

EcoLogistics

Low carbon freight for sustainable cities

I.C.L.E.I
Local
Governments
for Sustainability



CITY PROFILES

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KEY TERMS

Freight is goods transported in bulk by truck, ship, or aircraft.

Logistics is the management of the flow of things between a point of origin and a point of consumption in order to meet requirements of customers, industries or enterprises.

Urban freight transport is all movements of goods in to, out from, through or within the urban area made by made by NMT, light or heavy vehicles, rail, or ships, including service transport and demolition traffic as well as waste and reverse logistics.

This definition does not include shopping trips made by households with their automobiles, but it does include home deliveries made for them by professional delivery operators.



EcoLogistics Project

ICLEI's EcoLogistics project (2017-2021) is supported by the German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety (BMU) through their International Climate Initiative (IKI). The project will capacitate governmental and non-governmental actors to build strategies and policies to promote low carbon and more sustainable urban freight in project cities in Argentina, Colombia and India.

Globally, transport accounts for 23 percent of total GHG emissions, of which 40 percent is contributed by freight transport. Heavy freight vehicles are also one of the world's major sources of $PM_{2.5}$ emissions, which impacts urban life both directly and indirectly.

GLOBALLY URBAN FREIGHT REPRESENTS UP TO:



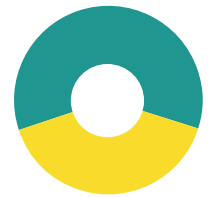
40%

occupation
of motorized
road space



25%

of kilometers
travelled by
vehicles



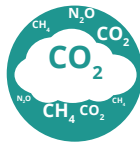
40%

of urban
transport related
 CO_2 emissions

URBAN FREIGHT IMPACTS



Air
pollution



GHG
emissions



Noise
pollution



Traffic
safety



Congestion



Waste
production



Land
degradation



Urban quality
of life

230% Freight transport volume is projected to increase this much between 2015 and 2050.

The following city profiles explore the quantitative urban mobility information about the project cities and their demographics.

Bogotá, Capital District (Colombia)

ECOLOGISTICS PROJECT CITY PROFILE

ABOUT THE CITY

Bogotá, officially the Capital District of Bogotá (*Bogotá, Distrito Capital* [D.C.]), is the largest city in Colombia as well as the economic and political capital of the country. The city is characterized by its diverse and multicultural environment and a blend of modern and colonial architecture. The Bogotá-Cundinamarca region is the engine and core of the economy in Colombia. In 2016, the city accounts for nearly 25.7 percent of the country's gross domestic product (GDP). Since 2006, when motorization reached record levels, the city has been transforming its urban transport through infrastructure changes and new policies to support sustainable mobility.



City transport

PASSENGER

In recent years, the city has experienced a profound transformation towards non-motorized transport (NMT) in its infrastructure planning and policies. Since 1998, the city has envisioned a shift from a car-oriented transport system to a people-centered one. To achieve this, Bogotá prioritized the development of bus lanes and bike paths, and dedicated more space for pedestrians by reclaiming sidewalks from parked cars, creating new parks, and rehabilitating existing public spaces. As a result, Bogotanos today can count on a growing cycling network of 344 km and a well-developed BRT system providing 2.2 million daily trips over 113 km. A partial ban on cars on specific routes and the introduction of car-free days has further contributed to the strong culture of walking, cycling, and public transport. In Bogotá, 14,858,983 trips are made daily, of which more than two-thirds are made either by foot or public transport.



MODAL SHARE (2014)

Public transport	37%
Walking	31%
Private transport	16%
Others	7%
Taxi	5%
Cycling	4%

Land area

Urban area: 413.88 km²
(UCLG, 2016)

Population

7,363,782 inhabitants
(UCLG, 2016)

Population density

5,091 inhabitants/km²

Name of the Mayor

Enrique Peñalosa

Main website

(municipality)
www.bogota.gov.co

FREIGHT

Being the hub of economic activities, Bogotá experiences substantial traffic flows of goods vehicles. The city has one freight terminal called the Land Terminal of Loads, which is able to accommodate two thousand trucks daily coming from cities across the country like Buenaventura, Cali, Medellín, Cartagena and Bucaramanga. The objective is to incentivize the redistribution of goods in smaller trucks by making them easier to use within the city. The city has many nano-stores and small outlets that co-exist with structured and modern retail outlets. A study by the Economic Commission for Latin America and the Caribbean (CEPAL) estimates that there are as many as 140,000¹ nano-stores and over 100,000 distribution locations in the metropolitan area, and that each store receives over 30 deliveries per week. Such stores and fragmented deliveries add up to the complexity of urban freight transport. Most of urban logistics in Bogotá is characterized by informality and "single owner, single store" issues.

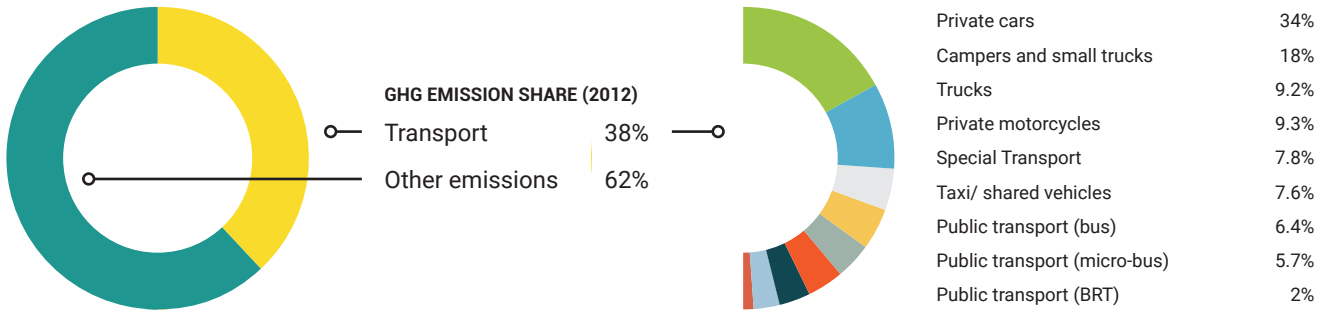
Almost 70 percent of cargo is transported by road, making it the main mean of freight transport. On a typical business day, about 83,663 trips are made entirely by trucks and around 40 percent of the trucks circulating in the city travel empty. Light freight vehicles account for 49 percent of the trips, two-axle trucks 42 percent, three-axle trucks 5 percent, and four-axle trucks or more 4 percent (Secretaría Distrital de Movilidad, 2015). One-third of the 225,000 cargo vehicles in the country are more than 30 years old, and many of them travel through the city since it is an important logistics hub. The freight sector is also characterized by small, informal and financially-limited business entities which provide services in an uncoordinated manner, resulting in inefficient processes.

¹ A very small store (area of 4 to 6 m²)

GHG EMISSIONS PROFILE

The Capital District of Bogotá has undertaken two community emission inventories since 2008. In its latest inventory, compiled in 2012, transport is identified as one of the key emission sources in the country, along with stationary energy, waste management, agriculture, forestry and other land use, industrial processes and product use.

As per the 2012 GHG inventory, Bogotá reported 12.1 million tons of CO₂e, of which 38 percent came from the transport sector. Commercial goods vehicles accounted for nearly 30 percent of the total transport emissions.



According to the 2014 emissions inventory of the District Department of the Environment, the city produced a total of 1,318 tons of PM10 emissions, attributable to the following sources: trucks (accounting for 42 percent of emissions), special transport (14 percent), minibuses (12 percent), buses (9 percent), campers and vans (8 percent), motorcycles (7 percent), private vehicles (4 percent) and Transmilenio (2 percent).

