additional workers, triggering a steady migration to the cities. As a result, Mexico shifted from a predominantly rural to a heavily urban society. Because of the lack of available housing, migrants generally clustered on the periphery of Mexico City and other major urban centers. The local infrastructure often could not keep pace with such growth, resulting in serious environmental concerns.

Despite the massive problems caused by the rapid population shift, successive Mexican governments could point to notable accomplishments in improving the quality of life of their citizens. In the years after World War II, the percentage of deaths caused by infectious, parasitic, and respiratory illnesses fell dramatically. Both the number and percentage of Mexicans with access to basic services such as running water and electricity grew substantially. Literacy and educational levels continued to climb.

The benefits of modernization were not equally distributed, however. Residents of southern Mexico consistently trailed the rest of the country in "quality-of-life" indicators. Urban workers in the informal sector of the economy did not have access to the same level of health care as their counterparts in the formal sector and did not qualify for retirement or pension payments. Income distribution had become increasingly skewed in favor of the wealthiest sectors of society. Mexican policy makers thus faced the difficult challenge of ensuring economic growth while also confronting the persistence of poverty.

Physical Setting

Mexico's total area covers 1,972,550 square kilometers, including approximately 6,000 square kilometers of islands in the Pacific Ocean, Gulf of Mexico, Caribbean Sea, and Gulf of California (see fig. 3). On its north, Mexico shares a 3,326-kilo-

meter border with the United States. The meandering Río Bravo del Norte (known as the Rio Grande in the United States) defines the border from Ciudad Juárez east to the Gulf of Mexico. A series of natural and artificial markers delineate the United States-Mexican border west from Ciudad Juárez to the Pacific Ocean. On its south, Mexico shares an 871-kilometer border with Guatemala and a 251-kilometer border with Belize. Mexico has a 10,143-kilometer coastline, of which 7,338 kilometers face the Pacific Ocean and the Gulf of California, and the remaining 2,805 kilometers front the Gulf of Mexico and the Caribbean Sea. Mexico's exclusive economic zone (EEZ), which extends 200 nautical miles off each coast, covers approximately 2.7 million square kilometers. The landmass of Mexico dramatically narrows as it moves in a southeasterly direction from the United States border and then abruptly curves northward before ending in the 500-kilometer-long Yucatan Peninsula. Indeed, the capital of Yucatán State, Mérida, is farther north than Mexico City or Guadalajara.

Topography and Drainage

Two prominent mountain ranges—the Sierra Madre Occidental and the Sierra Madre Oriental—define northern Mexico. Both are extensions of ranges found in the United States. The Sierra Madre Occidental on the west is a continuation of California's Sierra Nevada (with a break in southeastern California and extreme northern Mexico), and the Sierra Madre Oriental on the east is a southward extension of the Rocky Mountains of New Mexico and Texas. Between these two ranges lies the Mexican altiplano (high plain), a southern continuation of the Great Basin and high deserts that spread over much of the western United States.

Beginning approximately fifty kilometers from the United States border, the Sierra Madre Occidental extends 1,250 kilometers south to the Río Santiago, where it merges with the Cordillera Neovolcánica range that runs east-west across central Mexico. The Sierra Madre Occidental lies approximately 300 kilometers inland from the west coast of Mexico at its northern end but approaches to within fifty kilometers of the coast near the Cordillera Neovolcánica. The northwest coastal plain is the name given the lowland area between the Sierra Madre Occidental and the Gulf of California. The Sierra Madre Occidental averages 2,250 meters in elevation, with peaks reaching 3,000 meters.

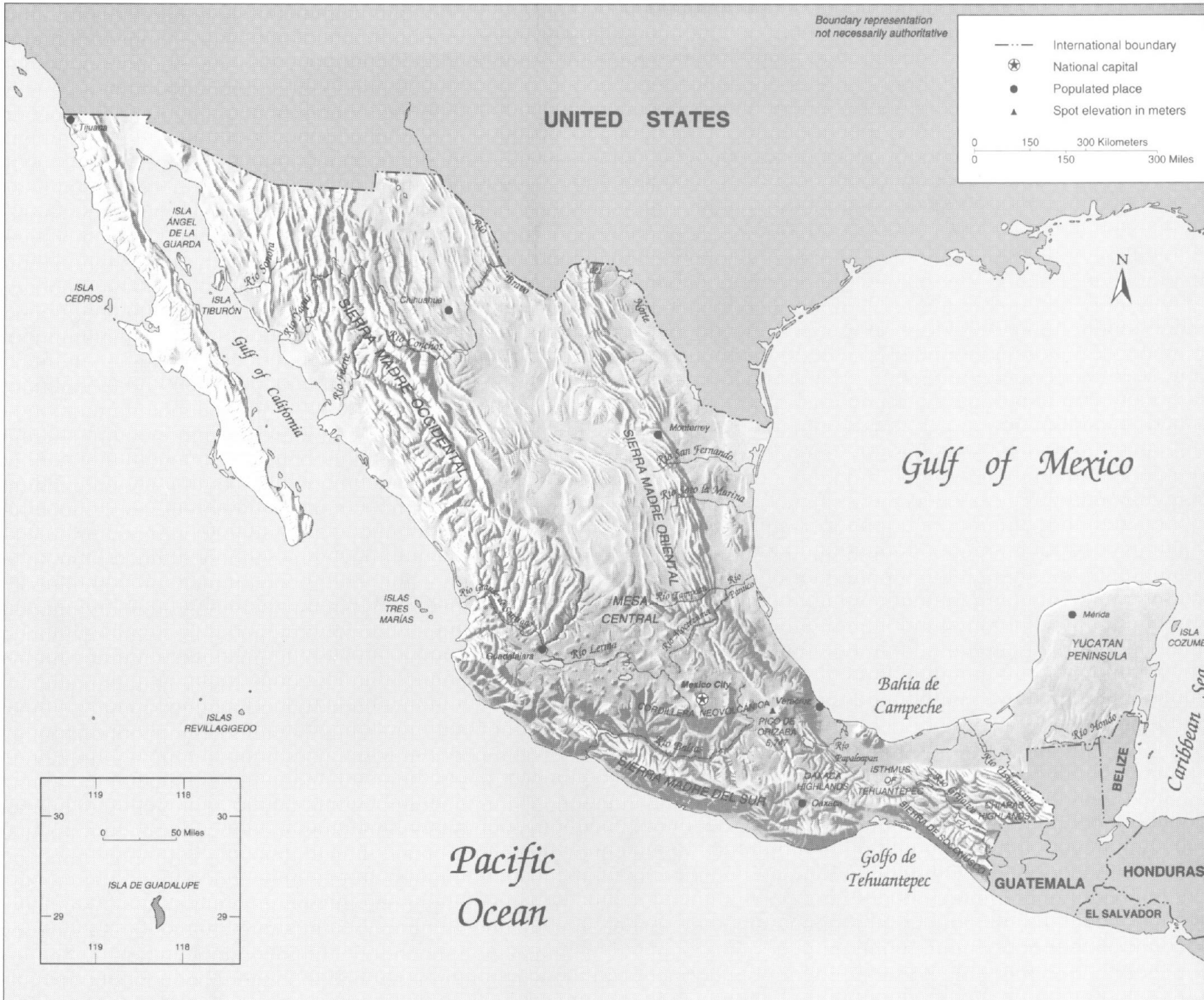


Figure 3. Topography and Drainage

The Sierra Madre Oriental starts at the Big Bend region of the Texas-Mexico border and continues 1,350 kilometers until reaching Cofre de Perote, one of the major peaks of the Cordillera Neovolcánica. As is the case with the Sierra Madre Occidental, the Sierra Madre Oriental comes progressively closer to the coastline as it approaches its southern terminus, reaching to within seventy-five kilometers of the Gulf of Mexico. The northeast coastal plain extends from the eastern slope of the Sierra Madre Oriental to the Gulf of Mexico. The median elevation of the Sierra Madre Oriental is 2,200 meters, with some peaks at 3,000 meters.

The Mexican altiplano, stretching from the United States border to the Cordillera Neovolcánica, occupies the vast expanse of land between the eastern and western sierra madres. A low east-west range divides the altiplano into northern and southern sections. These two sections, previously called the Mesa del Norte and Mesa Central, are now regarded by geographers as sections of one altiplano. The northern altiplano averages 1,100 meters in elevation and continues south from the Río Bravo del Norte through the states of Zacatecas and San Luis Potosí. Various narrow, isolated ridges cross the plateaus of the northern altiplano. Numerous depressions dot the region, the largest of which is the Bolsón de Mapimí. The southern altiplano is higher than its northern counterpart, averaging 2,000 meters in elevation. The southern altiplano contains numerous valleys originally formed by ancient lakes. Several of Mexico's most prominent cities, including Mexico City and Guadalajara, are located in the valleys of the southern altiplano.

One other significant mountain range, the California system, cuts across the landscape of the northern half of Mexico. A southern extension of the California coastal ranges that parallel California's coast, the Mexican portion of the California system extends from the United States border to the southern tip of the Baja Peninsula, a distance of 1,430 kilometers. Peaks in the California system range in altitude from 2,200 meters in the north to only 250 meters near La Paz in the south. Narrow lowlands are found on the Pacific Ocean and the Gulf of California sides of the mountains.

The Cordillera Neovolcánica is a belt 900 kilometers long and 130 kilometers wide, extending from the Pacific Ocean to the Gulf of Mexico. The Cordillera Neovolcánica begins at the Río Grande de Santiago and continues south to Colima, where

it turns east along the nineteenth parallel to the central portion of the state of Veracruz. The region is distinguished by considerable seismic activity and contains Mexico's highest volcanic peaks. This range contains three peaks exceeding 5,000 meters: Pico de Orizaba (Citlaltépetl)—the third highest mountain in North America—and Popocatepetl and Iztaccíhuatl near Mexico City. The Cordillera Neovolcánica is regarded as the geological dividing line between North America and Central America.

Several important mountain ranges dominate the landscape of southern and southeastern Mexico. The Sierra Madre del Sur extends 1,200 kilometers along Mexico's southern coast from the southwestern part of the Cordillera Neovolcánica to the nearly flat isthmus of Tehuantepec. Mountains in this range average 2,000 meters in elevation. The range averages 100 kilometers in width, but widens to 150 kilometers in the state of Oaxaca. The narrow southwest coastal plain extends from the Sierra Madre del Sur to the Pacific Ocean. The Sierra Madre de Oaxaca begins at Pico de Orizaba and extends in a southeasterly direction for 300 kilometers until reaching the isthmus of Tehuantepec. Peaks in the Sierra Madre de Oaxaca average 2,500 meters in elevation, with some peaks exceeding 3,000 meters. South of the isthmus of Tehuantepec, the Sierra Madre de Chiapas runs 280 kilometers along the Pacific Coast from the Oaxaca-Chiapas border to Mexico's border with Guatemala. Although average elevation is only 1,500 meters, one peak—Volcán de Tacuma—exceeds 4,000 meters in elevation. Finally, the Meseta Central de Chiapas extends 250 kilometers through the central part of Chiapas to Guatemala. The average height of peaks of the Meseta Central de Chiapas is 2,000 meters. The Chiapas central valley separates the Meseta Central de Chiapas and the Sierra Madre de Chiapas.

Mexico has nearly 150 rivers, two-thirds of which empty into the Pacific Ocean and the remainder of which flow into the Gulf of Mexico or the Caribbean Sea. Despite this apparent abundance of water, water volume is unevenly distributed throughout the country. Indeed, five rivers—the Usumacinta, Grijalva, Papaloapán, Coatzacoalcos, and Pánuco—account for 52 percent of Mexico's average annual volume of surface water. All five rivers flow into the Gulf of Mexico; only the Río Pánuco is outside southeastern Mexico, which contains approximately 15 percent of national territory and 12 percent of the national population. In contrast, northern and central Mexico, with 47



*Pico de Orizaba in eastern Mexico
Courtesy Embassy of Mexico, Washington
Typical cactus and scrub vegetation in north-central Mexico
Courtesy Inter-American Development Bank*

percent of the national area and almost 60 percent of Mexico's population, have less than 10 percent of the country's water resources.

Seismic Activity

Situated atop three of the large tectonic plates that constitute the earth's surface, Mexico is one of the most seismologically active regions on earth. The motion of these plates causes earthquakes and volcanic activity.

