City Climate Leadership Awards by

C40 CITIES CLIMATE LEADERSHIP GROUP SIEMENS

CITY CLIMATE LEADERSHIP AWARDS

Mexico City Climate Close-Up

Fast Facts

- **Mexico's GDP per capita was US$15,195 dollars in 2010 (estimate).**
- **By 2050, Mexico's population is estimated to reach 150.8 million.**
- **In 2010, 63.8 million Mexicans, or 57% of the population, lived in metropolitan areas.**
- **The urban population has increased by 1.6% between 2000 and 2010.**
- **Estimates show that 68% of the Mexican population and 71% of its GDP are highly exposed to climate-change impacts.**

- The Mexico City Metropolitan Area (MCMA) generates roughly a quarter of Mexico's GDP and receives a fifth of the national budget.
- Economic activity in Mexico City (the Federal District - DF) contributes 16.6% of Mexico's GDP. In 2011 the GDP exceeded US$150 billion, with the tertiary sector (mainly trade and real estate services) accounting for 84.7% of that figure.
- 18.2 % of Mexico's population lives within the MCMA (2010).
- Density in DF is 5,920 people/km^2, as opposed to 160.1 people/hectare in the MCMA.
- The city's annual CO_2 (eq.) emissions in 2012 were 30.7 million tons. (Mexico City Secretary of the Environment).
- In MCMA, 2.6 million people live in areas with high risk of exposure to PM_{10} (ProAire 2011-2020).
- As a consequence of urban growth and subsequent changes in land use, temperatures in the MCMA have risen 4 °C in the last century, of these, 2 °C rise occurred since the 1970's.

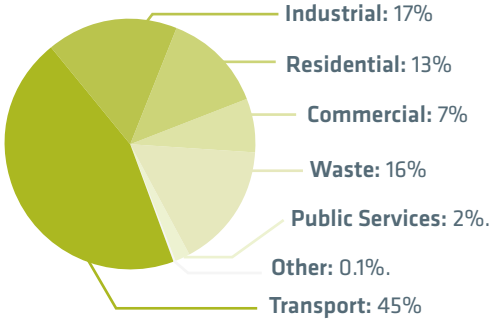
Population Projections

	2010	2015	2025	2030
Federal District[1]	8.9 million	8.9 million	8.6 million	8.4 million
Metropolitan Area[2]	20.1 million	21.3 million	22.7 million	23.2 million

1 Source: http://www.conapo.gob.mx/es/CONAPO/Proyecciones_de_la_Poblacion_2010-2050

2 http://www.conapo.gob.mx/es/CONAPO/Zonas_metropolitanas_2010

Sources of CO_2 (eq.) emissions



Source: Secretary of the Environment.

GHG Reduction Target

Estimated emissions reduction with PROAIRE 2011-2020 (ton/year)[3]

PM_{10}	3,558
$PM_{2.5}$	1,554
CO	334,162
NOx	33,749
VOC	122,987
Air Toxics	5,409
CO_2	5'509,294

3 Source: http://www.sma.df.gob.mx/proaire2011_2020/descargas/proaire2011_2020.pdf, page 187-188.

Air Quality winner 2013: ProAire Program

Summary

Mexico City won the 2013 C40 & Siemens Climate Leadership Awards' Air Quality category for its ProAire program. Over the last two decades ProAire has recorded impressive reductions in local air pollution, as well as CO_2 emissions. The program's elements range from measures aimed at the reduction of industrial and automobile emissions to urban sprawl containment and public awareness campaigns. Once ranked the most polluted city on the planet, Mexico City proves that long-term determination and a comprehensive approach can make a huge difference in the air quality of a megacity.

Challenges

In 1992, the United Nations reported that Mexico City was the most polluted city on the planet. Thanks to a series of comprehensive programmes over the last two decades the city has recorded impressive reductions in local air pollution as well as CO_2 emissions. Although the city has seen progress, it recognizes there is still a long way to go.