TRANSPORT DECARBONIZATION STRATEGIES

Bogotá's 10-year decontamination plan 2010-2020 (*Plan decenal de descontaminación de Bogotá 2010-2020*)² was adopted in July 2009 as part of a series of measures taken by the city to address urban emissions and freight's effects on its territory. As a result of these efforts, the city has become known worldwide for its notable public buses and bus rapid transit (BRT) system. This network was developed using integrated urban projects and transit-oriented development (TOD) giving priority to people over private vehicles. This has resulted in an urban structure that supports an intermodal transport system, public space and related urban infrastructure. Several resolutions and bylaws have also been passed by the city in order to reduce air pollution, with some of them directly targeting urban freight³. Here are a few examples:

- Strengthening eco-driving practices in the Capital District
- Establishment of restrictions for the transit of freight vehicles in the urban area of Bogotá, including four zones and hours of restriction for loading/unloading of cargo vehicles based on the type of vehicles
- Restriction on the movement of cargo vehicles using diesel and having a load capacity greater than 5 tons (restriction applied every day between 9:00 and 10:00 am)

The City has also worked on several plans, strategies and pilot projects over the years. It is updating the Mobility Master Plan (*Plan Maestro de Movilidad*) for Bogotá D.C., which includes objectives related to urban freight and the reduction of environmental pollution from transport⁴. It is also developing an Urban Logistics Network (*Red de Logística Urbana, 2017-2020*) to diminish negative consequences of urban logistics. The network seeks, among other things, to exchange information with private companies wishing to improve their logistical practices. The city has also implemented a pilot project as part of the program *EnCARGAte de Bogotá*⁵, and proposed a regulation of circulation of freight vehicles in the capital as well as loading and unloading areas and off-hour deliveries. The pilot project in Bogotá's region of Los Mártires prohibited freight vehicles from parking on one side of the street on even days, and on the other side of the road the other days. The city plans to build the Urban Logistics Network into a strategic tool for voluntary participants that allows them to manage urban logistics through collaboration within a common framework.



² Secretaría Distrital de Ambiente, Bogotá, 2009.

³ Alcaldía de Bogotá, 2018.

⁴ Secretaría Distrital de Movilidad, Alcaldía Mayor de Bogotá D.C., 2017.

⁵ Secretaría de Movilidad, Alcaldía Mayor de Bogotá D.C., n.d.

Metropolitan Area of the Aburrá Valley (Colombia)

ECOLOGISTICS PROJECT CITY PROFILE

ABOUT THE CITY

The Aburrá Valley is located in an area of low latitudes, on the western slope of the Colombian Andean fringe of the Cordillera Central mountain range. It is the natural basin of the Medellín river. The Metropolitan area created in 1980 was the first in Colombia and consists of 10 municipalities: Medellín, Barbosa, Giradota, Copacabana, Bello, Envigado, Itagüí, La Estrella, Sabaneta and Caldas. These 10 municipalities are similar to each other in physical, environmental, economic and social terms, which confers to the area the sense of a whole entity. Medellín is the second largest city in Colombia and the major hub for economic activities in the metropolitan region. It has a population close to 2.5 million inhabitants and is spread over an area of 380 km². The metropolitan area of Medellín contributes to 11 percent of Colombia's economy.



City transport

PASSENGER

The Metropolitan Area of the Aburrá Valley (AMVA) has constructed 120 kilometers of cycling infrastructure, accompanied by street parks, cycle parks and public space improvement projects. The country's first public bike-sharing system, EnCicla, is expected to expand to 150 stations spread throughout the territory in 2019, reaching Barbosa, Giradota, Copacabana, Bello, Envigado, Itagüí, La Estrella and Caldas. The new stations will incorporate cycling into the Integrated Transport System of the Aburrá Valley (SITVA). The metropolitan area is well connected through a network of metro, cable car and bus lines, making Medellín a leader in the field of urban sustainability.



MODAL SHARE (2017)

Public transport	34%
Walking	28%
Private transport	25%
Taxi	7%
Others	5%
Cycling	1%

Land area

Total area: 1,157.39 km²

Population

3,909,729 inhabitants (2018)

Population density

3,104 inhabitants/km²

Name of the Mayor

Federico Gutiérrez (Medellín)

Main website (municipality)

www.metropol.gov.co

Training programs on eco-driving for public bus drivers are provided to save fuel and contribute indirectly to a reduction in the emission of polluting particles, with the aim of reducing the annual emissions of CO₂ from public transport vehicles by 17,000 tons. Through updates and modernization measures, 60 percent of the buses in the region operate today with clean fuels (Euro 4 Standard).

FREIGHT

The main road network of the metropolitan region extends from north to south through 10 municipalities along the Aburrá river and its valley. The major freight movements occur around there. Along these routes are large industries and concentration centers for cargo, such as container yards in the municipality of Caldas, the Wholesale Center of Supplies in Itagüí, the Retailer of Supplies and Livestock Fair in Medellín, industrial centers and winery complexes, especially in the municipalities of the north (Barbosa, Giradota) and south (Caldas, Sabaneta, La Estrella, Itagüí).

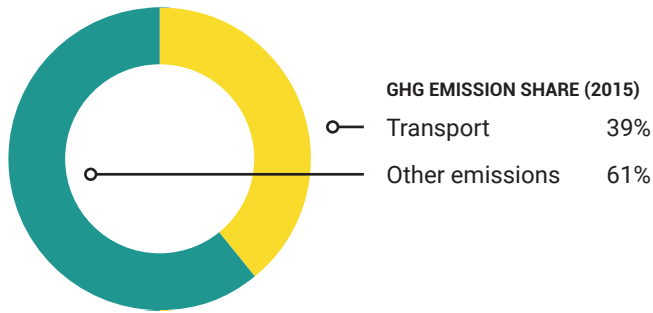
As per recent studies conducted by the AMVA, **187,213** tons of freight volume is moved in, out and through the metropolitan region every day with a total of nearly 30,000 trips per day made by various freight vehicles. The majority of the trips are made by C2P⁶ vehicles followed by C2G⁷ ones. The majority of trips are made through (13,547 trips) or inside (11,868 trips) the metropolitan region.

AMVA also has updated information on the vehicles used for waste management (including solid waste, hospital and industrial waste). An average waste volume of 3,566 tons per day is transported in the metropolitan area through 343 collection vehicles operating with diesel and gasoline vehicles.

⁶ Truck (Gross vehicle weight: 3.5t-7.5t)

⁷ Truck (Gross vehicle weight: 7.5t-18t)

GHG EMISSIONS PROFILE



The AMVA has prepared a GHG inventory according to the IPCC methodology, and most recently updated this inventory in 2018. In total, the valley's annual emissions amount to 7.08 million tons CO₂e. According to the inventory, the sector with the highest GHG emissions in the AMVA is energy, followed by the transport sector. Land transport is responsible for 39 percent of the total emissions of GHG in the city.

In the Aburrá Valley, mobile sources (transportation sector) emit 1,159 tons PM_{2.5} per year, or 79 percent

of all PM_{2.5} emissions in the area. Stationary sources from the industrial sector contribute 306 tons per year (21 percent) of this pollutant. Over a third of the PM_{2.5} emissions are emitted by trucks and 22 percent correspond to dump trucks (*volquetas*), making it necessary to work on different fronts and adopt multiple strategies to achieve satisfactory air quality.

TRANSPORT DECARBONIZATION STRATEGIES

The Aburrá Valley is working on the creation of a model of logistical organization that can improve the competitiveness of the region by reducing costs and operating times, optimizing the use of road infrastructure and reducing the environmental impact of freight vehicles in the metropolitan territory. This strategy is implemented through the regional Logistics Alliance, a survey on the origins and destinations of cargo and policies for the proper management of freight transport in the urban environment.

The Management Plan 2016-2019 of the Metropolitan Area of the Aburrá Valley, "We are 10 Integrated Territories," has as a fundamental goal of supporting sustainable, integrated human development and establishing human and territorial equity. The plan is comprised of six strategic axes. The third of these is the creation of sustainable, safe and friendly mobility. To achieve this, the plan addresses the integration of metropolitan public transport, the promotion of this transport and other active mobility alternatives, logistical organization, road safety and regional connectivity. Various resolutions have been passed over the years in support of sustainable transport, with the following focusing on the movement of freight:

- Restrictions on traffic hours and circulation for vehicles with a capacities over 4 and 5 tons in specific areas of the city
- Restrictions and regulations on schedules for loading, unloading and parking in the center of Medellín
- Determining the main roads and other streets in the city on which parking, loading and unloading must be regulated

The following actions have been taken by the AMVA in order to promote sustainable freight movement:

- A freight transport study in the Aburrá Valley (2018) that investigates the features of freight transport in the region of the Aburrá Valley metropolitan area
- Freight transport initiatives to optimize loading in congested areas (71 initiatives implemented).
- Eco-efficient driving training programs to reduce fuel consumption.
- A vehicle fleet renewal project, with travel demand management strategies.