Most of the Mexican landmass rests on the westward moving North American plate. The Pacific Ocean floor off southern Mexico, however, is being carried northeast by the underlying motion of the Cocos plate. Ocean floor material is relatively dense; when it strikes the lighter granite of the Mexican landmass, the ocean floor is forced under the landmass, creating the deep Middle American trench that lies off Mexico's southern coast. The westward moving land atop the North American plate is slowed and crumpled where it meets the Cocos plate, creating the mountain ranges of southern Mexico. The subduction of the Cocos plate accounts for the frequency of earthquakes near Mexico's southern coast. As the rocks constituting the ocean floor are forced down, they melt, and the molten material is forced up through weaknesses in the surface rock, creating the volcanoes in the Cordillera Neovolcánica across central Mexico.

Areas off Mexico's coastline on the Gulf of California, including the Baja California Peninsula, are riding northward on the Pacific plate. Rather than one plate subducting, the Pacific and North American plates grind past each other, creating a slip fault that is the southern extension of the San Andreas fault in California. Motion along this fault in the past pulled Baja California away from the coast, creating the Gulf of California. Continued motion along this fault is the source of earthquakes in western Mexico.

Mexico has a long history of destructive earthquakes and volcanic eruptions. In September 1985, an earthquake measuring 8.1 on the Richter scale and centered in the subduction zone off Acapulco killed more than 4,000 people in Mexico City, more than 300 kilometers away. Volcán de Colima, south of Guadalajara, erupted in 1994, and El Chichón, in southern Mexico, underwent a violent eruption in 1983. Parícutín in northwest Mexico began as puffs of smoke in a cornfield in 1943; a decade later the volcano was 2,700 meters high.

Although dormant for decades, Popocatépetl and Ixtaccíhuatl ("smoking warrior" and "white lady," respectively, in Náhuatl) occasionally send out puffs of smoke clearly visible in Mexico City, a reminder to the capital's inhabitants that volcanic activity is near. Popocatépetl showed renewed activity in 1995 and 1996, forcing the evacuation of several nearby villages and causing concern by seismologists and government officials about the effect that a large-scale eruption might have on the heavily populated region nearby.

Climate

The Tropic of Cancer effectively divides the country into temperate and tropical zones. Land north of the twenty-fourth parallel experiences cooler temperatures during the winter months. South of the twenty-fourth parallel, temperatures are fairly constant year round and vary solely as a function of elevation.

Areas south of the twentieth-fourth parallel with elevations up to 1,000 meters (the southern parts of both coastal plains as well as the Yucatan Peninsula), have a yearly median temperature between 24°C and 28°C. Temperatures here remain high throughout the year, with only a 5°C difference between winter and summer median temperatures. Although low-lying areas north of the twentieth-fourth parallel are hot and humid during the summer, they generally have lower yearly temperature averages (from 20°C to 24°C) because of more moderate conditions during the winter.

Between 1,000 and 2,000 meters, one encounters yearly average temperatures between 16°C and 20°C. Towns and cities at this elevation south of the twenty-fourth parallel have relatively constant, pleasant temperatures throughout the year, whereas more northerly locations experience sizeable seasonal variations. Above 2,000 meters, temperatures drop as low as an average yearly range between 8°C and 12°C in the Cordillera Neovolcánica. At 2,300 meters, Mexico City has a yearly median temperature of 15°C with pleasant summers and mild winters. Average daily highs and lows for May, the warmest month, are 26°C and 12°C, and average daily highs and lows for January, the coldest month, are 19°C and 6°C.

Rainfall varies widely both by location and season. Arid or semiarid conditions are encountered in the Baja Peninsula, the northwestern state of Sonora, the northern altiplano, and significant portions of the southern altiplano. Rainfall in these

regions averages between 300 and 600 millimeters per year. Average rainfall totals are between 600 and 1,000 millimeters in most of the year in most of the major populated areas of the southern altiplano, including Mexico City and Guadalajara. Low-lying areas along the Gulf of Mexico receive in excess of 1,000 millimeters of rainfall in an average year, with the wettest region being the southeastern state of Tabasco, which typically receives approximately 2,000 millimeters of rainfall on an annual basis. Parts of the northern altiplano and high peaks in the Sierra Madre Occidental and the Sierra Madre Oriental occasionally receive significant snowfalls.

Mexico has pronounced wet and dry seasons. Most of the country experiences a rainy season from June to mid-October and significantly less rain during the remainder of the year. February and July generally are the driest and wettest months, respectively. Mexico City, for example, receives an average of only 5 millimeters of rain during February but more than 160 millimeters in July. Coastal areas, especially those along the Gulf of Mexico, experience the largest amounts of rain in September. Tabasco typically records more than 300 millimeters of rain during that month. A small coastal area of northwestern coastal Mexico around Tijuana has a Mediterranean climate with considerable coastal fog and a rainy season that occurs in winter.

Mexico lies squarely within the hurricane belt, and all regions of both coasts are susceptible to these storms from June through November. Hurricanes on the Pacific coast are less frequent and often less violent than those affecting Mexico's eastern coastline. Several hurricanes per year strike the Caribbean and Gulf of Mexico coastline, however, and these storms bring high winds, heavy rain, extensive damage, and occasional loss of life. Hurricane Hugo passed directly over Cancún in September 1989, with winds in excess of 200 kilometers per hour producing major damage to hotels in the resort area. In September 1988, Hurricane Gilbert struck northeast Mexico. Flooding from the heavy rain in that storm killed dozens in the Monterrey area and caused extensive damage to livestock and vegetable crops.

Environmental Conditions

Mexico faces significant environmental challenges affecting almost every section of the country. Vast expanses of southern and southeastern tropical forests have been denuded for

cattle-raising and agriculture. For example, tropical forests covered almost half of the state of Tabasco in 1940 but less than 10 percent by the late 1980s. During the same period, pastureland increased from 20 to 60 percent of the state's total area. Analysts reported similar conditions in other tropical sections of Mexico. Deforestation has contributed to serious levels of soil erosion nationwide. In 1985 the government classified almost 17 percent of all land as totally eroded, 31 percent in an accelerated state of erosion, and 38 percent demonstrating signs of incipient erosion.

Soil destruction is particularly pronounced in the north and northwest, with more than 60 percent of land considered in a total or accelerated state of erosion. Fragile because of its semi-arid and arid character, the soil of the region has become increasingly damaged through excessive cattle-raising and irrigation with waters containing high levels of salinity. The result is a mounting problem of desertification throughout the region.

Mexico's vast coastline faces a different, but no less difficult, series of environmental problems. For example, inadequately regulated petroleum exploitation in the Coatzacoalcos-Minatitlán zone in the Gulf of Mexico has caused serious damage to the waters and fisheries of Río Coatzacoalcos. The deadly explosion that racked a working-class neighborhood in Guadalajara in April 1992 serves as an appropriate symbol of environmental damage in Mexico. More than 1,000 barrels of gasoline seeped from a corroded Mexican Petroleum (Petróleos Mexicanos—Pemex) pipeline into the municipal sewer system, where it combined with gases and industrial residuals to produce a massive explosion that killed 190 persons and injured nearly 1,500 others.

Mexico City confronts authorities with perhaps their most daunting environmental challenge. Geography and extreme population levels have combined to produce one of the world's most polluted urban areas. Mexico City sits in a valley surrounded on three sides by mountains, which serve to trap contaminants produced by the metropolitan area's 15 million residents. One government study in the late 1980s determined that nearly 5 million tons of contaminants were emitted annually in the atmosphere, a tenfold increase over the previous decade. Carbons and hydrocarbons from the region's more than 3 million vehicles account for approximately 80 percent of these contaminants, with another 15 percent, primarily of

sulfur and nitrogen, coming from industrial plants. During the dry winter months, untreated fecal matter also becomes airborne. The resulting dangerous mix is responsible for a wide range of respiratory illnesses. One study of twelve urban areas worldwide in the mid-1980s concluded that the residents of Mexico City had the highest levels of lead and cadmium in their blood. The volume of pollutants from Mexico City has damaged the surrounding ecosystem as well. For example, wastewater from Mexico City that flows north and is used for irrigation in the state of Hidalgo has been linked to congenital birth defects and high levels of gastrointestinal diseases in that state.

Beginning in the mid-1980s, the government enacted numerous antipollution policies in Mexico City with varied degrees of success. Measures such as vehicle emissions inspections, the introduction of unleaded gasoline, and the installation of catalytic converters on new vehicles helped reduce pollution generated by trucks and buses. In contrast, one of the government's most prominent actions, the No Driving Day program, may have inadvertently contributed to higher pollution levels. Under the program, metropolitan area residents were prohibited from driving their vehicles one day each work week based on the last number of their license plate. However, those with the resources to do so purchased additional automobiles to use on the day their principal vehicle was prohibited from driving, thus adding to the region's vehicle stock. Thermal inversions reached such dangerous levels at various times in the mid-1990s that the government declared pollution emergencies, necessitating sharp temporary cutbacks in vehicle use and industrial production.

Population

The eleventh annual census, conducted in 1990, reported a total Mexican population of 81,250,000. This figure represented a 2.3 percent per annum growth rate from the 1980 census and indicated successful government efforts at slowing down the level of population increase. The government reported that the population stood at 91,158,000 at the end of 1995, a 1.8 percent increase over the previous year. Assuming that this most recent level of growth were maintained through the rest of the 1990s, Mexico's population would stand at approximately 100 million persons in the year 2000. A return to the higher 1980 to 1990 growth rate, however, would result

in a population total of approximately 102 million persons by the year 2000.

The pace of migration to the United States increased markedly during the 1980s. One analyst, Rodolfo Corona Vázquez, estimated that 4.4 million Mexicans resided outside the country (almost all in the United States) in 1990, roughly double the estimated number in 1980. Corona Vázquez also noted a changing pattern of emigration since the 1960s. Seven contiguous states in north central Mexico—Jalisco, Michoacán, Guanajuato, Zacatecas, Durango, San Luis Potosí, and Aguascalientes—accounted for approximately 70 percent of all emigrants in 1960, but only 42 percent in 1990. New important sources of emigration included Chihuahua in the northeast, the Federal District (the administrative unit that includes Mexico City), and the southernmost state of Oaxaca.

Notable variations exist in the country's population density (see fig. 4). Four states, three of them in the arid northwest, had fewer than ten persons per square kilometer in 1990, and another thirteen states, mostly in the north, had density levels between ten and fifty persons per square kilometer. By contrast, two states clustered near the capital had densities in excess of 200 persons per square kilometer. The rate in Mexico City itself was approximately 5,500 persons per square kilometer (see table 2, Appendix).

The state of Mexico and the Federal District accounted for over 22 percent of the national population in 1990. The state of Mexico's spectacular population growth (the state alone accounted for more than 12 percent of national totals) reflected the expansion of the Mexico City metropolitan area. Almost 69 percent of the state of Mexico's population resided in the twenty-seven municipalities that, together with the Federal District, comprise the Mexico City metropolitan area. More than 40 percent of state residents lived in four working-class municipalities—Nezahualcóyotl, Ecatepec, Naucalpán, and Tlalnepantla—that serve as bedroom communities for Mexico City.

During the course of its history, Mexico has experienced dramatic shifts in population. Demographers estimate that the country's population at the time of the Spanish conquest in the early 1500s was approximately 20 million. By 1600, however, barely 1 million remained—the result of deadly European diseases and brutal treatment of the indigenous inhabitants by the Spanish colonizers (see *New Spain*, ch. 1). At the onset of the

Mexican Revolution in 1910, Mexico's population stood at approximately 15 million persons. Not until 1940 did Mexico reach the population level it had in 1519.

Although the population growth between 1910 and 1940 appeared relatively modest in absolute numbers, the seeds were sown for a spectacular increase over the next thirty years. Because of advances in preventive medicine and the gradual control of diseases such as yellow fever, the crude death rate declined from 33.2 per 1,000 inhabitants in the period 1905 to 1910 to 23.4 in 1940 (see table 3, Appendix). As sanitation conditions improved in post-World War II Mexico, the crude death rate dropped sharply to 10.1 by 1970. At the same time, however, fertility rates (the number of children the average woman would bear from fifteen to forty-nine years of age) remained relatively stable. Because of the stable fertility rate and declining death rate, the population increased by 2.7 percent per annum between 1940 and 1950, by 3.1 percent per annum between 1950 and 1960, and by 3.4 percent per annum between 1960 and 1970. By 1970 Mexico's population stood at approximately 48.2 million persons, almost two and one-half times its pre-World War II number. Demographers in 1970 ominously forecast that the population would reach 125 million persons by the year 2000.

Shortly after assuming the presidency in 1976, José López Portillo y Pacheco (1976–82) adopted an aggressive national family planning program. This effort paid immediate dividends by reducing Mexico's fertility rate from 5.4 in 1976 to 4.6 in 1979. The family planning initiative produced a fundamental change in attitudes that continued and accelerated into the 1990s. Indeed, the government reported that the fertility rate had declined to 2.9 in 1993. This lower fertility rate produced a slightly older average population in 1990, compared with two decades earlier. In 1970, 46.2 percent of all Mexicans were younger than fifteen years of age, and 56.7 percent were under twenty years of age. By 1990, these numbers had dropped to 38.3 and 50.6 percent, respectively (see fig. 5).

