

Thirteen years of policies to control injuries: The experience of Bogotá, Colombia

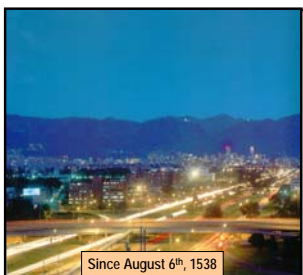


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Injury prevention and control

- Context
- Principles
- Violence prevention strategies
- Transport injury reduction strategies
- Future directions

Context




Since August 6th, 1538




Altitude: 2,640 mts (8,661 feet)
Average temperature: 14°C (57°F)
Population: 7,185,889
Per capita GDP: US\$ 3,300
Area: 300 km² (116 sq mi)
Pop. Density : 21,000/km² (54,380.9/sq mi)

Context



Pre - 1900: Small, colonial, concentric


Political violence at the end of 19th century



1900-1930: Linear expansion tramways

April 1948: Political violence

Context




1930-1970: Bus and car development, huge demographic growth

Political and community violence

1970-1999: Growth persists, increased density, insecurity, traffic congestion.


Considerable increase in political violence, narcotraffic, and community violence.



Context

1990's Bogotá was choked with:


- Institutional corruption
- Rapid urbanization
- 5% annual increase in population
- Disorganized institutions
- Lack of information
- Lawless traffic
- Severe problems of security
- Inadequate city planning
- Increased population demands

 Context

- Four city administrations
- Adequate fiscal management
- Change in individual and institutional culture
- Development of city infrastructure

Injury prevention and control

- Context
- **Principles**
- Violence prevention strategies
- Transport injury reduction strategies
- Future directions

 Principles

- Respect for life
- Egalitarianism
- Use of non-violent strategies
- Promotion of community control
- Development of collective leadership
- Sustainable, efficient, local solutions

Program approach - 1

"Educate the city"

- Culture of citizenship
- Public space
- Environment
- Social progress
- Urban productivity
- Institutional legitimacy



Program approach - 2

"For the Bogotá we want"

- De-marginalization
- Social integration
- City on a human scale
- Mobility
- Urbanism and services
- Security and harmony
- Institutional efficiency

Injury prevention and control

- Context
- Principles
- **Violence prevention strategies**
- Transport injury reduction strategies
- Future directions

 Initial strategy 

Political:



- Majors from non-traditional parties (more freedom)
- Strong public demand for change

Economic:

- Increase in revenue (doubling)
 - Simplifying taxes
 - Increase in gasoline taxes
 - Enforcement of tax evasion (real estate tax reviews)
 - Increase in real estate taxes based on urban improvements
 - Readjustment of public service tariffs
 - Co-pay from national government
 - Asking people to volunteer more tax \$\$ (65,000 responded)

 Initial strategy 

- Constitutional re-definition of security (less punitive)
- Strengthening of metropolitan police
 - Resources
 - Education (Human rights, peaceful coexistence, developers of citizens.
 - Housing and insurance
 - Community participation
- Justice system: (Family courts, mediation units, police stations, "Justice houses" (HR), improvement of detention centers)
- Improvement of services to vulnerable groups (homeless, sexual workers, addicts)

 Initial strategy 

- Prevention of risk factors of injuries (weapons, EtOH, change in attitudes and behavior of population, restrictions of fireworks, traffic policies.
- Emergency preparedness
- Institutional coordination:
 - District security council
 - Committee of surveillance of external causes of injuries
 - Local security councils

Information system

- Improvement of Legal Medicine Surveillance system
- Improvement of police surveillance system
- Standardization of key variables within systems
- Integration to government secretariat (from 3 people to whole unit)
- Use in security councils and incorporated as core element of governance

Description of situation



Injury-related mortality rates per 100,000, 1960-1993

- High mortality due to violence
- Mostly among young men
- 80% related to weapons