Manizales (Colombia)

ECOLOGISTICS PROJECT CITY PROFILE

ABOUT THE CITY

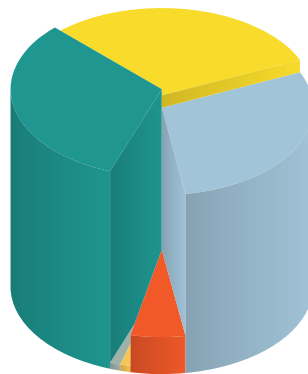
Manizales is the capital of the Department of Caldas. It is a city in the central west of Colombia, located in the *Cordillera Central* mountain range, near the *Nevado del Ruiz*. Manizales has a rough topography with ridgelines and steep slopes. These physical characteristics and the seismic instability of the region have forced the city to undergo architectural adaptations and create public works to make the city more resilient against earthquakes. Manizales is part of the *Paisa Region* (comprising the departments of Antioquia, Caldas, Risaralda and Quindío). The city is one of the main centers of production of Colombian coffee and is well known as a hub for higher educational institutions.



City transport

PASSENGER

Currently the city is developing a Mobility Master Plan. The Council of Manizales has published the results of a consultation aimed at developing the Mobility Master Plan as part of the Public Space Master Plan developed by the city. Manizales' 2016-2019 development plan, "More Opportunities", defines pillars that promote more sustainable development. One of these pillars is the promotion of healthy and sustainable mobility within the city. This pillar seeks to strengthen sustainable mobility through different strategies in order to create a compact, active and healthy city (Alcaldía de Manizales, 2018). Cable cars in Manizales move 11,000 passengers per day and are integrated with the public bike-sharing system and bus network. In the future, the cable car system will very likely become a fundamental instrument for sustainable urban mobility in the city. Manizales has around 500 km of pedestrian pathways and an operational public bike-sharing system with a capacity of 135 bicycles and 8 docking stations, with a dedicated bike path network of approximately 107 km. The cable car system allows bicycles on board and currently 15 buses have a front grill for bicycles.



MODAL SHARE (2018)

Private transport	32%
Public transport	31%
Walk	29%
Taxi	6%
Cycle	1%
Others	1%

Land area

Total area: 571.8 km²

Population

400,136 inhabitants (Planeación Municipal de Manizales, 2018)

Population density

148 inhabitants/km² (Arteaga Botero, 2015)

Population growth rate

+0.41% (Alcaldía de Manizales & Secretaría de Educación, 2017)

Name of the Mayor

Jose Octavio Cardona León

Main website (municipality)

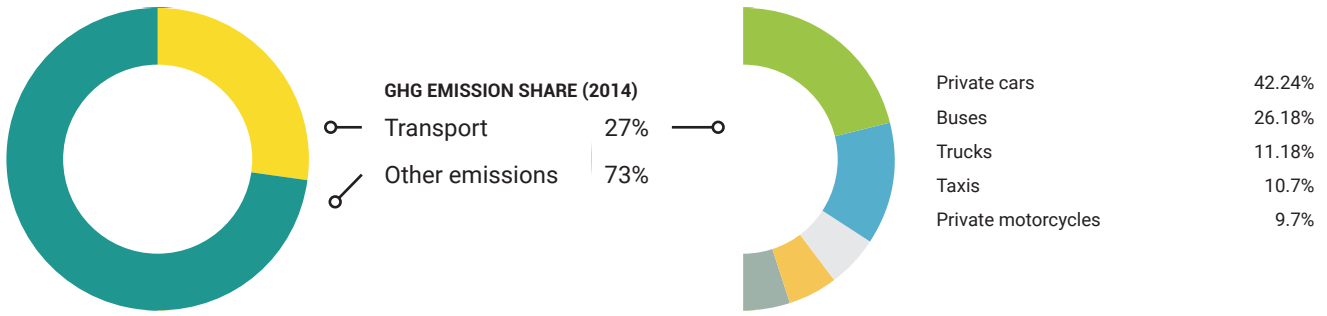
www.manizales.gov.co

FREIGHT

The city of Manizales has very limited information on urban freight activities. Regulations for freight transport in the city are handled by the Ministry of Transport. Manizales does not have autonomy for managing cargo logistics, and it can only introduce restrictions. Manizales has 2,528 goods vehicles (2014) registered out of a total of 132,012 registered vehicles. As per the municipality regulations, the loading and unloading activities are allowed to take place between 4:00 a.m. and 10:00 p.m. on roadside unloading zones without a parking prohibition. On roadside unloading zones with parking restrictions, activities are allowed from 4:00 am to 7:00 am, from 9:00 am to 1:00 am and from 8:00 pm to 11:00 pm. Due to its central location, the city seeks to connect to other regions in order to increase business opportunities with strategic cities and regions nationwide such as Bogotá, Medellín, Cali, the Pacific region and the Caribbean region. Manizales wants to improve the logistical zones with the regional and national transport network. It aims to achieve the integration of industrial and logistics areas with the regional and national network to ensure efficient operations. Manizales is also working on strengthening capacities on logistics. Currently the city wants to invest in and improve its operations. The project includes designated parking spaces for cargo vehicles and maintenance service for heavy vehicles in the city. The city is also interested in developing cross-docking areas, establishing a storage and micro-distribution center, setting up deposit containers (e.g. DHL packstation) and promoting new equipment for cargo management.

GHG EMISSIONS PROFILE

Manizales has an inventory of emissions from stationary and mobile sources for 2014 that has been prepared by the Universidad Nacional de Colombia in Manizales. In 2014, the total annual emissions were 1.59 million tons of CO₂e, and transport emissions accounted for nearly 27 percent (0.4 million tons of CO₂e), of which 50,783 tons came from heavy goods vehicles in the city.



TRANSPORT DECARBONIZATION STRATEGIES

Within the Manizales’ development plan, climate change is considered an important strategic axis. In practice, this axis focuses on formulating the *Municipal Plan for Mitigation and Adaptation to Climate Change* (PACC) with the objective of establishing carbon reduction strategies through more efficient and sustainable mobility and the incorporation of cleaner technology. The following strategies are to promote sustainable mobility:

- *Serviturismo*, a city bus operator that has 55 percent of its fleet running on environmentally friendly fuels and has the goal of achieving 100 percent by 2019 (Revista Dinero, 2018).
- Implementing electric trams to improve the public space in the city center and primary axes of the city.
- Two cable cars are proposed “One of these pillars is the promotion of healthy and sustainable mobility within the city.” to connect university areas and Sancanio to improve passenger mobility and increase tourism. The following complementary cable car routes are also proposed:
 - Sector El Cable - La Enea
 - Sector Fundadores - Comuna Ciudadela del Norte
 - Sector El Cable - Comuna Ciudadela del Norte
 - Sector Fundadores - Ciudadela Puerta del Sol
 - Parque del Agua - Ecoparque Alcázares
 - Sector Cámbulos – La Enea

Manizales is currently developing projects related to urban freight transport. The city is designing corridors suitable for freight transport. By 2031 Manizales expects to have 7 adapted corridors for urban freight transport.



Buenos Aires (Argentina)

ECOLOGISTICS PROJECT CITY PROFILE



ABOUT THE CITY

Buenos Aires, the capital of the Argentine Republic, is one of the most important cities in Latin America. It is a cosmopolitan city largely influenced by the numerous waves of immigration that formed it. The Spanish founded the city twice, in 1536 and 1580, and in the 19th century Buenos Aires became an important economic, financial and cultural center. Its commercial sector is very active, as indicated by the presence of many global brand stores, galleries and shopping centers. It is also a remarkable cultural center, with numerous museums, exhibition halls and conferences, art galleries, cinemas and theaters with top-level national and international shows.

The city lies on the southwest bank of the La Plata river, 25 meters above sea level, on the fluvial border of the Pampas plain. The city is located north-east of the province of Buenos Aires. It is delimited by the La Plata river to the east, the Riachuelo to the south, and the General Paz Avenue to the north-west, which divides the federal capital from the Greater Buenos Aires.



