

CITY CLIMATE LEADERSHIP AWARDS

City Climate Leadership Awards by



Bogotá Climate Close-Up

Fast Facts

- Colombia's population has increased almost fourfold over the past 50 years.
- 75% of Colombians live in cities.
- With close to 600 extreme weather events per year, Colombia has one of the highest rates of extreme weather in South America, which has resulted in a growing number of climate-related emergencies.
- The World Bank estimates that air pollution costs the Colombian economy close to half a million dollars every year, and could have contributed to 5,000 deaths in the country.

- Bogotá is the sixth largest city in Latin America in terms of GDP.
- Bogotá's GDP of \$78.7 billion is greater than the GDPs of Uruguay and Panama.
- In the last decade, Bogotá has received \$24.0 billion of foreign direct investment - about 79% of all non-oil industry-related investment in Colombia.
- Estimates show Bogotá's annual CO₂ (eq.) emissions are 15.9 million tons.

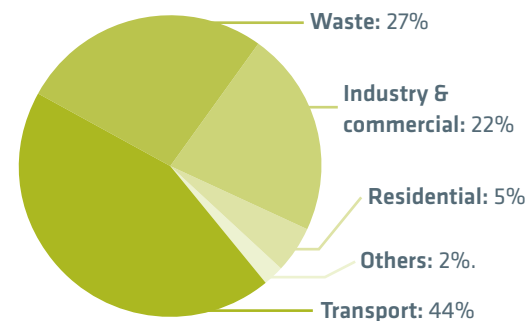
City population statistics*



2013: 7.7 million.
2020: 8.4 million.
2050: 9.5 million.

*Bogotá Metropolitan Area
Sources: DANE and Bogotá Plan de ordenamiento territorial.

Sources of CO₂ (eq.) emissions



Source: Colombia Secretary of Environment.

CO₂ (eq.) emissions



Annual CO₂ (eq.) emissions: 15,921,690 tons.

GHG emissions per capita: 1.89 tons of CO₂ (eq.) (2008).

Emissions reduction target: 16% reduction by 2019 (compared with emissions in 2007).

Sources: Colombia Secretary of Environment, C40.
<https://www.cdp.net/cdpresults/cdp-cities-2012-global-report.pdf>

Urban Transportation winner 2013: TransMilenio & E-Taxis

Summary

Bogotá won the City Climate Leadership Awards' Urban Transportation award for efforts to green its bus and taxi fleets. TransMilenio, the city's Bus Rapid Transit (BRT) system, launched in 2000 to great success. It transports over 70% of the population traveling by bus in Bogotá, and has resulted in emissions reductions of more than 350,000 tons per year. By 2024, Bogotá aims to replace its entire fleet of diesel buses with hybrid and full electric models.

Challenges

Because Bogotá lacks metro and tram systems, some five million people, or almost 70% of the city's commuters, travel each day by diesel bus. As a result, the city has one of the highest levels of sulphur dioxide pollution of the cities in the Siemens' Latin American Green City Index.

Bogotá aims to reduce high levels of pollution and CO₂ emissions by replacing existing diesel buses with hybrid and full electric models. In addition, it will grow the city's fleet of electric taxis.

Actions

The city introduced TransMilenio in 2000 as a mechanism for tackling issues with air pollution and congestion. Now, of a city bus fleet of almost 18,000, around 2,200 are part of the 109.5km BRT exclusive network and its feeder system. These 2,200 buses carry some 2.2 million passengers each day. Since its inception in 2000, the BRT network has been continually expanded, and currently is the third phase in operation.

Furthermore, the city began testing electric and hybrid buses on some routes last year, taking part in the Latin American Hybrid Electric Bus Test Program (HEBTP), an initiative

designed to test hybrid and all-electric buses in real-world conditions. Bogotá's goal to replace thousands of buses with low-emissions vehicles by the end of next year makes it one of the most ambitious electric vehicle programs in the world. In 2014, the city will have a further six hundred hybrid electric buses.

To complement the BRT, Bogotá embarked in 2013 on a pilot project to green its taxi fleet. Taxi cabs have the highest CO₂ emissions per passenger of any transport type in the city. Conversion to electric vehicle technology is expected to avoid the consumption of seven gallons of fossil fuel per day per vehicle, thereby cutting operating costs by more than 80% and greenhouse gas emissions by more than 70% across the soon-to-be 50-strong taxi fleet.

Projected Outcomes

Bogotá's existing BRT is already widely credited with significantly reducing carbon emissions, and is the first major transport scheme in the world to earn Kyoto carbon credits. The city is working closely with bus operators and funders, such as the IDB and the World Bank, to examine and promote innovative financing options for future BRT systems. The city's participation in the Latin American HEBTP reflects this commitment by generating concrete data, which operators can use to demonstrate the viability of electric and hybrid bus technology. If Bogotá's scaling-up of electric and hybrid vehicle initiatives is successful, it could feasibly pave the way for other cities with BRT systems to replicate its technology and funding models.



In detail

TransMilenio

TransMilenio has revolutionized urban transport in Latin America, as it provides a relatively low-cost, but high-volume alternative to traditional modes of public transport. TransMilenio's 1,462 articulated buses and 715 feeder buses operate on 11 trunk corridors and 809km of feeder corridors for a total of 102 routes. Nine multi-modal terminals, six intermediate stations, and 125 small stations service the routes, which operate in part on 109.4km of exclusive bus lanes. In an effort to further green the BRT, the City of Bogota has installed 2,451 cycle parking spaces at BRT stations, encouraging commuters to cycle to the BRT.

TransMilenio accommodates 32% of the 6 million trips using public transport each day. In fact, in 2012 more than 500 million trips on TransMilenio were recorded. The success of the BRT has led Bogota's government to make TransMilenio and its feeder routes even greener by pursuing a series of initiatives – a selection of which is included below.

- Operators and manufacturers are working jointly to improve the sustainability of BRT bus technology.
- The government will operate 600 hybrid electric buses on a Green Corridor in the city. In a second phase, trams or light rail will replace the buses on the Green Corridor.
- Approximately 790 new low-carbon buses will run on 25 "Pioneer" routes across the city.



TransMilenio Station Plaza de la Democracia. Source: Wikimedia Commons.

In detail

E-taxis

In September 2013, Bogota launched a pilot project to green its taxi fleet. Through participation in the C40 Electric Vehicle Network, and by working with C40 technical and market development experts, the City of Bogota has forged partnerships with several industry players in support of the pilot. The pilot will eventually consist of 50 electric taxis, the largest fleet of electric taxis in Latin America.

These taxis [BYD e6] are five-passenger, long-range, pure electric utility vehicles powered by iron-phosphate batteries. A crossover between a sedan and an SUV, the vehicle has a range of 300km, and can be recharged within two hours. Taxis can therefore operate for nearly 24 hours with only one mid-day supplemental charging. The city currently has three charging stations, with 30 connection points for electric vehicles.

To support the three-year pilot, the City of Bogota enacted Decree No. 677 of 2011. Buttressed by an existing national government policy to impose zero import duty on electric vehicles, this local decree removes circulation restrictions and permitting requirements for electric vehicle taxis. It further mandates the Secretary of the Environment and the Secretary of Mobility to consider monitoring and reporting requirements for the electric vehicles. It is anticipated that 2,250 electric vehicles will benefit from the act.





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