Source: National Institute of Legal Medicine and Forensic Sciences

Interventions

- Voluntary disarmament
- Gun buy-back program (church key partner)
- Reduction of functioning hours for bars – « hora zanahoria »
- Stricter controls of alcohol sales
- Ban of concealed firearms in selected time periods
- Evidence based policies at short- medium- and long-term

 Interventions 

- Strategy to seize weapons applied citywide using police checkpoints, and traffic stops.
- Strategy applied from Fridays at 18:00 hrs until Mondays at 06:00 hrs in the selected weekends.
- Data collected from January 1995 to August 1997

 Evaluation of interventions 


- 79 % of the homicides were due to firearms. Remaining % mainly knives or other cutting and piercing instruments.
- Two thirds Males b/w 15-34 yrs.
- 67% Occurred b/w 18:00-06:00 hrs.
- 14% reduction in homicide rates when ban implemented

 Behavioral modifications 




- Non-aggressive behaviors through rule of law (Enforcement cards)  
- 420 mimes: "Twice disarmed"
- Actors dressed as monks reflection on noise pollution
- Mass initiatives to promote tax payments
- Observatory of Urban Culture




 Links to other injury problems


Modification of aggressive behaviors

- In transport (road rage)
- Towards institutions
- Towards other citizens

Injury prevention and control

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 Transport



- 876,000 private vehicles (16% use 95% of network)
- 77,000 public service (22,000 buses, 55,000 taxis)
- Average speed: 8.7 mph
- 2-3 hrs commutes
- 11 million trips/day
- 8% unpaved

  Transportation: Objectives

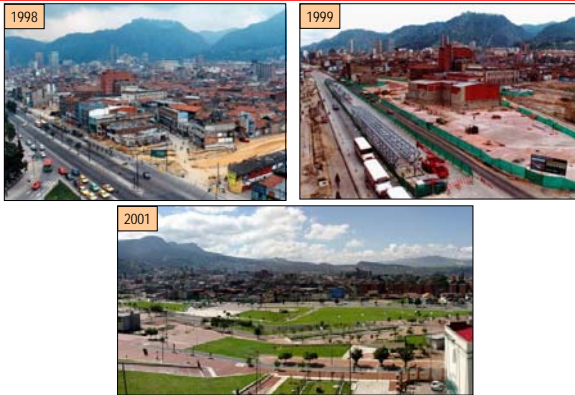
- Recovery of public space
- Development of a Mass Transit System
- Improvement of technology for traffic management
- Development of alternative means of transport (i.e. Bicycles)
- Reduction of use of private automobiles
- Improvement of road network


 Public space and safety

- High concentration of people who recycle garbage
- Extremely poor living conditions
- High level of homelessness
- Poor health outcomes
- Highest rates of violent crime in the city
- Drug and weapon trafficking




 Public space and safety



 Pedestrians and public space



 Pedestrians and public space



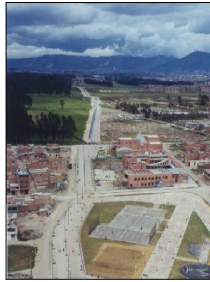
 Public space, and environment

Creation of environmental axes





Pedestrian mobility



- Construction of the world's longest pedestrian-only street – 17 km (10.2 miles)
- Hundreds of miles of sidewalks in poorest neighborhoods



Pedestrians and public space



Before

Recovery of space for pedestrians



After



BRT systems in the world:



BRT systems in the world:



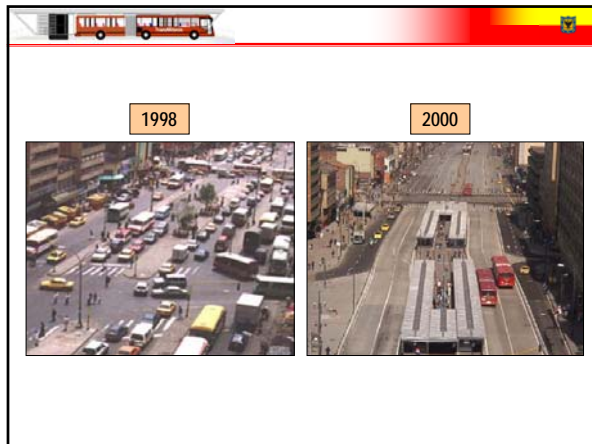
Bogotá, CO

Economic strategy



- Economically viable
- US\$ 3.3 billion master plan
 - Previous proposals LRT (16 miles)
 - BRT selected (241 miles)
- Taxes, loans, negotiation with usual providers



A world-class Bus Rapid Transit (BRT) system of dedicated bus lanes called TransMilenio




Characteristics

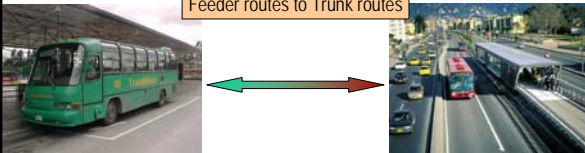



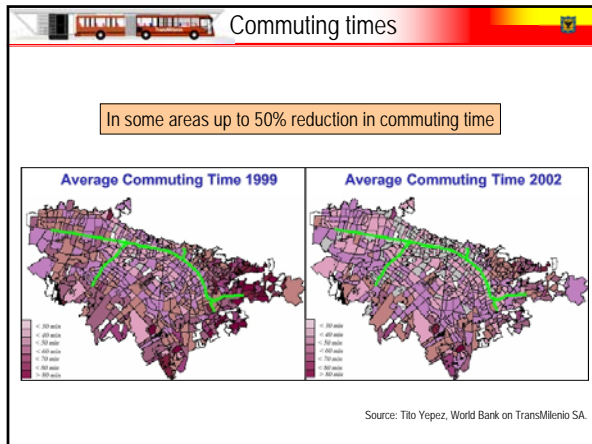
- Dedicated lanes
- Fixed stations (every 800mts)
- High frequency
- Same level access
- Electronic payment
- GPS location of buses

Network



Feeder routes to Trunk routes






- ### Replication
- Replication of system in six other Colombian cities
 - Interest in Bogotá model among other countries including:
 - Santiago, CL
 - Panama City, PA
 - Lima, PE
 - Mexico DF, MX
 - Cape Town, Pretoria, Johannesburg, ZA
 - New Delhi, IN
 - Jakarta, Yogyakarta, Surabaya, ID
 - Guangzhou, Hong Kong, CN
 - USA

Additional measures

- DUI checks
- Traffic calming measures
- Legislation – « Pico y Placa »

 **Community involvement**

- **Proposition 1: Annual Car Free Day**
The institution of an annual Car Free Day for the city, building on an award winning experience (24 February 2000).
- **Proposition 2: Pico y Placa – 2015**
Creation of a firm legal framework to support the phased elimination of **all** peak hour car traffic in the city, building in increments on the existing 'Pico y Placa' scheme and to be completed as of 2015.

Results of the 29 October Consultation*

Annual Car Free Day:
 Yes 63.1%
 No 26.3%
 Valid votes cast 1,253,053


Pico y Placa - 2015
 Yes 51.2%
 No 34.3%
 Valid votes cast 1,016,674

* Source: Registraduría Distrital, 17 Nov. 2000


 **"Bikeways"**

- Started in the 80's
- Partial closure of road network on Sundays and holidays
- Promotion of sport and recreation



 **Bike routes: City-wide network**

- Latin America's largest network of bicycle routes, 150 miles long (250 km)





Bike routes: Integrated system





Integration with BRT



1997: 0.5% use bikes
2001: 5% use bikes

Massive increase in sales of bicycles








Car-Free Day

The planet's biggest Car-Free Day, during which private vehicles are not allowed to enter the entire city of 135 square miles (35,000 hectares) - (Every first Thursday of February)



