



Libertad y Orden

**COLOMBIAN CLIMATE CHANGE MITIGATION GROUP**  
**MINISTRY OF ENVIRONMENT, HOUSING AND TERRITORIAL PLANNING**



Ministry of Environment, Housing and Territorial Planning  
Republic of Colombia

Libertad y Orden

**NATIONAL EXPERIENCES IN EXPANDING URBAN PUBLIC  
TRANSPORT SERVICES: BRTs in Bogotá, Cali and Pereira.  
Cable cars in Medellín**



UN FORUM ON CLIMATE CHANGE MITIGATION, FUEL EFFICIENCY  
AND SUSTAINABLE URBAN TRANSPORT

Seoul, Korea – March 16<sup>th</sup> 2010

## Background



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## Bogota – Colombia

- Area: 37,414 ha aprox.
- Population: 7.2 million inhabitants (15% of total)
- High density: 286 inhabitants/ha
- Annual growth rate: 2.5%
- 2,600 m above sea level
- Average temperature: 17°C



### In 1998

- Average trip: 1h 10min
- Speed 12-18km/h
- 70% of PM was contributed by transportation
- 45% Occupancy rate of buses
- 95% of the road infrastructure used by private cars, only 16% of the population transported
- 1,378 car accidents and 66 road fatalities

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## Solutions for mobility and contamination in Bogota



### Metro solution

- Economically unviable
- Long term solution
- Investment cost per km USD\$ 107 million\*

### BRT solution

- Economically viable
- Short/medium term solution
- Investment cost per km USD\$ 5 million\*



Agreement 04/1999 Bogota Council: approved creation of TransMilenio company

\* Source: Transmilenio's PDD

# Background



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## Traditional Public Transport

- 20,065 buses
- 4,112,214 trips/day
- Speed at rush hour 18km/h
- 509 Routes
- Average length of routes 49,2km



## Private cars

- 1,000,000 private cars
- 1,394,301 trips/day

## Individual Public Transport

- 45,724 Taxis
- 350,130 trips/day

## TransMilenio

- 1,132 trunk buses
- 517 feeder buses
- 1,600,000 trips/day (24% traditional)
- Average speed 27km/h
- Trunk lanes 84km
- Feeder lines 551km



Source: Encuesta de Movilidad, DANE, 2005



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## The First Transport Approved Methodology and Registered Project

- **AM0031:** Baseline Methodology for Bus Rapid Transit Projects (Jul 2006)
- **TransMilenio:** Fase II – IV. (Registered Dic 2007)

PROJECT	Emission Reductions
BRT Bogotá, Colombia: Transmilenio Fase II-IVR	59,020 CERs (Jan-Dec 2006) 69,885 CERs (Jan-Dec 2007) 68,813 CERs (Jan-Dec 2008)
BRT Cali, MIO	256,281 ton CO <sub>2</sub> e /year
BRT Pereira, Megabús	33,393 ton CO <sub>2</sub> e /year
Cable Cars, Metro Medellín	16, 954 ton CO <sub>2</sub> e /year
BRT Barranquilla, Transmetro	61,511 ton CO <sub>2</sub> e /year



BRT Cali, MIO



BRT Pereira, MEGABUS

- **AMS-III.U:** Cable Cars for Mass Rapid Transit (Sep 2008)

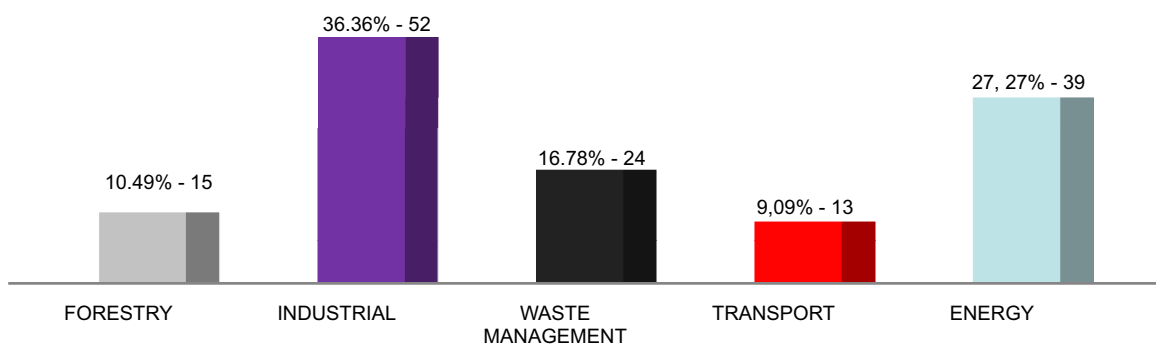


## CDM projects in Colombia



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### Emission Reductions potential in Colombia: **16,761,876 tonCO<sub>2</sub>e/year**