City transport

PASSENGER

Based on a mobility survey done in 2014 for the Metropolitan Area of Buenos Aires, almost half of the residents' trips are made by public transport, and more than a quarter are made by foot or bicycle (27 percent). Buses are the key factor for introducing the change in the city's transport system, especially Bus Rapid Transit (BRT) systems, which has improved the traffic congestion and transport-related air pollution. It is also the most used transport mode (with 39 percent modal share) in the city.



MODAL SHARE (2010)

Bus	39%
Walk	24%
Private transport	19%
Railway & Metro	10%
Other	4%
Cycle	3%
Taxi	1%

Land area

Total area: 203 km²

Population

3,068,043 inhabitants (estimated)

Population density

1,500 inhabitants/km²

Name of the Mayor

Horacio Rodríguez Larreta

Main website (municipality)

www.buenosaires.gob.ar

The city also has a public bike-sharing system called Ecobici. The city has 195 km of cycle lanes. The network was specially designed to integrate different strategic points of the city such as shipment centers, universities, schools and hospitals while allowing interconnection with other means of transport. In 2014, Ecobici had 32 docking stations, 124,500 registered users, 900 available bicycles and 6,700 daily trips. The objective of the system is to have 200 stations and 3,000 bicycles (Ciudad de Buenos Aires, 2014).

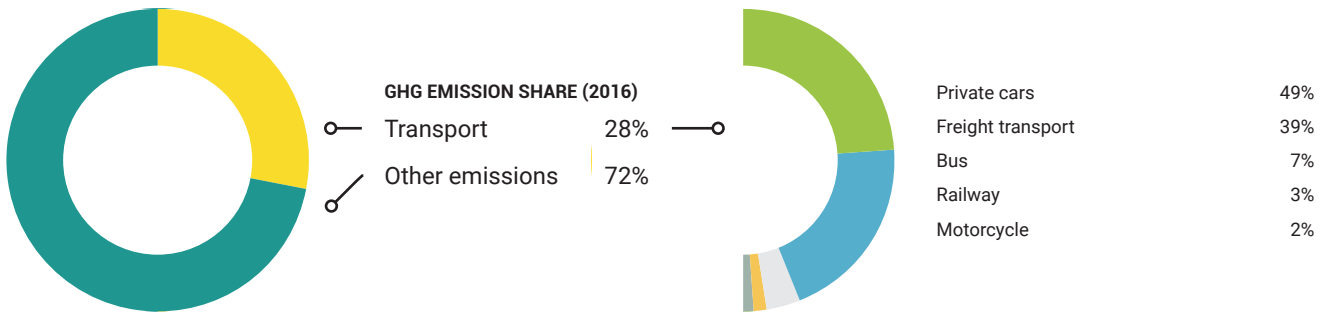
FREIGHT

The city of Buenos Aires has several freight corridors which connect the main highways in Greater Buenos Aires with the main freight terminals or destinations within the city limits. Among the main destinations, heavy trucks tend to prioritize the port in the area of Retiro, or the industrial areas of Barracas-La Boca-Nueva Pompeya, including the Load Transfer Center in Villa Soldati.

A new freight corridor named the "Paseo del Bajo" as been proposed to connect the south highway with the port and the northern highway, helping reduce travel time for heavy trucks in the center of the city, thereby lowering costs and pollution. This corridor will help connect the main freight destinations through highways and segregated lanes, preventing further traffic congestion and road insecurity.

Despite this, some minor freight transport tends to take place in other areas of the city that have many industrial sheds, especially the areas of Once, Chacarita, Agronomía, Liniers and Mataderos. This can be very difficult to order and control.

GHG EMISSIONS PROFILE



Buenos Aires’ GHG inventory followed the guidelines of the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories. The annual GHG emissions in the city of Buenos Aires for the year 2016 rose to 13.1 million tons of CO₂e. The sector that emits the most is stationary energy, which accounts for 58 percent of total emissions, followed by the transport sector with 28 percent and the waste sector with 14 percent.

TRANSPORT DECARBONIZATION STRATEGIES

The City of Buenos Aires has a Clean Mobility Plan (2017) that aims to reduce GHG emissions and air pollution by 2035. The Plan estimates the emissions of all vehicles in the city by sector, projects a Business as Usual (BAU) scenario and establishes targets for emissions reductions based on Argentina’s Nationally Determined Contribution (NDC). The types of vehicles analyzed throughout the Clean Mobility Plan are heavy goods vehicles (HGVs), light goods vehicles (LGVs), buses, motorcycles, and cars.

The Plan can be summarized as focusing on two areas:

- Reduction of CO₂ emissions: The plan considers it key to slow down the growth of the number of cars in the city, which can be done by improving public transport and incentivizing shared mobility. Other measures include the introduction of clean, efficient technologies and fuels.
- Reduction of air pollution: The plan finds that the main sources of urban air pollution are diesel-fueled vehicles, which are associated with buses, heavy goods vehicles and large goods vehicles.

Key measures to improve air quality include:

- Introduction of clean technologies and, along with the adoption of Euro VI standard for fuel in the fleets. Pilot projects are to be developed with the collaboration of the private sector in order to estimate the operational, economic and environmental feasibility of the new technologies at scale.
- Improving public transport and incentivizing shared mobility.
- As part of the Freight Transfer Center (*Centro de Transferencia de Carga*) program, the city aims to optimize freight transport operations, and set centers for load transfer. In 2016, the city opened a designated transport center where transfers of goods from heavy trucks into light freight vehicles are done for further city distribution.



Rosario (Argentina)

ECOLOGISTICS PROJECT CITY PROFILE

ABOUT THE CITY

Rosario, a port city with a metropolitan population of nearly one million inhabitants, is the third largest city in Argentina. Rosario is the heart of the country's major industrial corridor with an important railroad terminal and shipping center. The city is leading on sustainable urban transport and promoting a better life for citizens through public transport investments and prioritizing non-motorized transport. Its economy is based on services and industry, and contributes to 10 percent of the country's GDP.



City transport

PASSENGER

The city's entire urban mobility is regulated, planned and evaluated by the Ente de la Movilidad de Rosario (EMR) which also implements active mobility policies. The EMR highlights the need to develop collective behavior change. Through activities involving citizen participation and consensus, it allows the implementation of technically sound policies that are legitimized by the community.



MODAL SHARE (2008)

Public transport	33%
Private transport	30%
Walk	21%
Others	11%
Cycle	5%

The city has developed its 2010 Integrated Mobility Plan (PIM) through a participatory process including citizens, institutions, and local and international experts to prioritize pedestrians and cyclists. Through the implementation of the mobility plan, the city has achieved the following results:

- A network of 130 km of cycling lanes, and a bike-sharing system consisting of a fleet of 480 bicycles and 52 docking stations.
- Additional parking facilities for 3,600 bicycles across the city.
- 15 km of dedicated bus lanes benefiting 200,000 passengers daily.
- 28 km of streets closed to car on Sunday mornings.
- Dynamic real-time travel/mobility/traffic information and application, helping the user with mobility planning.
- Multimodal contactless card "Tarjeta sin Contacto."

Land area

178.69 km² (Municipality of Rosario, n.d.)

Population

948,312 inhabitants (Municipality of Rosario, n.d.)

Population density

5,726 inhabitants/km²

Population growth rate

+4.3%

Name of the Mayor

Mónica Fein

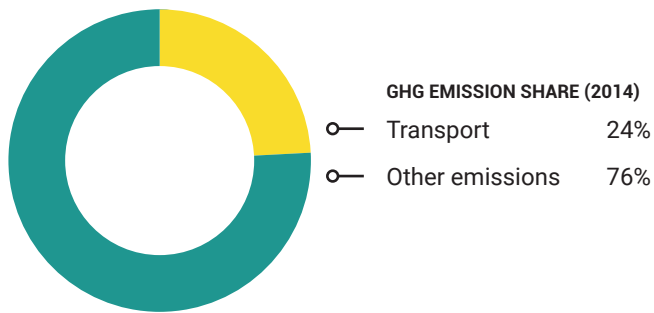
Main website (municipality)

www.rosario.gov.ar

FREIGHT

Rosario has a long standing tradition of planning that makes the city a pioneer in diverse and strategic policies. The city's sustainable mobility vision is outlined in the Mobility Pact (2010) with three main strategies: promoting mass public transport, promoting non-motorized transport, and discouraging the use of individual motorized transport. Rosario's freight-related transport system includes an international airport, train lines, river ports and roads. The city's economic growth has put strong mobility demand that has directly impacted the overall transportation system, creating challenges for both passenger and freight transport, and also impacting urban life. The significant use of private motorized transport and old heavy-duty vehicles for freight transport has contributed to the city's traffic congestion and pollution. One of the most important actions that impact freight transport in the city is the recently inaugurated third lane on Circunvalar Avenue. This has reduced travel time and congestion for heavy, light cargo and private vehicles.