 Prevention 

- Establishment of safety and design codes
- Focus on long-term primary prevention
- Separation of users within network

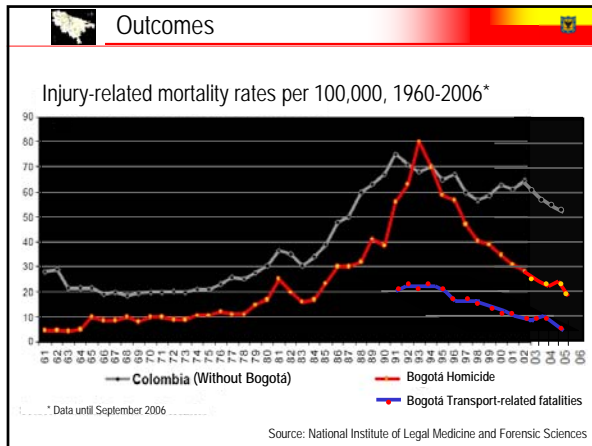


Prevention of injuries 

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 Improved social services 

- Relocation of people to places with better services
- Improvement of utility coverage and services
- Creation of spaces for leisure
- Creation of library system



Recognition

- First mass transit system in the world to be considered a clean development mechanism (CDM) in accordance with the Kyoto Protocol.
- Stockholm Challenge Prize (2000) for the development of car-free day
- Bill and Melinda Gates Foundation « Access to learning » prize for BiblioRed (library network)
- UNESCO City for Peace Prize (2003)
- Biennale di Venezia, 10th International Architecture Exhibition 2006 Official Awards Cities: Architecture and society: « Golden Lion Award » for cities.

Future directions

Safety:

- Continued conflict within country
- Increased demand for enforcement
- Vandalism of city property
- Legislative hurdles
- Alcohol consumption
- Use of firearms

Future directions

Transport:

- Six phase expansion of transport system
- Increased demand vs. system collapse?
- Competition with other providers
- Automobile industry and motorization
- Legislative hurdles – vehicular restrictions
- Speed limit enforcement
- DUI enforcement
- Helmet use among bicycle riders
- Vehicle safety standards

Future directions

Legislative and economic:


- Restriction of weapons
- Alcohol sales
- Cultural attitudes
- Permanent restriction of cars during peak times
- Continuous financing of the system (maintenance and expansion)
- Mobility and productivity

Future directions

Property value

Source: Targa, F., Rodriguez, D. A. "Analysis of Bogotá's Bus Rapid Transit System and its Impact on Land Development." *Carolina Planning Journal*, Vol. 29, No. 1, 2004

UNC – Department of City and Regional Planning



Future directions

Environmental:

Caracas Ave (TransMilenio)

Year	SO2	NO2	PM-10
2000	6.8	24.0	50.8
2001	3.9	19.7	44.8

- Reduction of particulate matter
- Reduction of green house gases

Still a long way to go...

Conclusion

- Integrated approach
- Technical expertise (capacity building)
- Community participation and culture of citizenship
- Evidence based
- Application of principles of prevention and health promotion
- Sustainable strategy adapted to local needs

Photographs

Photographs courtesy of:

- 1 – Instituto de Desarrollo Urbano, Bogotá
- 2 – Bogotá-dc.com
- 3 – Alcaldía Mayor de Bogotá.
- 4 – TransMilenio, S.A.
- 5 – Periódico El Tiempo.
- 6 – Cain A, Darido G, Baltes MR, Rodríguez P, Barrios JC. Applicability of Bogotá's BRT system to the United States. DoT, USA.
- 7 – Dario Hidalgo, Foto Akiris and FPPOQ in Integrated policies for sustainable transportation: The Bogotá Experience, World Bank, Washington, DC.
- 8 – Rafael Guerrero, Terra.com, 1995
- 9 – National BRT Institute, FL, USA.