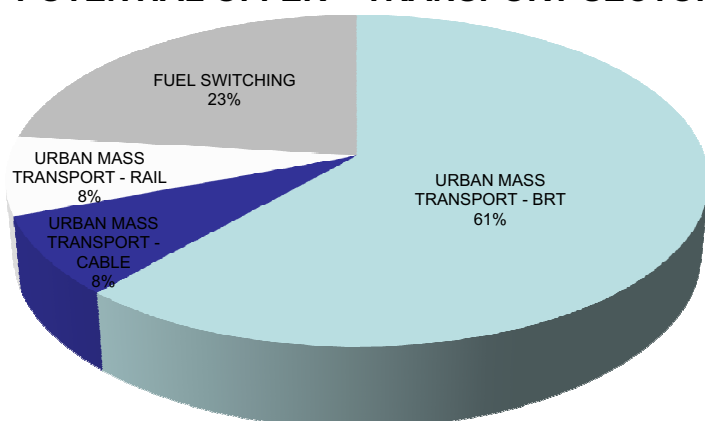
- **145** projects in the Colombia CDM pipeline – **USD 158.4 million dollars**
- **52 LoA** approved by DNA: Sustainable Development Contribution to Colombia – **4,840,993 tonCO<sub>2</sub>e/year**
- **21** Registered by CDM EB – **3,105,082 tonCO<sub>2</sub>e/year**
- **6** projects had issued **643,032 CERs**
- **ERPAs** representing **USD 56.6 million dollars**

## BRT systems as CDM projects in Colombia



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### POTENTIAL OFFER – TRANSPORT SECTOR



■ CERs  
■ LoA  
■ LoA/p  
■ NOL

**BRT Bogotá, Colombia:**  
Transmilenio Fase II-IVR

**MIO, Cali, Colombia**

**Megabús, Pereira, Colombia**

**Cable Cars Metro Medellín**

**BRT Barranquilla, Transmetro**

**BRT Valle de Aburrá, Metroplús**

**BRT Bucaramanga, Metrolínea**

**Railway Mass Rapid Transit ,  
Metro de Medellín**

**BRT Cartagena, Transcaribe**

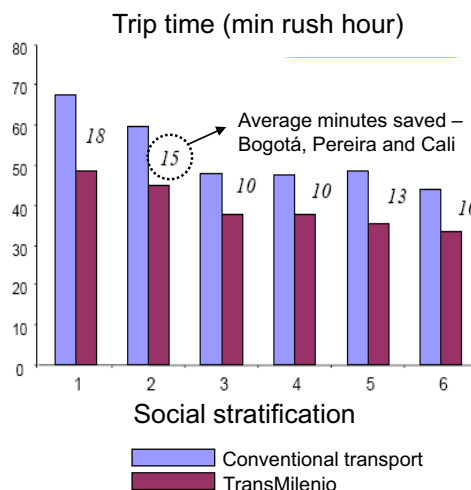
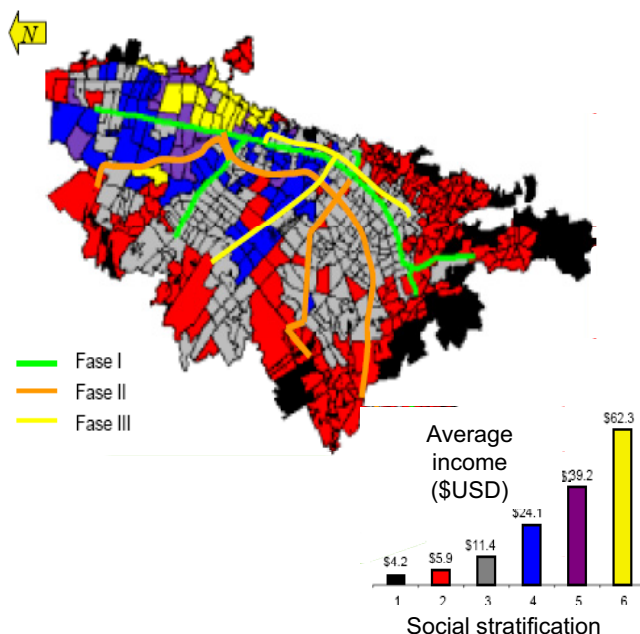
- **13** projects – Emission reductions potential **1.3 million tonCO<sub>2</sub>e/year**
- Urban Mass Transport systems: BRT, Cable Cars, Rail Way systems
- Fuel switching in existing vehicle fleets

## Sustainable Urban Transport evidences



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### Social equity / Social balance/ Urban balance



## Sustainable Urban Transport evidences



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### Bogotá (2001 – 2008)

- Reduction of  $PM_{10}$  : 4,664 ton
- Reduction of  $NO_x$  : 35,356 ton
- Reduction of  $SO_2$  : 723 ton



#### 2001 – 2006\*

- Economic savings in the health sector as a result of emission reductions **USD\$229,662,000**
- Promotion of Non-Motorized Transport: bike trips increased by **3.5%** – 295km of bike lanes
- TransMilenio saves **534,692 barrels** of combustible compared to conventional public transport

#### 2006 – 2008\*\*

- Average **Fuel efficiency** trunk buses **6.3 Km/gal**
- Average **Fuel efficiency** feeder buses **10.2 Km/gal**
- Scrapped units **2,217 large buses** average year **1982**

According to PDD: 2medium buses = 4small buses= 1 large bus

Source: Transmilenio S.A., until 2006 (\*)  
CDM Monitoring Reports, from 2006 (\*\*)





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**Sandra López Tovar**

Colombian Climate Change Mitigation Group  
Ministry of Environment, Housing and Territorial Planning

**[slopez@minambiente.gov.co](mailto:slopez@minambiente.gov.co)**

**Tel. (57-1) 332 3400 Ext. 1179**

**[www.minambiente.gov.co/cambioclimatico](http://www.minambiente.gov.co/cambioclimatico)**