GHG EMISSIONS PROFILE



Rosario produced 4,288,763 tons of CO₂e in 2014, of which the transport sector contributed 24 percent. A major share of the sector's emissions comes from heavy goods vehicles. Emissions from freight transport are expected to increase due to concentrated economic activities in the city.

TRANSPORT DECARBONIZATION STRATEGIES

Given the concentrated and growing economic activities occurring within the city, and given the presence of a major railroad terminal and shipping center, the freight sector in Rosario requires comprehensive management strategies. The city is also looking into e-mobility infrastructure and has created charging infrastructure in the downtown.

The Integrated Mobility Plan (PIM) 2010 was the result of a participatory process that included citizens, institutions and local and international experts to prioritize pedestrians and cyclists. The PIM consists of a series of projects and actions that aim to achieve a mobility model that optimizes fast, comfortable and safe mobility, and which improves the quality of life. The PIM also promotes social inclusion and encourages sustainable modes of transport. Some objectives of the plan include:

- Developing a quality and inclusive integrated transport system that incorporates rail transport, tramway, dedicated transport corridors and electric mobility options
- Prioritizing cycling through increasing ridership, investing in maintenance and the expansion and renewal of infrastructure
- Highlighting pedestrians as the protagonists of mobility in the city and expanding the urban infrastructure for pedestrians
- Promoting balanced use of individual motorized transport.
- Organizing loading and unloading urban freight operations
- Promoting the use of clean and renewable energies
- Strengthening the connection between urban planning and mobility planning
- Promoting the development of mobility-related technologies
- Improving awareness and road safety through awareness education
- Strengthening the institutional mechanisms of mobility governance



Santa Fe (Argentina)

ECOLOGISTICS PROJECT CITY PROFILE

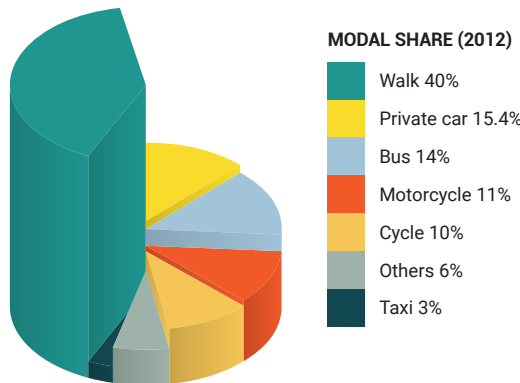
ABOUT THE CITY

Santa Fe is the capital city of the province of Santa Fe in Argentina. It is located in the east of Argentina at the confluence of the Paraná and Salado rivers.

City transport

PASSENGER

As of 2017, the infrastructure of the public bus system consists of 497 km of network serviced by a fleet of 215 vehicles. There is also a dedicated bus lane of 11.7 km in the city. In 2017, the bus system recorded 43.3 million passengers using the service. The city has a public bike-sharing system that started in 2010, "Subite a la bici." In 2017, the city had 23.5 km of cycle lanes while its bike-sharing system had seven docking stations and a fleet of 750 bicycles. Of the 2,349,672 trips that take place daily in the Santa Fe-Paraná Metropolitan Area, trips on foot account for about 40 percent, followed by 15.4 percent by private vehicles.



Land area

Total area: 268 km²
Urban area: 187.60 km²

Population

423,212 inhabitants
(estimate 2018)

Population density

2,224 inhabitants/km²

Population growth rate

2.8% annual

Name of the Mayor

José Manuel Corral

Main website (municipality)

www.santafeciudad.gov.ar



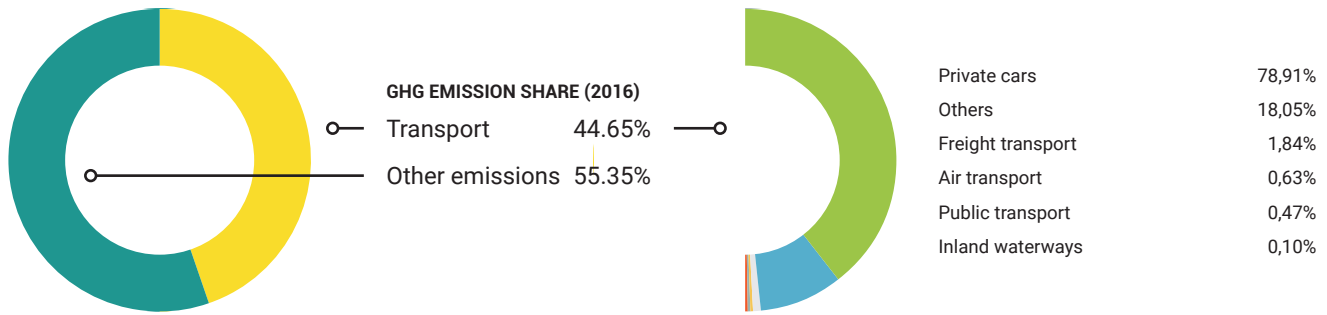
FREIGHT

Freight transport in the city of Santa Fe is almost exclusively carried out by heavy utility vehicles and large trucks (predominantly gasoline-fueled). Light vehicles are mostly used for food delivery services and small parcels, while delivery by bicycle is only just emerging.

The hanging composition of an increasingly interconnected metropolitan environment increases the need for logistic facilities. In this vein, the local government is working on the INTERPUERTOS project⁸, a space for the consolidation and deconsolidation of freight with all the necessary facilities for this purpose. At the same time, private companies have started investing in their own logistics facilities, especially in the food and automotive sectors.

⁸ Ciudad de Santa Fe, n.d. Retrieved from: http://www.santafeciudad.gov.ar/ciudad/comercio_produccion/parque_multimodal.html

GHG EMISSIONS PROFILE



The GHG inventory of the city of Santa Fe was updated in 2016, using the methodology proposed in the Global Protocol for Inventories of Greenhouse Gas Emissions at Community Scale (GPC). In 2016, the total GHG emissions were reported to be 1.12 million tons of CO₂e, with transport representing 44.65 percent, or 0.5 million tons.

TRANSPORT DECARBONIZATION STRATEGIES

In 2017, the city started incorporating ecologically friendly technologies into public transport, with the objective of having 30 percent of its urban public transport fleet powered by Euro V technology by the end of 2018.

Also, the city has maintained a public bike-sharing system since 2010. Called "Subite a la Bici," the program has brought numerous health, social and environmental benefits, while also stimulating a bike culture and raising awareness of active mobility.

The project, INTERPUERTOS Parque Multimodal Santa Fe, is an initiative that will transform the former municipal freight facilities into a modern center for freight transfer and logistical operations. The proposal also foresees that the headquarters of the main transport companies will be located there with necessary facilities for cold logistics (refrigerated products), facilities for drivers to rest, cross-docking services, and warehouses. In addition, the initiative is planning to place a rail freight transfer area on the premises. Ordinances have been passed to achieve the following within the city:

- Achieve secure transit and decrease damages while improving traffic fluidity
- Preserve heritage during renovations through training and the reduction of pollution
- Plan, order and control land use in the city in close coordination with the municipality's transport department
- Regulate the circulation of heavy vehicles and delimit their routes in and out of the city
- Regulate parking in the city
- Establish a municipal parking system



Kochi, Kerala (India)

ECOLOGISTICS PROJECT CITY PROFILE

ABOUT THE CITY

Kochi, previously known as Cochin, is a major port city on the west coast of India by the Arabian Sea; it is part of the district of Ernakulam, in Kerala, and is thus often also called by the name of Ernakulam, which refers to the mainland part of the city. The city of Kochi, with its population of 0.6 million, is the most densely populated city in the state and is part of an extended metropolitan region with a population of 2.1 million, the largest urban agglomeration in Kerala. The civic body that governs the city is the Kochi Municipal Corporation (KMC), which was constituted in the year 1967, and the statutory bodies that oversee its development are the Greater Cochin Development Authority (GCDA) and the Goshree Islands Development Authority (GIDA).