Ethnicity and Language

Ethnicity is an important yet highly imprecise concept in contemporary Mexico. Students of Mexican society, as well as Mexicans themselves, identify two broad ethnic groups based on cultural rather than racial differences: mestizos and Indians. Each group has a distinct cultural viewpoint and perceives



Source: Based on information from Mexico, National Institute of Statistics, Geography, and Informatics, *Estados Unidos Mexicanos: Resumen general. XI censo general de población y vivienda, 1990*, Aguascalientes, 1992, 13.

Figure 4. Population Density by State, 1990

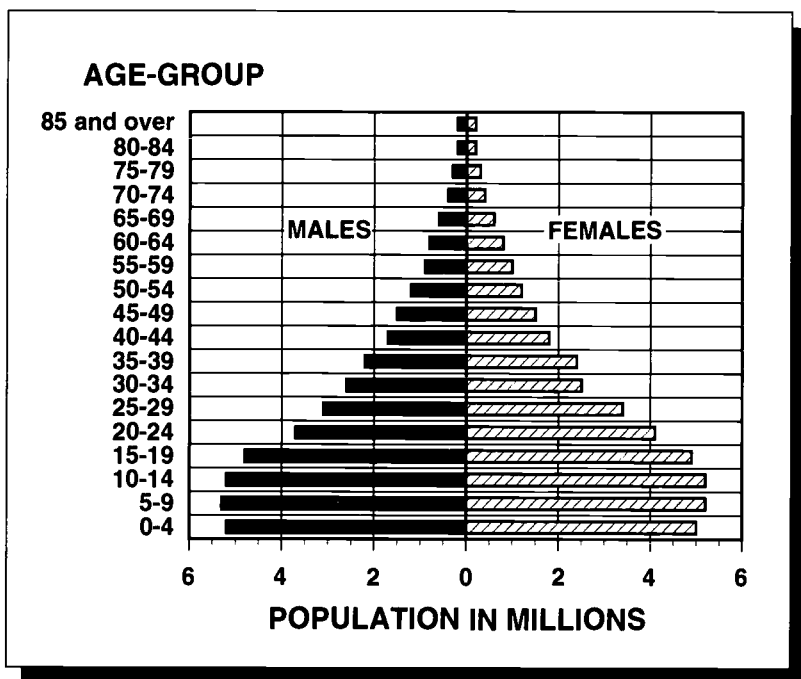
itself as different from the other. At the same time, however, group allegiances may change, making measurement of ethnic composition problematic at best.

Originally racial designators, the terms *mestizo* and *Indian* have lost almost all of their previous racial connotation and are now used entirely to designate cultural groups. Historically, the term *mestizo* described someone with mixed European and indigenous heritage. Mestizos occupied a middle social stratum between whites and pure-blooded indigenous people (see Socioeconomic Structures, ch. 1). Whites themselves were divided into *criollo* (those born in the New World) and *peninsular* (those born in Spain) subgroups. In contemporary usage, however, the word *mestizo* refers to anyone who has adopted Mexican Hispanic culture. Seen in this cultural context, both those with a solely European background and those with a mixed European-indigenous background are automatically referred to as mestizos. *Mestizo*, then, has become a synonym for culturally Mexican, much as *ladino* is used in many Latin American countries for those who are culturally Hispanic. Members of indigenous groups also may be called (and may call themselves) mestizos if they have the dominant Hispanic societal cultural values.

If an indigenous person can become a mestizo, who, then, is an Indian? Anthropologist Alan Sandstorm lists minimum criteria that compose a definition of Indian ethnicity. According to Sandstorm, an Indian is someone who identifies himself as such; chooses to use an indigenous language in daily speech; remains actively involved in village communal affairs; participates in religious ceremonies rooted in native American traditions; and attempts to achieve a harmony with, rather than control over, the social and natural worlds. Should one or more criteria become absent over time, the individual probably has begun the transition to becoming a mestizo.

Although mestizos and Indians may both reside in rural areas and have relatively comparable levels of income, they maintain different lives. Such differences can lead to highly negative perceptions about each other. Mestizos often contend that Indians are too unmotivated and constrained by tradition to deal appropriately with the demands of modern society. Indians, in turn, frequently complain that mestizos are aggressive, impatient, and disrespectful toward nature.

Given the cultural use of the terms, it would be unrealistic to expect Mexican census officials to count the number of mesti-



Source: Based on information from Mexico, National Institute of Statistics, Geography, and Informatics, *Mexico Today*, Aguascalientes, 1992, 25.

Figure 5. Population by Age and Gender, 1990

zos and Indians based on racial criteria. However, in measuring how many people speak an indigenous language, the census at least serves to identify a minimum number of racially unmixed Indians. In 1990, 7.5 percent of the Mexican population, or approximately 5.3 million people five years of age and over, spoke an Indian language. Of that total, approximately 79 percent knew Spanish as well and thus were at least potential cultural converts to the mestizo world.

Enormous statewide differences exist in familiarity with indigenous languages (see fig. 6). Roughly speaking, familiarity with indigenous languages increases from north to south. The latest census showed that almost no native speakers lived in a band of eight contiguous states stretching from Coahuila in the northeast to Jalisco and Colima along the north-central Pacific coast. Speakers of indigenous languages constituted less than 5 percent of the population in states in the far northwest and along a central belt of states from Michoacán in the west to

Tlaxcala in the east. The percentage climbed to between 10 and 20 percent in another contiguous grouping of states from San Luis Potosí to Guerrero, to 26 percent in Oaxaca, to 32 and 39 percent, respectively, in Quintana Roo and Chiapas, and to 44 percent in Yucatán. Only 63 percent of users of indigenous languages in Chiapas also knew Spanish.

Specialists have identified twelve distinct Mexican linguistic families, more than forty subgroups, and more than ninety individual languages. Nearly 23 percent of all native speakers speak Náhuatl, the language of the Aztec people and the only indigenous language found in fifteen states. Other major indigenous languages include Maya (spoken by approximately 14 percent of all Indians and primarily used in the southeast from the Yucatan Peninsula to Chiapas); Zapotec (spoken by approximately 7 percent of all Indians and largely used in the eastern part of Oaxaca); Mixtec (also spoken by approximately 7 percent of all Indians and primarily found in Oaxaca and Guerrero); Otomí (spoken by approximately 5 percent of all Indians and used in central Mexico, especially the states of México, Hidalgo, and Querétaro); Tzeltal (spoken by nearly 5 percent of all Indians and used in Chiapas); and Tzotzil (spoken by roughly 4 percent of the Indian population and also used in Chiapas). With twelve different Indian languages, Oaxaca has the nation's most diverse linguistic pattern.

Census data reveal that Indians remain the most marginalized sector of Mexican society. More than 40 percent of the Indian population fifteen years of age and older was illiterate in 1990, roughly three times the national rate. Thirty percent of Indian children between six and fourteen years of age did not attend school. Indians also had significantly higher morbidity and mortality rates associated with infectious and parasitic illness, higher levels of nutritional deficiencies, and less access to such basic services as indoor plumbing, piped water, and electricity.

Income Distribution

In the mid-1990s, Mexico had a highly inequitable distribution of income, a pattern that, according to government statistics, became particularly skewed during the economic crisis of the 1980s. The country's continuing inability to create sufficient employment opportunities for its labor force has produced high levels of unemployment and underemployment and has required aggressive survival strategies among Mexico's

poor. Such strategies include sending more family members, even children, into the labor market and reducing consumption of basic commodities.

The 1990 census reported a total national workforce of 24.3 million people. Although population growth slowed to around 2 percent per annum in the early and mid-1990s, analysts estimated that the workforce expanded by up to 4 percent per annum over the same period. Workforce expansion is expected to remain at these rates through the late 1990s, as those born during the peak fertility years of 1970–76 come of age. Thus, Mexico will need approximately 1 million new jobs each year through the remainder of the 1990s to provide work for persons entering the job market. During the early 1990s, however, net job growth was believed to have been less than 500,000 per annum.

Approximately 10 percent of all Mexicans can be characterized as belonging to the upper- and upper-middle-income sectors, consisting of the nation's business executives and government leaders. Upper-income Mexicans are both highly urbanized and well educated. Government surveys of household income revealed that these groups absorbed an increasing share of wealth during the 1980s. The top 10 percent of the population accounted for 33 percent of all income in 1984 and 38 percent in 1992.

The middle sector comprises approximately 30 percent of the nation. Like its upper-income counterparts, this sector is largely urban and has educational levels superior to the national average. It consists of professionals, mid-level government and private-sector employees, office workers, shopkeepers, and other nonmanual workers. The middle-sector share of overall income declined from 39 percent in 1984 to 36 percent in 1992. Inflation seriously eroded the purchasing power of the middle class during that period, causing many to modify their buying habits and to withdraw from private education and health care systems.

The remaining 60 percent of Mexicans make up the lower sector, itself a heterogeneous group of industrial workers, informal-sector employees, and peasants. Of these, industrial workers have the most favored situation, reflecting both their higher wage scale and membership in the health care system and retirement or disability programs of the Mexican Institute of Social Security (Instituto Mexicano del Seguro Social—IMSS) (see Health and Social Security, this ch.). However,



Source: Based on information from Mexico, National Institute of Statistics, Geography, and Informatics, *Estados Unidos Mexicanos: Resumen general. XI censo general de población y vivienda, 1990*, Aguascalientes, 1992, 42–55.

Figure 6. Population (Five Years of Age and Older) Speaking Indigenous Languages by State, 1990

industrial workers also experienced a decline in purchasing power and share of national income during the 1980s. Overall, the bottom 60 percent of the population saw its share of total income fall from 29 percent in 1984 to 26 percent in 1992.

Analysts estimate that the informal sector of the economy represents from 30 to 40 percent of the urban workforce in the mid-1990s. Informal-sector workers are self-employed or work in small firms (during 1993, businesses with one to five employees accounted for 42 percent of the urban workforce). They face considerable job instability, and, unlike those in the formal sector, are effectively excluded from IMSS benefits. The informal sector includes street vendors, domestic servants, pieceworkers in small establishments, and most construction workers.

During the early 1990s, Mexico reported unemployment rates of between 3 and 4 percent. These rates, based on surveys of conditions in Mexico's three dozen largest cities, excluded those who had ceased looking for work over the previous two months, as well as those working only a few hours per week. A much more accurate government measure of unemployment and underemployment includes both the unemployed and those who work less than thirty-five hours per week. This level of urban partial employment and unemployment stood at around 20 percent during the early 1990s. The government does not measure rural unemployment or underemployment, where rates are regarded by analysts as significantly higher than those found in urban Mexico.

According to government statistics, the vast majority of urban workers in the early 1990s earned less than US\$15 per day. Minimum wage rates vary according to region and are adjusted every January to account for inflation. If inflation rates are high, labor groups can ask the regulatory committee, the Tripartite National Minimum Wage Commission, to consider an additional raise during the year. In December 1995 in Mexico City, the daily minimum wage stood at 20.15 new pesos, or US\$2.70 (for value of new peso—see Glossary). In 1993 the government reported that 10 percent of workers earned less than the minimum wage, 34.7 percent made between one and two times the minimum wage, and 36.5 percent received between two and five times the minimum wage.

Government surveys of household income in 1984 and 1989 revealed a worsening pattern of income distribution. As noted by economist Rodolfo de la Torre, the poorest 30 percent of

the population had only 9 percent of total national income in 1984, a figure that had dropped to 8.1 percent in the 1989 survey. The poorest half saw its share of income drop from 20.8 percent in 1984 to 18.8 percent in 1989. The middle 30 percent of the population controlled 29.7 percent of the total income in 1984 but only 27 percent in 1989. In contrast, the wealthiest 20 percent received 49.5 percent of all income in 1984 and 53.6 percent in 1989. Income for the top 10 percent alone increased from 32.8 percent in 1984 to 37.9 percent five years later.

Throughout 1995 Mexico experienced a sharp economic contraction. Observers estimated that approximately 1 million jobs were lost during this period. Official unemployment rates skyrocketed to more than 6 percent for the year. Interest rates also rose sharply in the wake of several currency devaluations. Millions of Mexicans with adjustable-rate mortgages or substantial credit-card debt were particularly hard hit. Analysts suggested that the events of 1995 may have contributed to a further skewing of income distribution, with the wealthiest Mexicans more able to weather the economic storm because their capital often resided abroad.