Actions

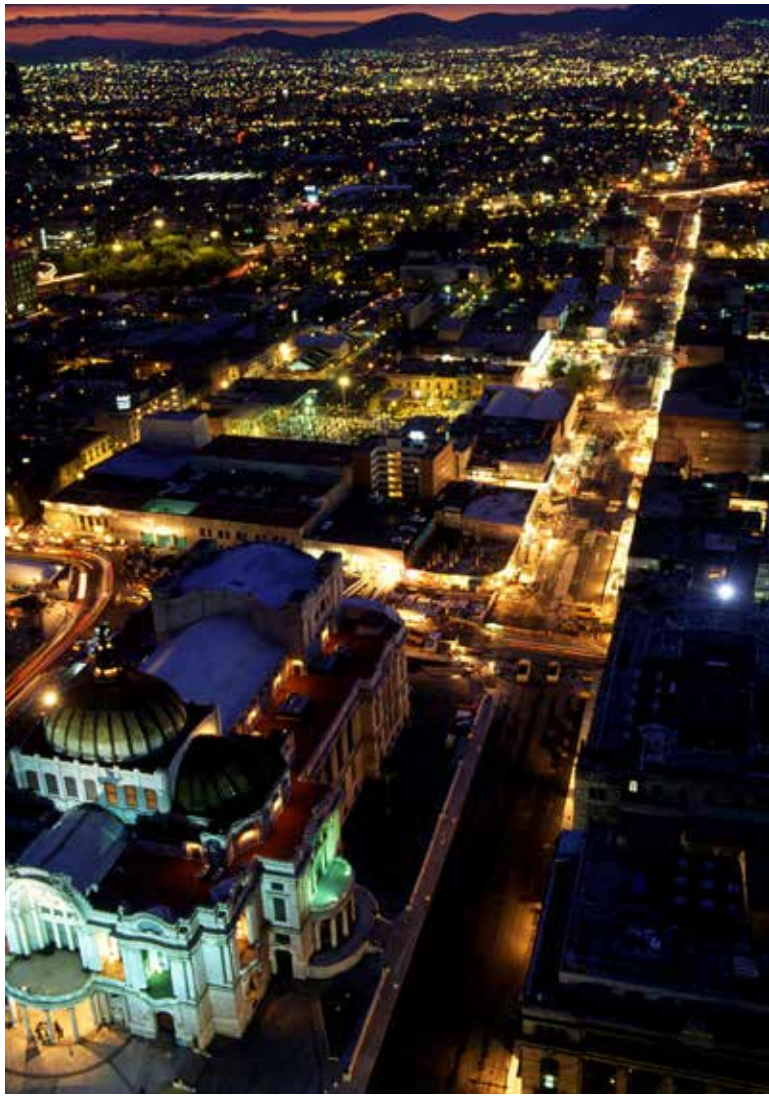
The city's government, in conjunction with the Metropolitan Environment Commission, has implemented four consecutive comprehensive programs since the first launched in 1990. Mexico City's measures to improve air quality have been diverse, from closing the city's most polluting factories to banning cars in the city's metropolitan area one day per week. Its BRT Metrobús system, launched in 2005 as part of the ProAire III program, is the longest such system in Latin America. The city's Ecobici bike-sharing program is also the largest in the region and growing, and has been replicated in other Latin American cities.

Although Mexico City has already made great strides in improving its air quality, it is proactive in tackling the remaining challenges. The ProAire IV program, launched in 2011 and running until 2020, contains 89 measures and 116 separate actions across eight strategy areas, including energy consumption, greening of the municipal transport fleets, education, green areas and reforestation, capacity building and scientific research.

Projected Outcomes

ProAire is working. Mexico City's success in tackling air pollution has helped to reduce its greenhouse gas emissions, particularly from urban transport. The city recently recorded a 7.7 million tons reduction in carbon emissions in just four years (2008 to 2012), beating its 7 million tons target.

To further enhance its progress, the city recognizes it needs to get the public on board, and has dedicated more resources to education programs and public awareness campaigns. There is no quick fix, but Mexico City's decades-long efforts are showing that comprehensive approaches and openness to the best ideas can make a huge difference and be an inspiration for other major cities in the world.



In detail

ProAire IV

In 1990, the Mexico City Government presented the first Comprehensive Program Against Air Pollution (called PICCA) as a systematic plan to combat air pollution. During the effect of the second Program, ProAire II, from 1995 to 2000, the Metropolitan Environmental Commission was created in 1996 to coordinate the combat among the federal and local governments of Mexico City and the State of Mexico. It included strategies for private and public transport, industry, and urban planning, and had time-bound, quantitative objectives. Although the application of the ProAire reduced the number of days with dangerous levels of ozone from 344 in 1994 to 118 in 2012, the number of days with ozone levels above the locally established limit still accounted for 80% of the year. During ProAire III (2002 to 2010), the Metrobús and the shared bike program, "Ecobici," began operating. Emissions reductions over this period were estimated at 5,078 tons/yr of PM_{10}, 506 tons/yr of SO_2, 817,132 tons/yr of CO, 64,779 tons/yr of NOx, and 85,706 tons/yr of VOC.

ProAire IV (2011-2020) was published in 2011. It contains 81 measures and 116 actions across eight themes, and is focused on improving air quality and reducing greenhouse gas emissions by 2020. The eight themes are: reduction of energy consumption; cleaner and more efficient energy across all sectors; promoting public transport and regulating fuel consumption; technology shift and controlling emissions; environmental education; creating a sustainability culture and citizen participation; green areas and reforestation; and institutional capacity building and scientific research. Measures outlined in ProAire IV are estimated to result in 490,000 tons of fewer emissions of "criteria" pollutants: hydrocarbons, carbon monoxide, sulphur oxides, nitrogen oxides, PM_{10} and $PM_{2.5}$, and ozone; 5,000 tons of toxic pollutants; and 5.5 million tons of greenhouse gases.