Being a port city, many of the economic activities are linked with the port. Kochi is the gateway through which more than 80 percent of the hill products of the city are exported. Major industries like Fertilisers and Chemicals Travancore (FACT), Travancore Cochin Chemicals (TCC), Hindustan Machine Tools (HMT) and Apollo Tyres, are located in the Kochi Planning Area. During the year 2015-16, Kochi accounted for 12.7 percent of Kerala's GDP.



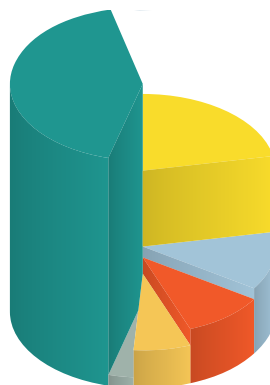
City transport

PASSENGER

Kochi is historically a water-based city which has grown along its water network. The water network of the city consists of three national waterways and 14 inland waterways. Kochi had more than 60 active jetties and water routes including the passenger boats and ferry services. However, with the advancements in land transport, the city has slowly moved towards motorized land transport. This led to the step by step depletion of the water-based transport system. Currently, the

city of Kochi is experiencing increased dependency on private motor vehicles, leading to increased vehicular congestion and emissions. Various traffic and transportation studies conducted for Kochi indicate inadequate transport infrastructure and a high growth in the private vehicle share in the city and surrounding region.

In 2017, the Kochi urban area experienced 2,107,218 daily trips with a per capita, per day trip rate of 1.06, an average trip length of 10.8 km, and an average speed of 23 km/h. Personal motorized vehicles (two-wheelers and cars) constitute a phenomenal 79 percent of the total vehicles, whereas public transport vehicles (buses) constitute only 4 percent. That being said, this 4 percent of buses carry 49 percent of the trips.



MODAL SHARE (2016)

Public transport	49%
Two-wheeler	19%
Walk	12%
Private car	10%
Auto-rickshaw	7%
Cycle	3%

Land area

City: 94.88 km²

Urban area: 330.02 km²

Population

City: 0.6 million inhabitants

Urban area: 2.1 million inhabitants

Population density

7,100 inhabitants/km²

Connectivity

Air, rail, water and road

Name of the Mayor

Smt. Soumini Jain

Economy

Trade and tourism

Main website (municipality)

www.cochinmunicipalcorporation.kerala.gov.in

FREIGHT

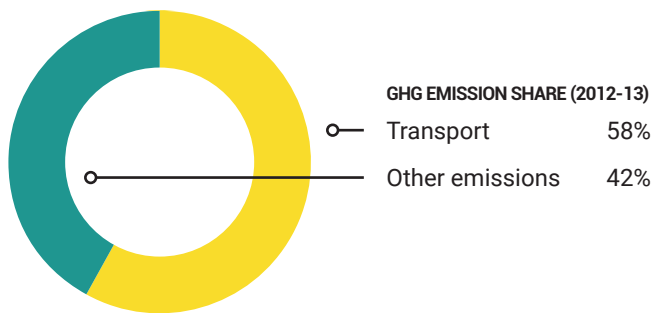
Although city authorities are concerned with the road traffic level and its impacts on the urban environment, much of this concern has been directed at passenger traffic, mainly public transport and private vehicles. Compared to passenger traffic, little consideration has been given to urban freight transport. There is no institution or department responsible for efficient management of freight movement within the city. This makes urban freight more complex than passenger traffic.

Kochi is one of the major ports in India and is the site of considerable container movements. Container movement and other goods movement mainly occurs in three directions, through both directions on National Highway (NH) 17 and north-east to NH 47. All this traffic brings freight movement through the inner city.

According to various transport studies, inter-city goods traffic in the region in 2017 was handled by a number of goods vehicles consisting of 11,176 trucks, 8,690 mini-trucks/tempos and 6,262 auto-rickshaws. Goods measuring 80,797 metric tons were transported to various destinations. A substantial number of goods vehicles (78 percent) either originated from or terminated in Kochi City. Only 21 percent of the total vehicles were found to be bypassing or passing through the city.

Additionally, the exact number of inter-city goods trips by independent retailers and local convenience stores is unknown. The majority of Indian cities are estimated to have more than 40 percent of their freight share generated by these stores. Growth in the use of the Internet has led to the rapid development of e-commerce, which is one of the fastest growing consumption sectors in Kochi.

GHG EMISSIONS PROFILE



As per the Solar City Master Plan for Kochi, the GHG emissions inventory was prepared in accordance with the approved principles and standards of the Global Protocol for Community-Scale Greenhouse Gas Emissions (GPC). During the year 2012-13, total emissions were found to be 5.08 million tons of CO₂e with the transport sector accounting for 2.9 million tons of CO₂e (58 percent of total emissions).

TRANSPORT DECARBONIZATION STRATEGIES

Kochi City has formulated a vision to provide safe, secure, efficient, reliable and seamless connectivity that supports and enhances economic, social and environmental sustainability. Some of the strategies identified for decarbonizing transport in Kochi include:

- Integrated land use and transport development to promote balanced regional growth in line with regional development strategies.
- Development of a robust public transport system which includes an extension of the current metro system with non-motorized transport access facilities. The city is also focusing on the expansion of bus services followed by route rationalization.
- Creating an action plan for improving non-motorized transport infrastructure, including the development of "pedestrian only" plazas, bike lanes and junction improvements, to address the accessibility for pedestrians and bicycles.
- Promoting electric mobility: Kochi is exploring various alternatives to mainstream electric mobility in the city. Some of the identified priority areas have seen the introduction of e-rickshaws for the first and last mile connectivity to the metro system in the city. The city is also considering the introduction of electric buses as it revamps its urban transport modes.
- Promoting water-based transport system: Kochi has an extensive but underutilized water network and water-based transport system. Water transport could cater to the city's growing mobility needs. Water transport could play its role in three areas of mobility: passenger transport, freight movement and tourism. Kochi is already implementing a waterbus project which includes 16 routes, 17 jetties and 22 minor jetties. It also includes a revival of jetties with modern facilities to enhance the travel experience as well as the safety of the passengers. In continuation of an existing project, it is proposed to plan an extension of a few routes and the addition of new jetties that could further enhance the passenger experience on a bigger scale.
- Freight Management Action Plan: the city aims to manage and improve its urban freight by proposing the following strategies:
 - Policies to restrict heavy vehicle movements in the city.
 - Exploring the inland waterways for the transport of goods.
 - Developing freight consolidation centers outside the city.

Panaji, Goa (India)

ECOLOGISTICS PROJECT CITY PROFILE

ABOUT THE CITY

Panaji, the capital of Goa, is a vibrant city where the traditional and the contemporary co-exist in harmony. The city, with its picturesque setting, vibrant culture and heritage, rich biodiversity and growing economy, is an international tourism hotspot. Events organized in and around the city like the carnival, the International Film Festival of India, the Sunburn Music Festival, Supersonic, the wine festival and others, attract many international tourists. The economic base of Panaji is formed by tourism, which can be categorized under hospitality, restaurants, trade and commerce. The city is a major trading centre for agricultural products and other commodities among the neighbouring cities. It also serves as the educational and medical hub for the district.



City transport

PASSENGER

Panaji has a unique character due to the Portuguese history of Goa. The city was designed for pedestrians and other non-motorized traffic. Currently, with the growing population and the increase in vehicles, there is pressure on the infrastructure. Traffic jams and parking along streets have become the norm. The public transport system is dependent on private initiatives and only serves lucrative routes. The public transport system in Goa consists of buses, motor cabs, auto-rickshaws and pilots (motorcycles). It is estimated that about two-thirds of the bus operators are private and the state-owned Kadamba Transport buses operate parallel to the private operators. Inadequate public transport with low frequency and overcrowding is causing people to shift to private vehicles, leading to an increase in parking demand in the city. Due to a lack of focus on pedestrian safety, footpaths are not continuous and maintained, leading to poor walking conditions.