Structure of Society

Social Indicators

In the early 1990s, Mexico reported substantial improvement in overall living conditions compared with the previous twenty years. The 1990 census demonstrated expanded access to basic public services such as running water and indoor plumbing. It also revealed, however, that Mexicans had not shared equally in these improvements, with southern Mexico consistently lagging behind the rest of the nation in quality-of-life indicators. In addition, rural living conditions countrywide paled in comparison to those found in urban areas.

According to the 1990 census, 79.4 percent of all Mexican households had access to running water, a notable improvement from the 61 percent and 70.3 percent rates recorded in 1970 and 1980, respectively. Significantly, however, access to running water did not necessarily mean indoor plumbing. Indeed, a household whose residents obtained water from a piped system elsewhere on the property or from a public faucet were considered to have access to running water. In addition, the census did not measure the quality or quantity of piped

water. Many lower-class communities had access only to untreated running water, and even that for only a portion of each day.

Even using the broad definition of access to running water, wide variations emerged. Four states in southern Mexico—Chiapas, Oaxaca, Guerrero, and Tabasco—reported access levels below the 1970 national average. Access to running water was especially low in rural communities. Only 48.1 percent of all communal farming communities or *ejidos* (see Glossary) nationwide reported access in 1988, with levels below 30 percent for *ejidos* in Veracruz and Yucatán, and below 40 percent for *ejidos* in Chiapas, San Luis Potosí, Tabasco, and Tamaulipas (see Rural Society, this ch.).

Similar variations also were evident in a number of other social indicators. Nationally, 63.6 percent of all households had indoor plumbing in 1990, as compared with 41.4 percent and 50.7 percent in 1970 and 1980, respectively. However, indoor plumbing rates ranged from more than 90 percent in Mexico City to less than 40 percent in Oaxaca and Chiapas. National household access to electricity climbed from 58.9 percent in 1970 to 74.4 percent in 1980 and to 87.5 percent in 1990. Yet although Aguascalientes, Nuevo León, and Mexico City reported rates exceeding 95 percent in 1990, less than 70 percent of all Chiapas households had electricity. Only 68.3 percent of all *ejido* communities had electricity in 1988, with rates below 60 percent for *ejidos* in Chiapas, San Luis Potosí, Veracruz, and Yucatán, and below 50 percent for *ejidos* in Chihuahua.

Finally, 19.5 percent of all households had dirt flooring in 1990, a notable improvement from the 41.1 percent average in 1970 and the 25.8 percent average in 1980. Again, however, jurisdictions reported enormous disparities. Although Mexico City and five northern states—Aguascalientes, Baja California, Coahuila, Chihuahua, and Nuevo León—had levels below 10 percent, more than 40 percent of all households in the southern states of Chiapas and Guerrero and more than 50 percent of all households in Oaxaca had dirt floors.

Social Spending

Analysts have offered widely varied assessments of the magnitude of poverty in Mexico. The United Nations Economic Commission for Latin America and the Caribbean estimated in 1989 that 39 percent of all Mexican households were in pov-

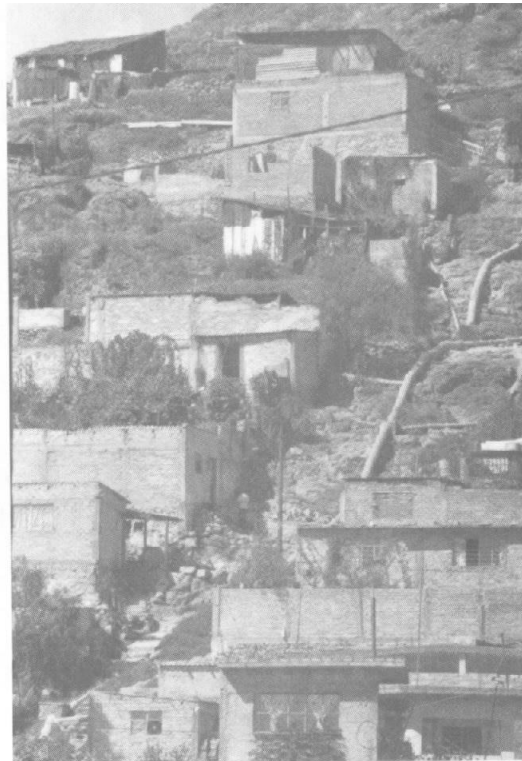
erty, including 14 percent in extreme poverty (indigence). The National Solidarity Program (Programa Nacional de Solidaridad—Pronasol) reported that 51 percent of the population in 1987 fell below the poverty line, of which 21 percent were extremely poor. Mexican author Julieta Campos asserted that approximately 60 percent of all Mexicans in 1988 were poor, including 25 percent indigent.

Despite these numerical differences, analysts generally agree on basic trends and characteristics. First, poverty levels declined in the 1960s and 1970s but escalated in the wake of the economic crisis that began in 1982 and continued for most of that decade. For example, Pronasol estimated that poverty levels declined from 76 percent in 1960 to 54 percent in 1977 and to 45 percent in 1981 before substantially increasing over the next six years. Second, indigence has its roots in the rampant economic problems of the countryside. Economist Santiago Levy estimated that approximately three-quarters of all rural residents in the late 1980s were extremely poor. In addition, the urban poor often have migrated from the countryside in search of opportunities for themselves and their families. Third, the indigent often suffer from nutritional deficiencies and other health maladies that contribute to lower life expectancy than the population as a whole. Finally, those in extreme poverty have larger families; children are expected to work to help support the household.

Mexican governments over the years have introduced numerous antipoverty initiatives, with varying degrees of success. In 1977 the López Portillo administration established the General Coordination of the National Plan for Depressed Zones and Marginal Groups (Coordinación General del Plan Nacional de Zonas Deprimidas y Grupos Marginales—Coplamar). An umbrella organization, Coplamar developed linkages with numerous existing government agencies for improvements in health care, education, and other basic infrastructure. For example, approximately 2,000 rural health clinics were built under the auspices of IMSS-Coplamar. The National Company of Popular Subsistence (Compañía Nacional de Subsistencias Populares—Conasupo)-Coplamar established thousands of stores that sold basic products to low-income families at subsidized prices. Although many of its programs were reduced or eliminated after 1982, Coplamar contributed to a noteworthy, although temporary, reduction in poverty.



*Modern apartment complex in
Mexico City
Courtesy Arturo Salinas*



*Substandard housing on outskirts of
Mexico City
Courtesy Arturo Salinas*

In his November 1993 State of the Nation address, President Salinas announced that government spending on social projects had risen 85 percent in real terms between 1989 and 1993. Spending for education rose 90 percent; for health, 79 percent; and for environment, urban development, and distribution of drinking water, 65 percent. Much of that social spending was channeled through Pronasol, an umbrella organization established by Salinas in December 1988 to promote improved health, education, nutrition, housing, employment, infrastructure, and other productive projects to benefit those living in extreme poverty.

Salinas claimed that Pronasol marked a departure from previous policies of broad subsidies, high levels of unfocused government spending, and heavy state intervention in the economy. According to Denise Dresser, it advanced President Salinas's goal of adapting the state's traditional social role to the straitened economic conditions of the late 1980s and early 1990s by replacing general subsidies with strategic, targeted intervention. Salinas designed Pronasol to achieve the dual objectives of making social spending more cost-effective and fostering greater community involvement and initiative in local development projects. The main themes of Pronasol included grassroots participation and minimum bureaucracy (both of which are essential for project success) and the promise of immediate results. The federal government provided financing and raw materials for improving basic community services, although community members were required to conceive the projects and perform the work.

Approximately 250,000 grassroots Pronasol committees designed projects in collaboration with government staff to address community needs. They mobilized and organized community members, evaluated proposed public works, and supervised implementation. The government disbursed funds to the committees to finance the public works projects or to complement regional development programs, which fell within three strategic areas: social services, production, and regional development. Committees obtained matching funds from state and municipal governments in order to qualify for Pronasol funds. This match served to multiply the economic scale and the potential positive impact of the program.

Pronasol's social service aspect, Solidarity for Social Well-being (*Solidaridad para el Bienestar Social*), contained a wide range of programs that included education, health care, water,

sewerage, and electrification projects; urbanization improvements; and low-income housing. Over a six-year span, Pronasol created some 80,000 new classrooms and workshops and renovated 120,000 schools; awarded scholarships to keep nearly 1.2 million indigent children in primary schools; established more than 300 hospitals, 4,000 health centers, and some 1,000 rural medical units; provided piped water access for approximately 16 million people; and provided materials to repair or reinforce 500,000 low-income homes and build nearly 200,000 new homes. Solidarity for Production (*Solidaridad para la Producción*) provided loans to approximately 1 million peasants who did not qualify for government or private credits, established 2,000 low-income credit unions, and supported some 250,000 low-income coffee producers (80 percent of them Indians) and nearly 400,000 agricultural day laborers (*jornaleros*). Solidarity for Regional Development (*Solidaridad para el Desarrollo Regional*) funded the construction or renovation of 200,000 kilometers of roads and more than 100,000 municipal improvement projects.

Despite these achievements, critics contended that Pronasol was merely a politicized repackaging of traditional welfare and public works projects that ameliorated but did not address the root causes of poverty in Mexico. In the view of these critics, Pronasol's *raison d'être* was to enable Salinas and his supporters to build new political linkages with autonomous low-income interest groups, thereby revitalizing the Institutional Revolutionary Party (*Partido Revolucionario Institucional*—PRI) for future elections. Despite Pronasol's stated purpose, critics also maintained that resources often did not reach those in extreme poverty. In 1995 President Ernesto Zedillo restructured Pronasol as the Alliance for Well-being (*Alianza para el Bienestar*), strengthening the resource allocation roles of states and municipalities and reducing those of the presidency.

Urban Society

At the beginning of the twentieth century, only 10.5 percent of the national population lived in localities with more than 15,000 residents. A slow but steady increase of such urban communities occurred over the next four decades, accounting for 20 percent of the country's total population in 1940. They climbed rapidly to 27.9 percent in 1950, 36.5 percent in 1960, 44.7 percent in 1970, 51.8 percent in 1980, and 57.4 percent in

1990. An estimated 71 percent of all Mexicans lived in communities of at least 2,500 residents in 1990.

Three cities—Mexico City, Guadalajara, and Monterrey—dominated the urban landscape in the mid-1990s. Their metropolitan areas accounted for about one-fourth of the nation's population and more than 40 percent of the total urban population. Nonetheless, the highest growth rates between 1970 and 1990 occurred in cities containing populations ranging from 100,000 to 1 million. Roughly 23 percent of the nation resided in Mexico's fifty-six mid-level cities in 1990.

With 15 million residents reported in the 1990 census, the Mexico City metropolitan area alone contained 18.5 percent of the total national population. However, the metropolitan area expanded only 5.8 percent from 1980 to 1990, far below the 2.3 percent per annum national population growth rate over the same period. The population of Mexico City itself declined from 9.2 million in 1980 to 8.2 million in 1990, a 10.9 percent reduction. This decline probably reflected both dislocations experienced by low-income, center-city residents following the 1985 earthquake and contracting employment opportunities during the economic crisis of the 1980s. However, one analyst, Alfonso X. Iracheta Cenecorta, contends that Mexico City should be viewed not as a single metropolitan area but rather as an emerging megalopolis also incorporating the cities and surrounding environs of Puebla, Toluca, and Cuernavaca. Seen from this perspective, the region continued to grow during the 1980s, and included slightly more than 17 million people in 1990.

To relieve the strains of rapid growth on Mexico's largest cities, the Salinas administration encouraged businesses and government agencies to move their operations from the major metropolitan areas to mid-level cities. During the 1980s, mid-level cities experienced the nation's highest growth rates. Several cities in northern Mexico, especially along the border with the United States, were particularly dynamic during this period. They included Torreón, Tijuana, Mexicali, Matamoros, and Ciudad Juárez. Other rapidly expanding cities included Cuernavaca and Jalapa near the capital, and Tampico and Coatzacoalcos on the Gulf of Mexico coast.

The dramatic growth of cities over the past forty years has seriously taxed the nation's ability to build urban infrastructure, especially housing. Adequate and affordable housing emerged as a paramount concern of low-income residents after

1940. Prior to that time, most urban poor lived in center-city rental units. Real estate investors frequently converted deteriorating colonial structures into *vecindades* (sing., *vecindad*). A *vecindad* typically consists of a large number of rented rooms constructed around an interior open area. Residents share kitchen and bathroom facilities, often of marginal quality. Following institution of rent control by the government during World War II, investors often abandoned the *vecindad* market, depleting an already poor housing stock.