In detail

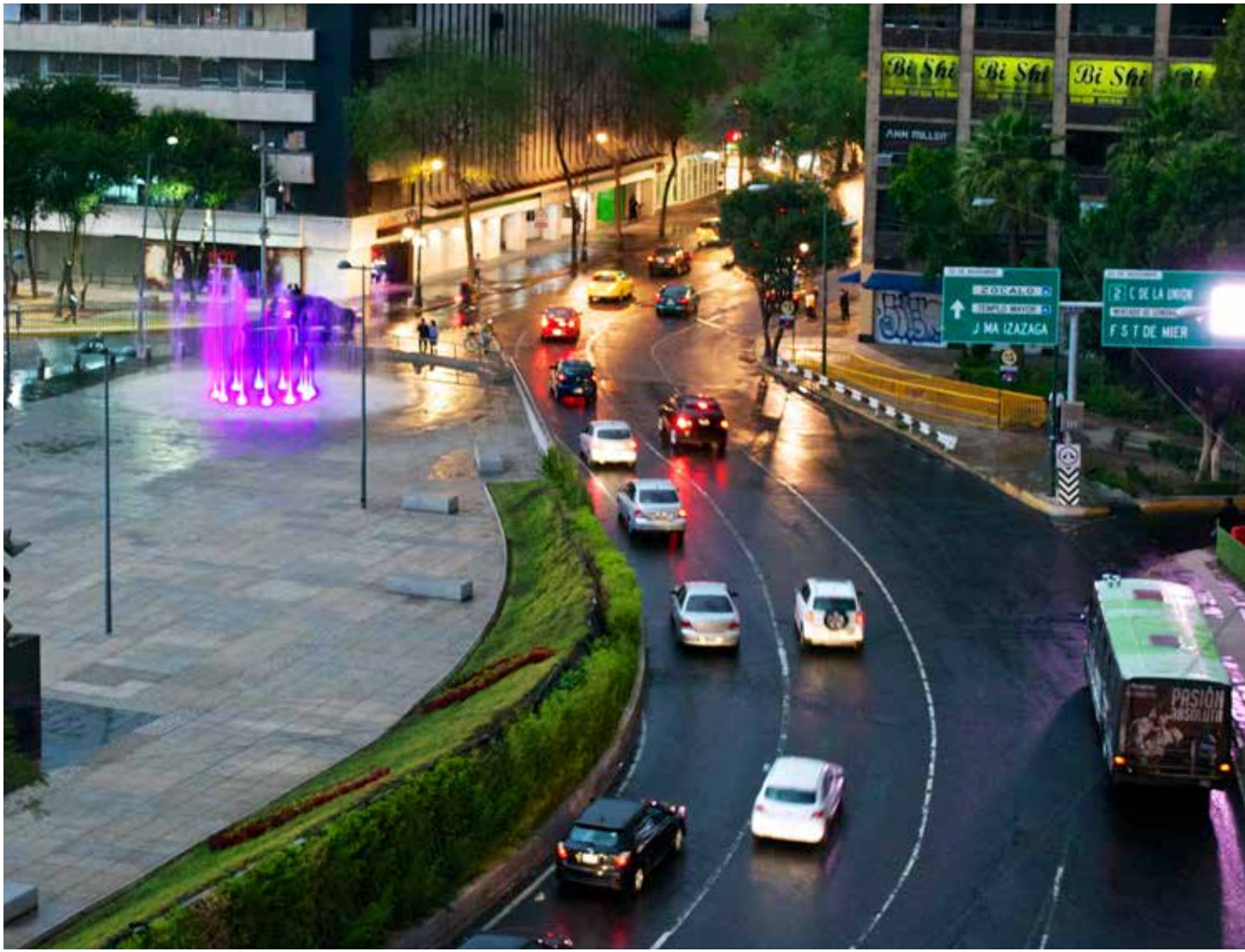
Metrobús

Metrobús works in conjunction with ProAire to improve air quality in the MAMC by promoting public transit and reducing congestion.

Metrobús's five lines serve 800,000 passengers per day and around 180 million passengers annually. Line 1 alone serves 440,000 people per day, with a capacity of 10,000 passengers per hour per direction. The system uses new articulated and bi-articulated buses, which hold between 160 and 240 people. The system is based on pre-boarding, magnetic ticketing, with tickets costing US$45 cents per trip (compared to US$38 cents for the metro).

Several measures indicate the success of Metrobús in Mexico City. Metrobús has resulted in 30% fewer accidents, 40% lower travel times, and a 15% modal shift from cars to public transit (which amounts to 122,000 fewer daily trips in private vehicles). Furthermore, during its first six years of operation, the first BRT line was able to reduce CO_2 emissions by 300,000 tons. Now, each year the Metrobús is estimated to reduce CO_2 emissions by 110,000 tons; nitrogen oxide (which causes smog and acid rain) by 690 tons; particulate matter (which leads to asthma, chronic bronchitis, and lung disease) by 2.8 tons; and hydrocarbons (which are associated with smog, cancer, and other health problems) by 144 tons. The Spanish Carbon Fund awarded Mexico City US$307,000 for CO_2 emissions reductions attributed to Metrobús operations.

Given the measurable benefits of the Metrobús, construction costs have been low. Construction of Metrobús has been estimated to cost US$800 million in total, or between US$2.6 and US$3.6 million per kilometer, compared to the metro system's cost construction of US$100 million per kilometer.



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