MODAL SHARE (2012-13)

Two-wheeler	64%
Private car & jeep	28%
Goods vehicle	3%
Two-wheeler on hire	2%
Rickshaw	1%
Bus	1%

Land area

City: 8.2 km²
Urban area: 21.01 km²

Population

City: 40,017 inhabitants
Urban area: 0.1 million inhabitants

Population density

4,880 inhabitants/km²

Name of the Mayor

Mr. Vithal Dayanand Chopdekar

Connectivity

Air, rail, water and road

Economy

Tourism

Main website (municipality)

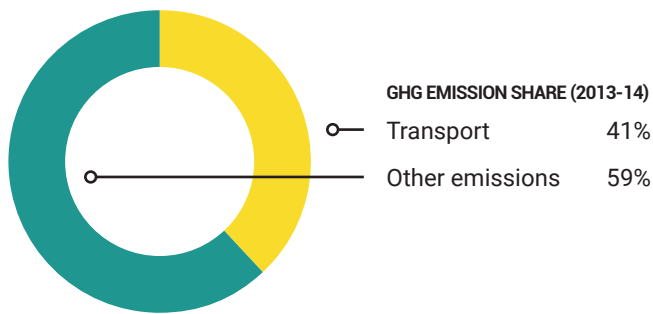
www.ccpgoa.com

Ferry transport is a significant transport mode in the city. There are three jetties transporting people and vehicles across the Mandovi river. The more than 0.3 million passengers are served annually as per the City Development Plan 2041 (CDP). The Goa Tourism Development Corporation (GTDC) and few private operators have introduced river cruises along the Mandovi river in the evenings.

FREIGHT

In terms of goods flows, the entire movement of iron ore in Goa is on waterways. As per the Comprehensive Mobility Plan (CMP), there are 133 barges with an average freight carrying capacity of 807 tons carrying ore by the river to the port, though currently iron ore mining is banned due to environmental issues. Around 8,000 trucks carrying iron ore from across the border (Karnataka) reach the Usgao-Dharbandora hub and diverge into three directions to various unloading points. The Mandovi, Zuari, Sal, Chapora and Talpona rivers are all inland waterways and are used extensively, particularly to transport minerals to the port. In some places in Goa, there are river crossings which are serviced by ferry boats. Since Panaji is visited by approximately 900,000 tourists annually, the consumption of local goods is considerably higher compared to other cities. As per interactions with various stakeholders, it was observed that independent retailers and local convenience stores together represent the majority of all daily deliveries in Panaji. Delivery of goods to these local stores varies from three times a week to twice a day. Also, the delivery vehicles were characterized by low goods fill rates. Growth in the use of the Internet has led to the rapid development of e-commerce, which is one of the fastest growing consumption sectors in Panaji. Additionally, food delivery applications, such as Uber Eats, Zomato and Swiggy, constitute a major share of goods trips. However, e-commerce and app-based food delivery companies rely on private two-wheelers for goods deliveries.

GHG EMISSIONS PROFILE



The existing GHG emissions inventory was prepared in accordance with the approved principles and standards of the Global Protocol for Community-Scale Greenhouse Gas Emissions (GPC).

During the year 2013-14, the transport sector contributed to approximately 55,406 tons of CO₂e, i.e. 41 percent of the total GHG emissions.

TRANSPORT DECARBONIZATION STRATEGIES

The City has proposed to implement a public bike-sharing system for the entire city along with the introduction of services in the city for bus tracking. Other elements include journey planning through mobile applications based on real-time data to optimize operations and boost ridership. The following are also proposed as part of a larger low-carbon development strategy:

- Expand the city bus service network and integrate it with proposed pedestrian zones, bike-sharing stations and ferry routes to ensure last mile connectivity and accessibility.
- Implement a light bus rapid transit (BRT) route service from Karmali Station to Panaji.
- Introduce a hop-on hop-off bus service in the core city area and along touristic sites to reduce congestion.
- Shift towards the use of compressed natural gas (CNG) fuel in the city bus fleet.
- Improve and increase the frequency of existing ferry systems for Betim-Panaji, Riabander-Chorao and Riabander-Divar, and develop new ferry routes along Old Goa-Divar-Ribandar-Panaji, Divar-Chorao-Ribandar-Panaji, Divar-Chorao-Brittona-Panaji, Ribandar-Panaji and Brittona-Panaji.
- Develop a pedestrian footpath network around 18th June Road, Swami Vivekanand Road and Governador Pestana Road, and pedestrian zones along DB Road and historical areas like Panaji Church, Boca Da Vaca and Miramar Beach.
- Enforce motorized vehicle-free zones in the city core area.
- Restrict and regulate the entry of heavy vehicles in the city via zones and scheduling.
- Encourage mixed-use development as a combination of residential, commercial, cultural and institutional uses, where these functions are physically and functionally integrated, and which provides pedestrian connections, reducing the need for long distance trips.



Shimla, Himachal Pradesh (India)

ECOLOGISTICS PROJECT CITY PROFILE

ABOUT THE CITY

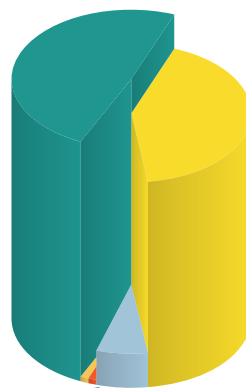
Shimla is the capital and largest city in the state of Himachal Pradesh. It is a popular hill station and one of India's most preferred tourist destinations. The city has a population of 0.16 million but manages to attract 2.8 million tourists annually. Being the state capital of Himachal Pradesh, the city houses all important governmental institutions and provide administrative offices, in addition to the education and medical hub for Himachal Pradesh. The city lies in the foothills of the Himalayan mountain range and is spread over seven hills, namely, Jakhoo Hill, Elysium Hill, Museum Hill, Prospect Hill, Observatory Hill, Summer Hill and Potters Hill. These hills are interconnected by roads. Thus, the development pattern in Shimla is governed by topographical constraints such as steep slopes, elongated hills and forest areas. During the year of 2015-16, the Shimla district contributed 13.76 percent of the GDP of Himachal Pradesh.



City transport

PASSENGER

Mobility in Shimla is unique. The hilly terrain of Shimla requires horizontal as well as vertical mobility. With restrictions imposed on traffic movement in the city (some streets allow only one-way traffic, the Mall Road - the main commercial street in the city center - does not allow any vehicular traffic), mobility and access are constrained within the limited space. While horizontal mobility is primarily on arterial roads that are open to traffic, vertical mobility options are limited to a lift between Mall Road and Cart Road, as well as pathways or staircases connecting various streets.



MODAL SHARE (2011)

Public transport	49%
Walking	42%
Private car	7%
Cycling	1%
Taxi	1%

Due to the growth of the city and increase in the number of tourists, the number of registered vehicles in the Shimla Planning Area has increased substantially in the last decade (at a decadal growth rate of 34 percent). Traffic volume studies indicate that traffic volume is exceeding road capacity on most of the roads. Studies registered a number of 113,230 daily trips, with a 49 percent share by public transport and 43 percent share for non-motorized transport. Merely 8 percent of trips were undertaken using private motorized vehicles. Currently, 308 buses (205 owned by Himachal Road Transport Corporation and 103 private buses) cater to public transport demand in and around the city. Despite the fact that private vehicles account for just 8 percent of the trips, there is a fascination with multi-level car parking (MLCP). The city has an existing MLCP with a capacity of 1,480 equivalent car spaces (ECS), while another MLCP with a capacity of 744 ECS is under construction. Roads in the city have poor walking conditions, with very little focus on safety. The total number of private vehicles has increased from 48,000 in 2011 to 71,781 in 2013.

Land area

City: 35 km²

Shimla Planning Area: 100 km²

Population

0.16 million inhabitants (2011 census)

Population density

4,800 inhabitants/km²

Connectivity

Air, rail and road

Economy

Tourism

Name of the Mayor

Smt. Kusum Sadrate

Main website (municipality)

www.shimlamc.org

FREIGHT

Compared to passenger traffic, little consideration has been given to urban freight transport in Shimla. Some of the reasons for this neglect are the lack of a single institution or department responsible for the efficient management of freight movement within the city. This makes the urban freight more complex than passenger traffic. Unlike passenger traffic, where data is of better quality and quantity, the data on urban goods movement in Shimla is almost non-existent.