Government efforts to address the urban housing shortfall after World War II generally proved inadequate. During the 1950s and 1960s, the government financed some housing units in major metropolitan areas, the largest of which—the Nonoalco-Tlatelolco housing complex in northern Mexico City—contained nearly 12,000 units.

However, public employees were the principal beneficiaries of government housing programs. During the administration of Luis Echeverría Álvarez (1970–76), the government took a more active role in fostering formal- and informal-sector housing. Three funds were established in 1972: the Institute of the National Housing Fund for Workers (Instituto del Fondo Nacional de la Vivienda para los Trabajadores—Infonavit); the Housing Fund of the Institute of Social Security and Services for State Workers (Fondo para la Vivienda del Instituto de Servicios y Seguridad Social de los Trabajadores del Estado—Fovissste); and the National Institute for Community Development (Instituto Nacional para el Desarrollo de la Comunidad—Indeco). These funds were designed to meet the needs of private-sector formal workers, state employees, and informal-sector workers, respectively. Of the three funds, Infonavit was the most extensive, with nearly 900,000 units financed over a twenty-year period. Still, demand far exceeded supply and a lottery system was used to determine occupancy. In addition, most workers could not afford the monthly payments required.

For the majority of the urban lower class, so-called self-help housing has emerged as the only viable option. A self-help housing community typically begins with the purchase by investors of large tracts of contiguous land on the periphery of urban areas. In some cases, these transactions involve illegal purchases of *ejido* properties of dubious agricultural worth. Whether *ejido* or not, however, the tracts usually consist of marginal lands ill-suited for middle- and upper-class residential developments or for industrial purposes. Investors subdivide

the land into numerous lots and sell them to low-income families, who then build modest brick structures, often with only single large rooms. Ostensibly, investors cannot sell lots until they have installed water and sewer lines, paved streets, and completed other basic infrastructure. Frequently, however, investors do little more than mark the lots for sale. Because a large land tract may contain thousands of potential lots, investors often realize enormous profits.

Nezahualc6yotl, Mexico's quintessential self-help housing community, burst onto the national scene during the 1960s. During the late 1950s, a group of investors purchased more than sixty square kilometers of land east of Mexico City in an area in the state of M6xico just outside the Federal District. The land in question, a dried lakebed, flooded during the rainy season and was prone to dust storms during the dry season. Nonetheless, investors created 160,000 low-income housing lots. By 1970 Nezahualc6yotl contained nearly 700,000 residents, but there were few public services.

Local governments have varied widely in the degree of support extended to self-help housing developments. Although the Federal District blocked most self-help housing after the early 1950s, the neighboring state of M6xico actively encouraged the development of communities such as Nezahualc6yotl, in effect serving as a safety valve for Mexico City. Likewise, Guadalajara generally has endorsed such development as an appropriate response to the housing needs of the urban poor. By contrast, Monterrey and a number of other cities in northern Mexico have opposed self-help communities, a decision that has sparked frequent squatter invasions of *ejido* land. Local authorities sometimes have used force to dislodge the invaders, but often have tacitly allowed the new communities to remain.

Despite obvious problems, self-help housing has addressed numerous important and cross-cutting social issues. These communities substantially increase the housing stock available to low-income urban residents. As sociologists Alan Gilbert and Peter Ward have observed, without self-help construction, the government either would have to expend many more resources on housing projects or raise wages to enable the poor to compete in the formal housing market. By forcing people to build their own homes, the government has been able to preserve funds to underwrite industrial development. Self-help housing also allows lower-income residents to become owners rather than renters. And as self-help communities mature and resi-



*Rush-hour traffic in Mexico City
Courtesy Inter-American Development Bank
Street scene in downtown Guadalajara
Courtesy Rodolfo García*

dents add to initial structures, renters (typically poorer, younger, and more recently arrived in the city than owners) have housing options other than *vecindades*.

Even including self-help construction, however, Mexico faced a severe housing crisis in the mid-1990s. The Zedillo administration reported in 1995 that more than 25 percent of the 17.8 million houses needed to be repaired or replaced. Because two-thirds of the population are under thirty years of age, analysts project sharp increases in demand for new housing over the next two decades.

Rural Society

Nearly eighty years after enactment, agrarian reform remains at once one of the Mexican Revolution's most impressive accomplishments and enduring failures. At the onset of the revolution, huge haciendas controlled almost all agricultural land. By 1991 agrarian reform beneficiaries (and their heirs) held about half of all national land. More than 3.5 million campesinos live and work in nearly 30,000 communities formed as a direct result of various agrarian reform initiatives. At the same time, however, most campesinos hold marginal *parcelas* (individual plots) that cannot meet the subsistence needs of their families. These campesinos, as well as those with no land at all, have to work periodically for large landowners or agribusinesses, migrate seasonally to the United States, or take a variety of other actions to survive.

The Agrarian Reform Act of 1915 and the constitution of 1917 laid the groundwork for dramatic changes in Mexico's land tenure system. These documents established that the nation retained ultimate control over privately held land, which could be expropriated and redistributed in the public interest to campesinos.

The *ejido*, or communally farmed plot, emerged as the uniquely Mexican form of redistributing large landholdings. Under this arrangement, a group of villagers could petition the government to seize private properties that exceeded certain specified sizes—initially 150 hectares for irrigated land and 200 hectares for rain-fed holdings. Assuming a favorable review of the petition, the government then expropriated the property and created an *ejido*. The state retained title to the land but granted the villagers, now known as *ejidatarios*, the right to farm the land, either in a collective manner or through the designation of individual *parcelas*. *Ejidatarios* could not sell or mortgage

their land but could pass usufruct rights to their heirs. *Ejidatarios* had to work their land regularly in order to maintain rights over it. In cases where villagers established that they had collectively farmed the land in question before its eventual consolidation into a hacienda, the government created an agrarian community (*comunidad agraria*). *Comuneros* (members of agrarian communities), who lived primarily in southern Mexico, had largely the same rights and responsibilities as *ejidatarios*.

Mexican administrations have varied widely in the importance accorded to the *ejido*. During the 1920s and early 1930s, policy makers typically viewed the *ejido* as a transitional system that would lead to small private farms nationwide. For example, President Plutarco Elías Calles (1924–28) described the *ejido* as a school from which *ejidatarios* eventually would graduate as private farmers. Given this perspective, policy makers encouraged *ejidos* to divide their lands into individual *parcelas*. In contrast, President Lázaro Cárdenas (1934–40) saw the *ejido* as an essential and permanent component of agricultural development, and he encouraged a collectivist organizational structure to maximize resources. During his six-year term, Cárdenas expropriated nearly 18 million hectares of privately owned land for redistribution as *ejidos*, more than double the total amount recorded since the revolution ended. The *ejido* share of total cultivable land increased from roughly 13 percent in 1930 to approximately 47 percent in 1940.

During the next three decades, the government favored large-scale commercial agriculture at the expense of the *ejido*. Federally funded irrigation projects in the states of Sonora and Sinaloa and in the agriculturally important Bajío region of Guanajuato and northern Michoacán were designed to enable large landowners to compete in the United States agricultural market. The government also narrowed the definition of private properties eligible for expropriation.

Upon assuming the presidency in 1970, Luis Echeverría Álvarez shifted government priorities back to the *ejido*. Espousing the same philosophy as Cárdenas three decades before, Echeverría felt that the *ejido* would play a leading role in meeting domestic food demand. Echeverría increased *ejido* holdings by some 17 million hectares, including the expropriation of rich irrigated lands in Sonora. Collectivized *ejidos* received preferential access to credit and farm equipment through government agencies such as the National Bank of Rural Credit (Banco Nacional de Crédito Rural—Banrural).

The Echeverría administration marked the last significant redistribution of landholdings. Echeverría's successor, López Portillo, distributed only about 1.8 million hectares to *ejidos*. Yet like Echeverría, López Portillo sought to channel government resources to *ejidos*. Following the discovery of vast petroleum reserves along Mexico's southeastern coast, López Portillo used oil profits to establish the Mexican Food System (Sistema Alimentario Mexicano—SAM), which sought to ensure national self-sufficiency in basic staples, such as corn and beans. López Portillo encouraged *ejidos* to play a major role in this effort and channeled petrodollars to agencies offering credit to *ejidatarios*. For many *ejidatarios*, however, credit merely generated increased debt and dependence on government bureaucracies without significantly improving their overall conditions. In the wake of the debt crisis that began in 1982, the administration of Miguel de la Madrid Hurtado (1982–88) abolished the SAM and cut agricultural funding by two-thirds.

Despite collectivist efforts of Echeverría and, to a much lesser extent, López Portillo, a national survey released at the beginning of the Salinas presidency revealed that approximately 88 percent of *ejidatarios* and *comuneros* farmed individual *parcelas*. (Government statistics did not differentiate between *ejidos* and agrarian communities.) The survey also indicated a notable differentiation between the 16 percent of *ejidos* and agrarian communities that had irrigated fields and the remainder that did not. The former reported significantly higher percentages in the use of improved seeds, pesticides, and fertilizers, as well as access to technical assistance. Sixty-five percent of all *ejidatarios* and *comuneros* indicated that they grew corn as their principal crop.

Mexico's post-1940 population explosion produced a continual subdivision of most *parcelas*, resulting in holdings that were below subsistence level. According to the 1981 agricultural census, nearly 31 percent of all *ejidatarios* held *parcelas* of two hectares or less, far below the amount of land required to support a family. Another 27 percent maintained holdings ranging from two to five hectares, with 38 percent farming *parcelas* of between five and twenty *hectares*. Less than 3 percent of *ejidatarios* held individual plots of between twenty and fifty hectares.

Data from the 1981 agricultural census on private landholding patterns revealed an even more stratified picture. Nearly 40 percent of all private (non-*ejido*) farmers held plots of two hectares or less, with an additional 17 percent working plots of

between two and five hectares. Together, these two groups had only 2 percent of the privately owned land area. In contrast, 2 percent of all landholders controlled nearly 63 percent of the privately owned land. Holdings exceeding 2,500 hectares were particularly in evidence in the north (especially in Chihuahua and Sonora) and in Chiapas.

With plots too small to support even a modest standard of living, farming has become a secondary source of income for most campesinos. Many worked as day laborers for large landholders. The 1981 agricultural census recorded approximately 3 million farm laborers, 60 percent of them temporary. *Ejidatarios*, in effect, form a cheap and available labor pool for commercial agriculture. These sectors are further linked through the illegal before 1992 but nevertheless widespread practice of renting *ejido* land. Although the government maintains no statistics on this activity, some observers estimate that up to half of the irrigated *ejido* lands in Sonora and Sinaloa and up to half of such holdings in the Bajío region of Guanajuato and southern Michoacán are rented. Regular migration to the United States also is an essential survival strategy for many campesinos, with remittances allowing many families to remain in the countryside. Many young campesinos spend the bulk of the year working in the United States, returning to their plots only during the planting and harvesting seasons. An unknown number of campesinos in isolated communities in southern and western Mexico also engage in narcotics trafficking.

In the 1970s, sociologist Rodolfo Stavenhagen and other scholars suggested that the *ejidatarios* were among Mexico's poorest and most exploited rural workers. Their productivity was low because of the poor quality of their land, the lack of timely technical assistance, and the unavailability of low-cost agricultural inputs. Yet the government's official policy historically has been to keep agricultural prices low in an effort to subsidize the urban population.

Ejidatarios remain highly dependent on the bureaucratic channels of both the state and the ruling PRI). All *ejidatarios* are automatically members of the peasant sector of the PRI; but owing to their lack of political experience, they become easily manipulated by professional "peasant" leaders in Mexico City, who are usually of middle-class backgrounds. Many *ejidatarios* look to the state as a modern *patrón* (traditional paternalistic landlord) who has the power to control prices, credit opportunities, and access to farm machinery and water rights

and who must be continuously courted and reminded of their pressing needs.

Confronted with the dysfunctional character of much of Mexican agriculture, the government in 1992 radically changed the *ejido* land tenure system, codifying some existing actions that were illegal but widely practiced and introducing several new features. Under the new law, an *ejido* can award its members individual titles to the land, not merely usufruct rights to their *parcelas*. *Ejidatarios* can, in turn, choose to rent, sell, or mortgage their properties. *Ejidatarios* do not need to work their lands to maintain ownership over them. They also may enter into partnerships with private entrepreneurs. The law also effectively ends the redistribution of land through government decree. Finally, the processing and resolution of land disputes are decentralized.

The government's perspective is that these new measures provide *ejidatarios* with more realistic and sensible options. A winnowing effect is anticipated, as some inefficient and marginal producers sell their properties to more efficient farmers. With property to mortgage, the more entrepreneurial *ejidatarios* have collateral that can be used to obtain private-sector credit. By removing the prospect of widespread government-directed land redistribution, owners will be more likely to invest resources to increase agricultural production. Government critics fear, however, that the revisions will increase landlessness and poverty among *ejidatarios* and solidify inequitable patterns of land distribution in states such as Chiapas.

As part of its overall agricultural program, the Salinas administration attempted to restructure Banrural as a more efficient and streamlined organization, limiting its scope to serving those *ejidatarios* with production capabilities. To assist more marginal producers in dealing with the agricultural transformation, Salinas established the Procampo program in 1993 as part of the Pronasol initiative. Procampo provided direct payments to farmers based on the size of their holdings. In 1995 President Zedillo shifted Procampo's operation to the newly created Alliance for the Countryside (*Alianza para el Campo*) and extended it for a fifteen-year period.

Interpersonal Relations

Interpersonal relations are more important in the functioning of Mexican society than impersonal, bureaucratic norms and regulations. *Parentela* (extended family) members, *compa-*

dres (godparents), *cuates* (very close buddies), and friends expect from one another various degrees of loyalty, material and spiritual assistance, emotional support, physical protection, and even flexibility in the enforcement of laws, norms, and regulations.

Primary ties are structured through blood descent, which is traced equally through the father's and mother's side. Every person is, therefore, a member of two family lines. The person's name, which often includes the matrilineal after the patrilineal, represents this arrangement.

One's *parentela* usually includes all the descendants of a great-grandparent or of a grandparent on both the father's and the mother's sides. Thus, it is fairly common for a person to claim having a dozen or more "uncles" and "aunts" and several dozen cousins. However, this same person can easily identify the several degrees of the specific type of relationships that exist within the family.

The Mexican household—that is, those family members who dwell under the same roof—differs from the North American household. Mexican households can include the parents' nuclear family as well as that of a married son or daughter and their young children. Living arrangements vary among the different kinds of households. In most cases in which two or more nuclear families share the same roof, each nuclear family keeps its separate budget and, often, a separate kitchen. After a few years of living with their parents, married children who opt for this arrangement often set up independent households. Other household members can include out-of-town relatives, fellow townsmen, and *arrimados* (literally "the leaned-on," that is, renters or "permanent guests").

Family membership presupposes an inalienable bond among first-, second-, third-, and fourth-generation relatives, a bond that is accompanied by a corresponding set of rights and obligations. Family members are expected to display affection openly and reciprocally, as well as provide each other material and moral support. The traditional family has the power to enforce these virtues through the exercise of pressure over its members and through a series of actions usually performed by its elder members. These include social pressure, manipulation, and gossip.

Despite the dramatic changes that have occurred in Mexican society since 1940, the family remains the most important social institution. Indeed, the economic crisis of the 1980s may

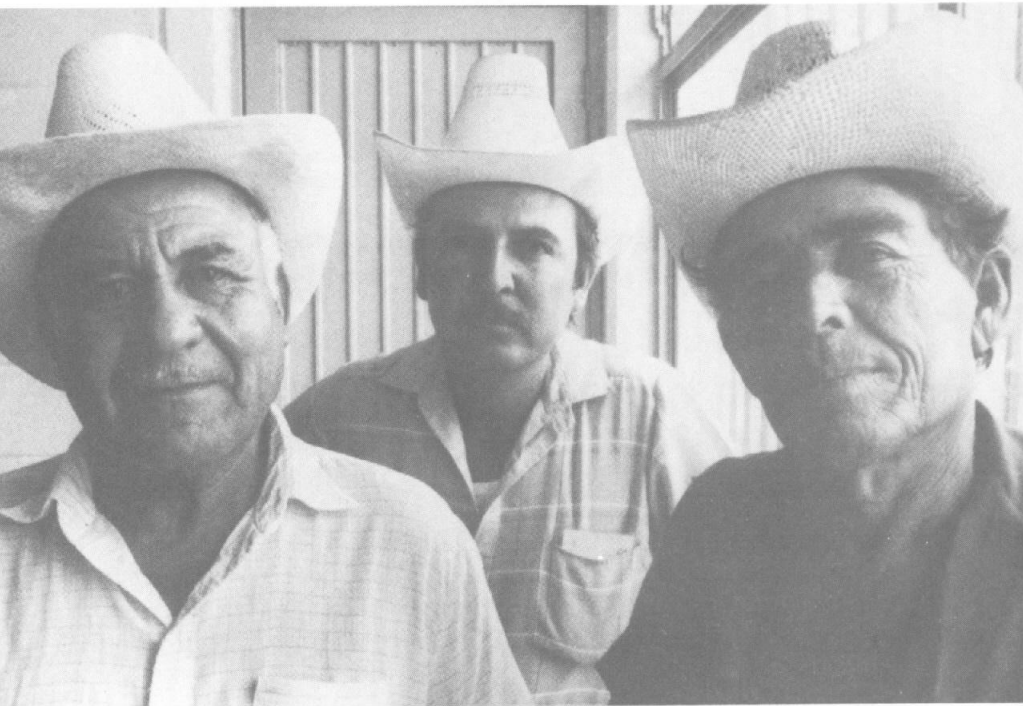
have enhanced its role as the place to turn when in need. A national opinion poll conducted in 1982 by the Center for Educational Studies confirmed the centrality of the Mexican family. The majority of those surveyed identified the family as the institution where they felt most secure and confident. Most viewed the family as the essential safety net providing help and protection. Economic survival often requires several family members to enter the workforce and pool their incomes. As noted previously, remittances from one or more children working in the United States allow many families to continue living in rural areas.

The critical role of the Mexican family was also confirmed in a 1995 national survey sponsored by the Institute of Social Research of the National Autonomous University of Mexico (Universidad Nacional Autónoma de México—UNAM). Respondents associated the family with such positive terms as love, household, children, and well-being. Respondents also identified rejection by one's family as a worse occurrence than injustice and abuse of authority, poverty, and work conflicts.

Although Mexicans generally hold their families in high esteem, such may not be the case with those outside the family web. Eighty percent of those interviewed by the Center for Educational Studies agreed that one should be cautious in relations outside the family. The center's analysts linked this low level of confidence and trust with a distinction most Mexicans made between their own moral codes and those of others. In general, Mexicans feel that they adhere to a much higher moral standard than do their neighbors. Thus, for example, 80 percent of those interviewed believed it important to honor one's parents. However, when asked if others felt the same way, only three out of ten agreed. As a result of the focus on one's family for trust and help, fewer than half of those surveyed reported membership in civic or social organizations.

Attitudes towards non-family members may be evolving, however, as Mexicans increasingly endorse the tenets of a modern and open society. The UNAM researchers found considerable evidence that Mexicans had become tolerant of others and supportive of cultural differences. Such attitudes are particularly prevalent among Mexican youth and those with higher educational and income levels.

For many families, however, *compadrazgo*, or the system of godparenting, offers a way to expand their support structure. A family initiates this ritual kinship network by inviting a man



Faces of Mexico
Courtesy Inter-American Development Bank

and woman to serve as godparents for a child. Through *compadrazgo*, the child's parents and godparents—now known as *compadres* (literally "co-fathers") and *comadres* ("co-mothers")—enter into a complex relationship of rights and obligations. Often, the relationship cuts across social classes. When in need, a family often turns to its children's godparents for assistance. For instance, an employer is expected to look first to his or her children's godparents when hiring additional workers. In exchange, the *compadrazgo* demands intense loyalty to the employer from the worker hired by that means.

"Permanent" social relations also are built through *cuatismo* among men and comparable associations of women. *Cuate* (from the Náhuatl word meaning twin brother) is used throughout Mexico to describe a special male friend or group of friends with whom one spends considerable leisure time and who can be trusted with intimate information. *Cuate* groups can include up to ten members who share common interests, who are bound by intense friendship and personal relations, and who commit themselves to assisting each other in case of need.

Role of Women

Beginning in the 1970s and over the next two decades, dramatic changes occurred in the role of women in the Mexican economy. In 1990 women represented 31 percent of the economically active population, double the percentage recorded twenty years earlier. The demographics of women in the workforce also changed during this period. In 1980 the typical female worker was under twenty-five years of age. Her participation in the workforce was usually transitional and would end following marriage or childbirth. After the 1970s, however, an emerging feminist movement made it more acceptable for educated Mexican women to pursue careers. In addition, the economic crisis of the 1980s required many married women to return to the job market to help supplement their husbands' income. About 70 percent of women workers in the mid-1990s were employed in the tertiary sector of the economy, usually at wages below those of men.

The growing presence of women in the workforce contributed to some changes in social attitudes, despite the prevalence of other more traditional attitudes. The UNAM 1995 national opinion survey, for example, found a growing acceptance that men and women should share in family responsibilities.

Approximately half of all respondents agreed that husbands and wives should jointly handle child-care duties and perform housekeeping chores. However, such views were strongly related to income and educational level. Low income and minimally educated respondents regarded household tasks as women's work. The UNAM responses correlated with the findings of Mercedes González de la Rocha, whose research focused on working-class households in Guadalajara. González de la Rocha reported that the members of these households held traditional norms and values regarding the roles of men and women. In addition, these women were often subjected to control, domination, and violence by men.

Observers noted that women generally were held to a stricter sexual code of conduct than men. Sexual activity outside of marriage was regarded as immoral for "decent" women but acceptable for men.

Religion

The 1980s and early 1990s witnessed a notable shift in religious affiliation and in church-state relations in Mexico. Although Mexico remains predominantly Roman Catholic, evangelical churches have dramatically expanded their membership. Motivated in part by the evangelical challenge, the leadership of the Roman Catholic Church has sought greater visibility, speaking out on sensitive public issues and ignoring constitutional bans on clerical involvement in politics. These actions ultimately led in 1992 to dramatic constitutional changes and a resumption of diplomatic relations with the Vatican.

The Roman Catholic share of the population declined steadily during the period from 1970 to 1990. In 1970, 96.2 percent of the population five years of age and older identified itself as Roman Catholic. That dropped to 92.6 percent of the population in the 1980 census and to 89.7 percent in 1990. The 1990 census revealed significant regional variations in numbers of Roman Catholics. Roman Catholics represented more than 95 percent of all Mexicans in a band of central-western states extending from Zacatecas to Michoacán. In contrast, the least Roman Catholic presence was found in the southeastern states of Chiapas, Campeche, Tabasco, and Quintana Roo.

Dozens of evangelical denominations have engaged in strong recruitment efforts since 1970. Protestant or "evangelical" affiliation—the terminology used by Mexican census offi-

cial—surged from 1.8 percent in 1970 to 3.3 percent in 1980 and to 4.9 percent in 1990. Traditional Protestant denominations, including Lutherans, Methodists, and Presbyterians, have had a small urban presence dating from the late 1800s. However, the Protestant membership explosion during the 1970–90 period was led by congregations affiliated with churches such as the Assemblies of God, the Seventh Day Adventists, the Church of Jesus Christ of Latter Day Saints (Mormons), and Jehovah's Witnesses. For example, the Mormons reported that membership surged from 248,000 in 1980 to 617,000 in 1990 and increased further to 688,000 by 1993.

Protestant or evangelical growth was especially strong in southeastern Mexico. In 1990 Protestants or evangelicals composed 16 percent of the population in Chiapas, 15 percent in Tabasco, 14 percent in Campeche, and 12 percent in Quintana Roo. Yet a significant evangelical presence also has appeared in several other areas, including the states of Veracruz and México, where more than 20 percent of all Protestants or evangelicals live.

Church-State Relations

The Roman Catholic Church's role in Mexican history goes back to 1519. When Hernán Cortés, the Spanish conqueror of New Spain, landed on the coast of Mexico, he was accompanied by Roman Catholic clergy. All new Spanish territories were to be conquered in the name of the cross as well as the crown. Since those early days, the Roman Catholic Church has always been present, playing different roles, some of which have led to violent confrontations.

The history of the relationship between church and state following independence involves a series of efforts on the part of the government to curtail the church's influence. Nineteenth-century liberals, trained in the law and influenced by the French Revolution, were anticlerical. Liberals, who also were federalist and favored free competition, were highly concerned that the Roman Catholic Church, by owning between one-quarter and one-half of the land and by controlling most schools, hospitals, and charitable institutions, was practically a state within the Mexican state.

Between 1833 and the early 1840s, the Mexican government produced various pieces of legislation to limit the power of the church. In 1833 the government adopted several anticlerical measures, including one providing for the secularization of



*Metropolitan Cathedral in downtown Mexico City
Courtesy Arturo Salinas*

education and another declaring that the payment of the ecclesiastical tithe was not a civil obligation.