The majority of goods are transported through roads since Shimla is externally connected only through narrow gauge rail network. In Shimla, the wholesale markets for grain and timber are located in the heart of the city in areas such as Lower Bazaar and Lakkar Bazaar. The timber market at Lakkar Bazaar creates traffic congestion during peak hours. The city has fruit godowns at Pantha Ghati, Bata Kuffer and Mesobera. Therefore, the city has restricted the movement of freight

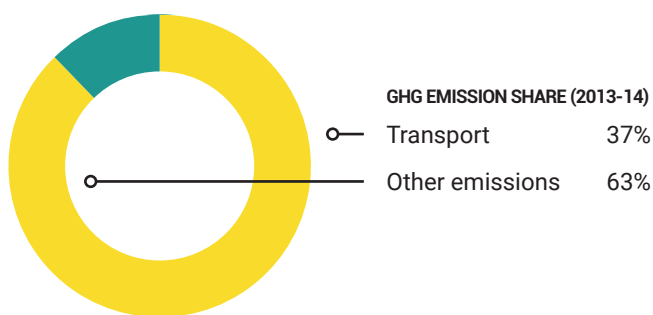
vehicles during peak hours. Loading and unloading of goods is allowed from 8:00 pm to 7:00 am. On average, 34.4 percent of freight traffic is found to be external-to-external (EE) traffic. Most of the freight traffic in the city is concentrated on two roads:

- Outer ring road: Dhalli – Dhalli Tunnel – Bata Kuffer – Malyana – Mehli – Pantha Ghati – BCS – Khalini – ISBT – Victory Tunnel – Lakkad Bazaar – Sanjoli Bypass – Dhalli.
- Inner ring road: Old Bus Stand – Chota Shimla – Sanjoli – Lakkad Bazaar – Victory Tunnel – Old Bus Stand.

In core city areas with steep slopes and surrounding markets such as Lower Bazaar, Kart Road and Mall Road, the last mile delivery of goods is dependent on human porters. The latter charge between 60 to 200 Indian rupees based on the weight of goods. The porters carry goods up to 50 kg in a single trip without the use of any mechanical instruments.

Since Shimla is visited by approximately 2.8 million tourists annually, the consumption of local goods, especially food and groceries, is considerably high compared to other cities. As per interactions with various stakeholders, it was observed that independent retailers and local convenience stores together represent more than 60 percent of daily deliveries in Shimla. Delivery of goods to these local stores varies from twice a day to three times a week. Growth in the use of the Internet has led to the rapid development of e-commerce, which is one of the fastest growing consumption sectors in Shimla. Companies such as Amazon and Flipkart have opened their own warehousing facilities in the outskirts of the city.

GHG EMISSIONS PROFILE



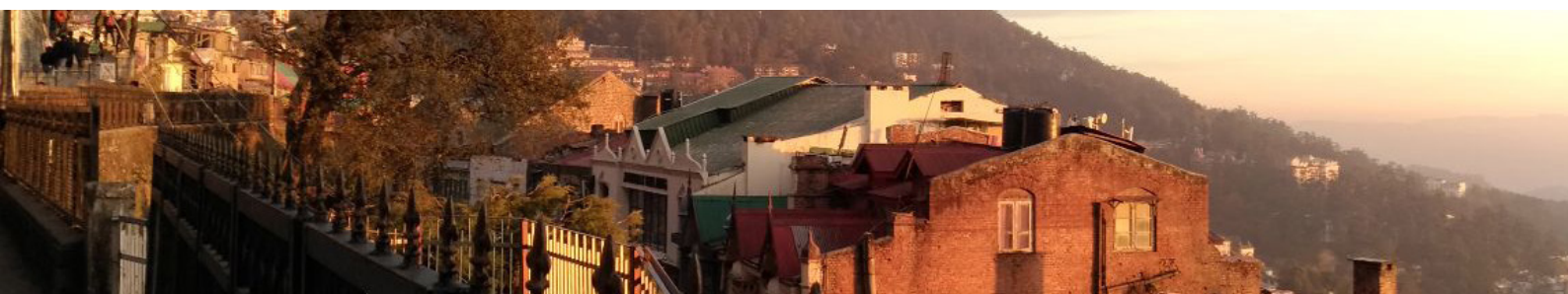
The emissions inventory for Shimla was developed under the EU-funded Urban LEDs project for the year 2013-14. The GHG emissions inventory for Shimla city was prepared in accordance with the approved principles and standards of the Global Protocol for Community-Scale Greenhouse Gas Emissions (GPC). During the year 2013-14, total emissions were found to be 222,637 tons of CO₂e, with the transport sector contributing to 37 percent of it.

TRANSPORT DECARBONIZATION STRATEGIES

The transport sector in Shimla, with a mode share of 43 percent for non-motorized transport and 48 percent for public transport, is less carbonized compared to other cities. However, heavy tourist inflows, along with hilly topography, create congestion on the narrow roads of the city. The average speed on Cart Road (a commercial street) during peak hours ranges from 2 km/h to 12 km/h, which increases pollution and emissions. The City has constructed 410 m of ropeway and a further 3.6 km (with a capacity of 1,000 passengers per hour per direction) is under construction. To encourage active mobility, 31 km of main roads in the city center are proposed to be developed with segregated bike lanes on one side and pedestrian footpaths on the other side. In addition to designated bike lanes, 15 docking stations with 88 bicycles have been proposed to start a citywide public bike-sharing system. The city authorities are also adopting the following strategies to decarbonize transport:

- Integrating land use and transport planning.
- Controlling the movement of personal vehicles.
- Encouraging the public transport system and other sustainable modes of transport.

The City Development Plan (CDP) has suggested the relocation of non-conforming activities like timber markets, transport hubs, wholesale grain markets, and a wholesale vegetable market in the peripheral areas to decongest the core areas. It is envisaged that these relocations will reduce 25 percent of freight-related traffic in the congested city core areas (like Lakkad Bazaar). This reduction in traffic will have a significant impact on the emissions in the city.



CITY PROFILE SUMMARY

	COLOMBIA		
	BOGOTÁ	AMVA	MANIZALES
POPULATION (YEAR) (IN MILLION)	7.3 (2016)	3.9 (2018)	4.0 (2018)
AREA (KM ²)	413	1,157	571
ECOMOBILITY MODAL SHARE % (WALK/CYCLE/PUBLIC TRANSPORT)	72	63	61
TOTAL GHG EMISSIONS (MILLION TONS OF CO ₂ EQUIVALENT)	12.10	7.08	1.59
REPORTING YEAR	2012	2015	2014
SHARE OF TRANSPORT EMISSIONS (% OF TOTAL EMISSIONS)	29.67 (land transport)	39 (land transport)	27.23
SHARE OF FREIGHT TRANSPORT (% OF TOTAL TRANSPORT EMISSIONS)	N/A	N/A	40



ARGENTINA			INDIA		
BUENOS AIRES	SANTA FE	ROSARIO	KOCHI	SHIMLA	PANAJI
3.06 (2018)	0.41 (2017)	0.94 (2017)	0.6 (2011)	0.16 (2011)	0.11 (2011)
203	268	178	330	100	21
66	64	59	57	92	NA
13.10	1.12	4.28	5.08	0.22	0.13
2016	2016	2014	2013	2013	2013
28	44.65	24	58	37	41
N/A	N/A	N/A	N/A	N/A	N/A

Disclaimer: The information contained in this report were provided by the respective cities exclusively for the purpose of the ICLEI led EcoLogistics project. Any data inaccuracies, errors or omissions in this reports are therefore not ICLEI's responsibility and should be brought to the attention of the project team.



PARTNERS

IKI EcoLogistics is a project implemented by ICLEI - Local Governments for Sustainability. The ICLEI World Secretariat is responsible for project management and coordination. ICLEI South America Secretariat and ICLEI South Asia Secretariat are the implementing partners. Despacio, the Smart Freight Centre and the Zaragoza Logistics Center are technical partners for this project.

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