The first major confrontation between the church and the state occurred during the presidency of Benito Juárez (1855–72). The 1855 Juárez Law drastically reduced traditional ecclesiastical privileges. On March 11, 1857, a new constitution was adopted that denied all ecclesiastical entities the right to own real estate and abolished most remaining ecclesiastical privileges. On July 12, 1857, Juárez confiscated all church properties, suppressed all religious orders, and empowered the state governors to designate what buildings could be used for religious services. Mexico's first religious civil war was fought between 1857 and 1860 in reaction to the legislation (see Civil War and the French Intervention, ch. 1).

The constitution of 1917 highlighted and institutionalized many of the nineteenth-century secular reforms. The new constitution included at least five articles that affected all religious groups, regardless of denomination. These articles, which remained in effect until 1992, appeared to preclude any national role for the Roman Catholic Church. Article 3 forbade churches from participating in primary and secondary educa-

tion. Article 5 prohibited the establishment of religious orders. Article 24 mandated that all religious ceremonies occur within church buildings. Article 27 gave the state ownership of all church buildings.

Article 130 contained the most extensive restrictions on the Roman Catholic Church. The article stated that the Roman Catholic Church lacks legal status; ecclesiastical marriages have no legal standing; state legislatures can determine the maximum number of clergy operating within their boundaries; and operation of church buildings requires explicit government authorization. Among the most contentious provisions of Article 130 was Section 9: "Neither in public nor private assembly, nor in acts of worship or religious propaganda shall the ministers of the religions ever have the right to criticize the basic laws of the country, of the authorities in particular or of the government in general; they shall have neither an active nor passive vote, nor the right to associate for political purposes."

Beginning in 1926 and continuing until the late 1930s, various federal and state administrations strenuously enforced these constitutional edicts and related laws. Their actions paved the way for the second Mexican religious war, the bloody Cristero Rebellion of 1926–29 in western Mexico (see *The Calles Presidency, 1924–28*, ch. 1). During this period, the governor of Sonora ordered all churches closed, officials in the state of Tabasco required priests to marry if they were to officiate at mass, and the Chihuahua government allowed only one priest to minister to the entire statewide Roman Catholic population.

Church-state conflict officially ended with the administration of Manuel Ávila Camacho (1940–46). With the notable exception of Article 130, Section 9, the government tacitly offered nonenforcement of key constitutional provisions in exchange for the Roman Catholic Church's cooperation in achieving social peace. Over the next four decades, enforcement of Article 130, Section 9, served the interests of both the government and the Roman Catholic Church. The constitutional restriction on ecclesiastical political participation enabled the state to limit the activities of a powerful competitor. It also permitted the Roman Catholic Church to sidestep controversial political issues and to concentrate on rebuilding its ecclesiastical structure and presence throughout the country.

By the early 1980s, however, this unspoken consensus supporting the legal status quo had eroded. The Roman Catholic Church regarded the constitution's anticlerical provisions, especially those governing ecclesiastical political activity, as anachronistic. It demanded the right to play a much more visible role in national affairs. At the same time, the church became increasingly outspoken in its criticism of government corruption. The Mexican bishops' Global Pastoral Plan for 1980–1982, for example, contained a highly critical assessment of the Mexican political system. According to the Roman Catholic hierarchy, democracy existed only in theory in Mexico. The ruling PRI monopolized power, producing apathy and frustration among citizens and judicial corruption. The principal worker and peasant unions were subject to political control. Peasants and Indians constituted an exploited, marginalized mass barely living at a subsistence level and subject to continual repression. During the mid-1980s, the bishops of Chihuahua and Ciudad Juárez assumed prominent roles in denouncing electoral fraud in northern Mexico. In the south, the bishops of San Cristóbal de las Casas and Tehuantepec frequently accused the government of human rights violations.

The Roman Catholic Church hierarchy has emphasized that its renewed interest in political affairs does not equate with church involvement in party activities. According to the Mexican episcopate, priests should be above all political parties and may not become political leaders. However, the church hierarchy also argues that priests have a moral responsibility to denounce actions that violate Christian morality.

The Salinas administration's 1991 proposal to remove all constitutional restrictions on the Roman Catholic Church, recommendations approved by the legislature the following year, allowed for a more realistic church-state relationship. At the same time, however, tensions remained in the relationship, particularly in southern Mexico in general and in Chiapas in particular. Local government and PRI officials and ranchers accused the Bishop of San Cristóbal de las Casas of having supported the rebellion that began in Chiapas in 1994, a charge that the bishop denied. Federal soldiers repeatedly searched diocesan churches in their pursuit of the rebels. The government also expelled foreign clergy who were accused of inciting violence and land seizures. In addition, the Vatican accused the San Cristóbal prelate of theological and pastoral distortions and named a coadjutor (successor) bishop for the diocese in

the mid-1990s. For their part, the rebels insisted that the bishop continue to serve as mediator in their negotiations with the federal government.

Popular Beliefs

Mexican Catholicism is extremely varied in practice. It ranges from those who support traditional folk religious practices, usually in isolated rural communities, to those who adhere to the highly intellectualized theology of liberation, and from charismatic renewal prayer groups to the conservative Opus Dei movement. Lay groups with different goals, purposes, and political orientations are well known and common in contemporary Mexico. The largest and best known include Mexican Catholic Action, Knights of Columbus, Christian Study Courses, Christian Family Movement, and a wide range of university students' and workers' organizations.

The Virgin of Guadalupe has long been a symbol enshrining the major aspirations of Mexican society. According to Roman Catholic belief, in December 1531, the Virgin Mary appeared on three occasions to a Christian Indian woodcutter named Juan Diego on the hill of Tepeyac, six kilometers north of Mexico City's main plaza. She spoke to him in the Náhuatl language and identified herself by the name of Guadalupe. The Virgin commanded Juan Diego to seek out Bishop Juan de Zumárraga and to inform him of her desire to have a church built in her honor on that spot. After two unsuccessful visits to the bishop's house, Juan Diego returned to Tepeyac and was ordered by the Virgin to pick up some roses, carry them on his cloak, and attempt to make a third visit to the skeptical bishop. Once in the bishop's office, Juan Diego unfolded his cloak to present the roses, and an image of a mestizo Virgin had been miraculously imprinted upon it. Bishop Zumárraga acknowledged the miracle, and a shrine was built on the site of the appearances.

Today, two neighboring basilicas of Our Lady of Guadalupe are at the foot of Tepeyac hill. The first basilica, which was dedicated in 1709 but now is closed to services, accommodated 2,000 worshipers; the new ultramodern basilica, inaugurated in October 1976, accommodates up to 20,000 people. Juan Diego's original cloak with the mestizo Virgin image imprinted on it hangs above the altar of the new basilica.

According to anthropologist Eric R. Wolf, the Guadalupe symbol links family, politics, and religion; the colonial past and

the independent present; and the Indian and the Mexican. It reflects the salient social relationships of Mexican life and embodies the emotions they generate. It is, ultimately, a way of talking about Mexico. Wolf's views are shared by Harvey L. Johnson of the University of Houston. For him, worship of the brown-skinned Virgin has resulted in the reconciliation of two opposing worlds, in the fusion of two religions, two traditions, and cultures. Devotion to Our Lady of Guadalupe remains strong even as other aspects of Mexican society have changed. The UNAM national opinion poll found, for example, that nine out of ten Mexicans continued to ask intercessions from the Virgin or a saint.

Education

Despite impressive gains in enrollment levels over the previous forty years, significant interrelated problems plague the Mexican education system in the early 1990s. Many primary- and secondary-school-age students, especially in rural areas, fail to complete their education programs. Instructional quality, as measured by student test scores, remains low. Although operation of all nonuniversity education was given to the states in 1993, the system continues to be overly centralized and subject to bureaucratic encumbrances. In addition, students are often poorly prepared to meet the challenges of a global economy.

Approximately 27 million students attended school at all levels during the 1995–96 instructional year, more than an eight-fold increase from the enrollment total recorded in 1950. The length of compulsory education was raised from six to nine years in 1992, but in practice this new law is largely ignored. Approximately 54 percent of all students attend a six-year primary-school program that, together with preschool, special education, and secondary school, constitute the basic education system. Children in nursery school or kindergarten accounted for 12 percent of matriculation at all levels in 1995–96. As the Mexican population gradually aged during the 1980s, the primary-school share of matriculation at all levels declined from 70 percent in 1980 and was projected to continue to fall through the year 2000 (see *Population*, this ch.; table 4, Appendix). Upon successful completion of primary school, students enter a three-year secondary-school program, or vocational-education program. Approximately 19 percent of all students in 1995–96 were in secondary school. Those gradu-

ating from secondary school can pursue mid-level education, either through a three-year college preparatory program—the *bachillerato*—or advanced technical training; this encompassed 10 percent of all students in 1995–96. Higher education consists of four-year college and university education—the *licenciatura*—and postgraduate training. Approximately 5 percent of all students in 1995–96 were in postsecondary institutions.

Higher education consists of three types: universities, technological colleges, and teacher-training institutes. There are private and public institutions of all three types, but public institutions are more numerous and usually larger, with over 80 percent of students attending public universities and colleges. Each state has at least one public university, often having campuses in different cities. The largest public university, the National Autonomous University of Mexico (Universidad Nacional Autónoma de México—UNAM) in Mexico City, has more than 100,000 students. Over ninety technological institutes had about 17 percent of the total higher education population in 1994. Teacher-training institutes are separate from general universities and generally offer a four-year curriculum. Universities in fourteen states offer postgraduate courses, and in 1991 over 28,000 students were enrolled in master's degree programs and 1,250 in doctoral studies. Most students pursuing graduate work, however, do so outside Mexico.

Students' access and retention remain critical concerns for educators. The government reported in 1989 that each year, 300,000 children who should be in first grade do not attend. An additional 880,000 students drop out of primary school annually, 500,000 of them in the first three grades. Nationally, in 1989 only 55 percent of students successfully completed their primary education, and graduation rates were only 10 percent in many rural areas. However, the government reported that in 1995 the national graduation rate reached 62 percent.

Approximately 15,000 schools—20 percent of the total—did not offer all six primary grades in 1989. In that year, 22 percent of all primary schools had only one teacher. The government could meet only 10 percent of potential demand for special education. Thirty percent of all secondary-school enrollers failed to complete the three-year curriculum. As a result, government education officials estimated that 20.2 million Mexicans had not completed primary education and another 16 million had not finished secondary school.

The disparity in educational opportunity is reflected in national literacy levels (see fig. 7). According to the 1990 census, 86.8 percent of all Mexicans fifteen years of age and older indicated that they could read and write. Two states in northern Mexico—Baja California and Nuevo León—reported literacy rates exceeding 95 percent, and several other northern states and Mexico City indicated levels between 90 and 95 percent. In contrast, Chiapas, Guerrero, and Oaxaca had literacy levels below 75 percent. National literacy rates improved slightly to 89 percent by 1995.

Besides issues of access and opportunity, observers expressed concern about the quality of instruction. Anecdotal evidence compiled from student test scores by one informed observer, Gilberto Guevara Niebla, pointed to low academic achievement in numerous subjects, including mathematics, languages, and geography. Observers also criticized the highly bureaucratic and centralized nature of Mexico's education system, which traditionally had been centralized. Until 1992 all primary schools, irrespective of regional distinctions, followed a uniform program of study. Fearing a potential loss of political influence, the powerful National Union of Education Workers (Sindicato Nacional de Trabajadores de la Educación—SNTE) strongly opposed efforts to decentralize curriculum and program management and retrain teachers. At the same time, however, the government has earmarked few resources to evaluate school system performance. The result, according to educators, is a system that stifles student creativity.

The deficiencies in the basic education system tend to carry over into public postsecondary education. Observers have identified numerous deficiencies, including faculty salaries, limited research opportunities, and inadequate instructional facilities and curricula. As a result, many employers increasingly look to private educational institutions to provide qualified professional staff.

Responding to these problems, the government established in 1992 the National Accord on the Modernization of Basic Education. Under the accord, the federal government transferred responsibility for primary schools' staff and funding to the states. The federal government, through the Secretariat of Public Education (Secretaría de Educación Pública—SEP), retains authority to establish national policies and to assist schools in poor districts. In addition, a revamped curriculum places renewed emphasis on basic skills, such as reading, writ-

ing, and mathematics. The states, for their part, have agreed to commit additional resources to improve teacher salaries and training.

Health Care and Social Security

In the early 1990s, Mexico showed clear signs of having entered a transitional stage in the health of its population. When compared with 1940 or even 1970, Mexico in the 1990s exhibited mortality patterns that more closely approximated those found in developed societies (see table 5, Appendix). Health officials have also reported substantial reductions in morbidity rates for several diseases typically prevalent in poorer countries.

At the same time, however, government officials recognize that this transition is, at best, incomplete. Diseases associated with unsanitary living conditions, minimal access to health care, or inadequate diet continue to affect those in the lowest economic strata. Reductions in government health care expenditures during the economic crisis of the 1980s slowed progress in several areas. In addition, persistent underreporting of diseases in rural areas masks the true dimension of the health care challenge.

Mexico's social security program provides health care to formal-sector workers and their families, some 50 percent of the national population in 1995. This figure represented a drop from the 56 percent coverage rate in 1992. The Mexican Institute of Social Security (Instituto Mexicano de Seguro Social—IMSS) covers approximately 80 percent of these beneficiaries (all employed in the private sector). The Institute of Security and Social Services for State Workers (Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado—ISSSTE) covers government workers and accounts for 17 percent of the beneficiaries. The Secretariat of National Defense (Secretaría de Defensa Nacional), the Secretariat of the Navy (Secretaría de Marina), and Mexican Petroleum (Petróleos Mexicanos—Pemex) have their own health programs, which cover military and naval personnel, and petroleum workers, respectively (see Personnel, ch. 5). A tripartite funding arrangement finances IMSS operations, with contributions from the employee, employer, and government. ISSSTE programs, as well as those offered by the military and Pemex, are financed through employee and government contributions.



Source: Based on information from Mexico, National Institute of Statistics, Geography and Informatics, *Estados Unidos Mexicanos: Resumen general. XI censo general de población y vivienda, 1990*, Aguascalientes, 1992, 103–7.

Figure 7. Literacy Level (Fifteen Years of Age and Older) by State, 1990

Those outside the social security network—the so-called “open population”—receive health care from a wide array of government agencies. Approximately one-third of the population is served by IMSS-Solidarity (IMSS-Solidaridad), the successor of IMSS-Coplamar (see *Structure of Society*, this ch.) IMSS-Solidarity is funded by general government revenues, although IMSS provides administrative direction. As part of President de la Madrid's decentralization effort and corresponding federal budget reduction, the population served by IMSS-Coplamar in fourteen states was reassigned to state health agencies under the overall direction of the Secretariat of Health (Secretaría de Salud—SS). The SS also serves as coordinator of the National Health System, which includes the health programs offered by the social security agencies. In keeping with its commitment to a new federal partnership, the Zedillo administration announced that it would transfer facilities and operations of IMSS-Solidaridad and the SS to the states in 1996.

Social security beneficiaries had greater access to health care than did their counterparts among the open population. In 1995 the rates of doctors and hospital beds per 100,000 persons stood at 121 and ninety, respectively, for social security beneficiaries but only 105 and eighty, respectively, for the open population. Social security beneficiaries were also nearly twice as likely as the open population to have consulted a doctor during 1995 and twice as likely to have had surgery that year.

Notable regional disparities in health care are also evident. In 1983 the government surveyed health care access nationwide as measured by thirteen basic indicators, including medical facilities, prenatal consultation, medical attention to various illnesses, and vaccination programs. The Federal District and three northern and northwestern states—Coahuila, Colima, and Nuevo León—recorded levels exceeding eighty out of a possible 100 points. In contrast, Oaxaca, Chiapas, and Puebla in southern and central Mexico averaged between forty and fifty points. Guerrero in the southwest posted a score of only thirty-nine.

Mortality Patterns

In 1940 infectious, parasitic, and respiratory illnesses accounted for nearly 70 percent of all deaths in Mexico. Three decades later, these illnesses still produced more than half of all deaths. By 1990, however, their share of the overall mortality

level had dropped to around 20 percent. Cardiovascular illnesses, cancer, accidents, diabetes mellitus, and perinatal complications emerged as the top causes of death in 1990, a sharp change from the previous pattern. Yet despite the progress, health officials recognize the continuing serious threat posed by infectious, parasitic, and respiratory illnesses. Two such illnesses—pneumonia and influenza—and intestinal infections remained within the top ten causes of death in 1990. Among the twenty leading causes of death were such maladies as nutritional deficiencies, chronic bronchitis, measles, tuberculosis, anemia, and severe respiratory infections.

Government census data record a continuous and significant decline in infant mortality from 1930 to 1980 (see table 6, Appendix). The infant mortality rate stood at 145.6 deaths per 1,000 registered live births in 1930. It dropped to 96.2 by 1950, to 68.5 in 1970, and to 40.0 in 1990.

Wide regional variations in infant mortality levels persisted into the 1990s. The 1990 census indicated, for example, that infant mortality rates clustered around the mid-twenties in Baja California Norte, Baja California Sur, the Federal District, and Tamaulipas, and the mid-fifties in Oaxaca, Guerrero, Puebla, and Chiapas (see fig. 8). Even more dramatic variations could be found across municipalities. In general, the lowest levels appeared in highly urban municipalities, especially state capitals and metropolitan areas. In contrast, the highest rates typically were associated with remote, rural, and largely Indian communities.

Nationally, 52 percent of all recorded infant deaths in 1990 occurred during the postneonatal stage, when infants are most susceptible to infections and poor diet. Although perinatal complications accounted for 35 percent of all infant deaths in 1990, intestinal infections and influenza and pneumonia also remained important causes, representing 15 and 13 percent of infant deaths, respectively.

The government reported significant reductions between 1980 and 1990 in early childhood mortality. Early childhood mortality declined from 3.4 per 1,000 preschoolers in 1980 to 2.4 in 1990. Intestinal infections headed the list of causes of death, followed by measles, pneumonia and influenza, and nutritional deficiencies. Preliminary figures for 1991 suggested a sharp decline in early childhood mortality to 1.6 per 1,000 preschoolers. The 1991 figures pointed to notable statewide variations, with rates below one in Coahuila, Durango, Sinaloa,



Source: Based on information from Mexico, National Institute of Statistics, Geography, and Informatics, *Estados Unidos Mexicanos: Resumen general. XI censo general de población y vivienda, 1990*, Aguascalientes, 1992, 3.

Figure 8. Infant Mortality by State, 1990

Sonora, Tamaulipas, and the Federal District, and above three in Chiapas, Oaxaca, and Puebla.

Maternal mortality also declined over the same period, with rates falling from 9.4 deaths per 10,000 registered live births in 1980 to 5.4 in 1990, and to 5.1 in preliminary 1991 data. Baja California Sur reported no maternal deaths in 1991, with several, mostly northern states—Chihuahua, Coahuila, Durango, Jalisco, Nayarit, Nuevo León, Sinaloa, Tabasco, and Tamaulipas—indicating rates below three deaths per 10,000 registered live births. In sharp contrast stood Oaxaca, with a rate exceeding fourteen deaths per 10,000 registered live births.

Morbidity Patterns

Although infectious diarrhea and severe respiratory infections have declined significantly as causes of mortality, they remain major illnesses in the early 1990s. Reported cases of infectious diarrhea escalated dramatically from 1,661 per 100,000 residents in 1980 to 2,906 in 1990, and to 4,685 in 1991. During the same period, severe respiratory infections climbed from 3,334 cases per 100,000 residents in 1980 to 10,800 in 1990, and to 13,732 in 1991.

Mexican health officials reported substantial progress in relation to several illnesses controllable by vaccination. Pertussis declined from 122.6 cases per 100,000 residents in 1980 to 4.4 cases in 1990, to 1.3 cases in 1990, and to only 0.2 cases in 1991. Chiapas's rate in 1991 stood at ten times the national average, however. The total number of cases of poliomyelitis declined from 682 in 1980 to seven in 1990 and to zero in 1991. The government recorded only a single case of diphtheria in 1991. Measles epidemics continued to occur, with rates surging from 24.2 cases per 100,000 residents to 80.2 in 1990 before falling sharply to 5.9 in 1991. Even here, however, improvement over past decades could be noted because epidemics occurred only every four or five years as compared with the previous pattern of occurring every other year. Somewhat less progress was apparent in the campaign against tuberculosis, with rates declining from 16.1 cases per 100,000 residents in 1980 to 14.3 in 1990.

Vector-transmitted illnesses remain major public health challenges, especially in southern Mexico. Malaria increased dramatically from 36.9 cases per 100,000 residents in 1980 to 171.5 cases in 1985, before dropping to 31.1 in 1991. Chiapas, Oaxaca, Guerrero, Michoacán, and Sinaloa are priority areas

for government antimalarial campaigns. After not a single case of onchocerciasis was reported in 1980 and 1985, the disease reemerged in the late 1980s. Health officials identified 2,905 cases in 1987 and 1,238 cases in 1991, most of them in Oaxaca and Chiapas. In contrast, significant progress occurred in the reduction of dengue, with cases per 100,000 residents declining from 73.8 in 1980 to 6.9 in 1991. The disease is found along the Gulf of Mexico and Pacific coastal regions, the mouth of the Río Balsas, and central Chiapas.

Although most sexually transmitted diseases declined throughout the 1980s, acquired immune deficiency syndrome (AIDS) proved a glaring and deadly exception. Mexico reported its first cases of AIDS in 1983. Both the total number of cases and the ratio increased annually through 1993. In 1993 the government reported 5,095 new cases, or 5.4 cases per 100,000 residents.

Social Security

Mexico's social security agencies are financed through contributions from members, employers, and the government. In the mid-1990s, contributions averaged around 25 percent of members' salaries. Although informal-sector workers may subscribe to the IMSS, they are effectively prevented from doing so because they must pay not only their own share but that of their employers as well. Members are eligible for a wide array of benefits including pension, disability, and maternity coverage. A variety of other services are also available to all Mexicans, including theaters, vacation centers, funeral parlors, and day-care centers. Approximately 1.5 million Mexicans received monthly pensions in the mid-1990s, a higher figure than in previous decades, reflecting gains in average life expectancy.

An actuarial crisis is expected to threaten the fiscal solvency of the social security system by the early twenty-first century. Analyst Carmelo Mesa-Lago has noted numerous problems confronting the system, including rising administrative expenditures, redundant physical plants, the high costs of complex medical technology for IMSS's approximately 1,700 hospitals, and continual transfers of pension funds to cover deficits in disability and maternity programs. In early 1996, IMSS projected its first annual budget deficit. In December 1995, the legislature approved a plan to enhance the viability of social security by expanding its contributory base from the informal sector. In addition, Mexicans can establish privately operated individual

retirement accounts. That element of the plan, to take effect in January 1997, was also designed to increase domestic savings to finance future economic growth.

Despite impressive gains in the health care system during the second half of the twentieth century, Mexico's health care and education systems and, indeed, its entire society remain in a profound state of transition. The population of states in northern Mexico and many urban areas exhibits social indicators on a par with those of developed countries, whereas statistics for southern Mexico and most rural areas are comparable to those of the developing world. One of the key challenges for Mexico in the twenty-first century, therefore, will be to meet the needs of a rapidly expanding and urbanizing population while continuing to improve living conditions for the many disadvantaged segments of its society.

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The various publications of the government's National Institute of Statistics, Geography, and Informatics provide invaluable statistical data on Mexican society. Complete discussions of major environmental issues can be found in the edited work of Enrique Leff, *Medio ambiente y desarrollo en México*, and in *Población, recursos, y medio ambiente en México*, authored by Vicente Sánchez, Margarita Castillejos, and Lenora Rojas Bracho. Alan R. Sandstrom's *Corn Is Our Blood: Culture and Ethnic Identity in a Contemporary Aztec Indian Village* offers an excellent introduction to Indian values and attitudes. Alan Gilbert and Peter M. Ward's *Housing, the State and the Poor: Policy and Practice in Three Latin American Cities*, and Gilbert's edited volume, *Housing and Land in Urban Mexico*, comprehensively examine issues surrounding Mexico's self-help communities. Juan Manuel Ramírez Saiz's edited work, *Normas y prácticas morales y cívicas en la vida cotidiana*, provides a penetrating look at interpersonal relations in Mexico. On the same topic, the edited volume of Alberto Hernández Medina and Luis Narro Rodríguez, *Como somos los mexicanos*, presents rich statistical data of a national survey conducted by the Center for Educational Studies. Continuities and changes in Mexican attitudes in the mid-1990s are ably documented in the UNAM-sponsored *Los mexicanos de los noventa*. Gilberto Guevara Niebla's edited collection, *La catástrofe silenciosa*, is indispensable reading on the problems besetting the Mexican education system. *La salud en México: Tes-*

timonios 1988, edited by Guillermo Soberón, Jesús Kumate, and José Laguna, offers thorough coverage of Mexico's health care system. The Mexican government's internet home page, www.presidencia.gob.mx, also contains extensive information on social policy and has links to the various secretariats. (For further information and complete citations, see Bibliography.)