Sustainable Transport and Restraining CO$_2$ emissions in Latin America- good news from a forgotten continent

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Content

Urban transport and climate change

Diagnosis: MEDEC

Tackling the problem:

- BRT systems
- PROTRAM
- Fuel economy standard
GHG Emissions by sector

Source: Mexico’s Third National Communication to the United Nations Framework Convention on Climate Change, Mexico, 2007
Motor Vehicle Ownership
Historical Trend and Projected Growth for Selected Countries

Mexico projection of total fleet by type of vehicle (2009-2030)

Source: MEDEC study, CTS 2008
Mexico projection of total emission per mode (2009-2030)

Source: MEDEC study, CTS 2008
Emission of CO2eq per passenger-km

Source: Transport in Developing Countries, International Energy Agency, PEW Center for Global Climate Change
The problem

The country’s vehicle fleet tripled from 8.3 millions vehicles in 1996 to 21.5 millions in 2006 (average growth rate: 9.6%)

In 2005, import of low efficient used vehicles (+10 years old) from the US amounted 1.3 millions.

Mexico has followed a diffuse urbanization pattern, contributing for urban sprawl.

Deteriorating quality of public transport

Consumer fuel prices have been kept artificially stable in real terms.
Proposed Strategy

To face the difficulties that the transport sector represents, an integrated strategy is required.
Alternate Scenario CTS/MEDEC

- Densification Urban Area
- Energy Efficiency Standard New Vehicles
- Hybrid Buses for Public Transit
- Optimization of Transportation Routes
- Bus Rapid Transit Systems
- Non Motorized Transport
- Vehicular Restriction in 21 Metropolitan Areas
- Vehicle Import Restriction through I & M
- Freight Company Coordination
- Promotion of Freight Trains

MEDEC findings

A dense urban growth policy helps to increase the demand for mass transit systems and hence improves their efficiency.

Measures that improved mobility (travel time and life quality) for people where the ones that offered more social savings.

Transport should be considered as an integrated system formed by the combination of very diverse and linked elements.

Failing to recognize these interrelations in the design of a transport policy may jeopardize its overall success.

Decoupling emissions from economic growth has proven attainable by offering a high quality, efficient and convenient mobility system.
Mitigation Potential

Mobility
- Investment Cost: Low-Medium
- Political Barriers: Medium
- Implementation Timeframe: Medium

534 Mt
41%

Freight
- Investment Cost: Low-Medium
- Political Barriers: Medium
- Implementation Timeframe: Medium

320 Mt
24%

Technology
- Investment Cost: High
- Barriers: Low
- Implementation Timeframe: Low

246 Mt
19%

TDM
- Investment Cost: Low
- Political Barriers: High
- Implementation Timeframe: Medium

216 Mt
16%

The Future for Transport and Emissions

Avoid- Shift- Improve approach:

- Avoiding or reducing the need to travel through improved access to daily needs
- Shifting travel to, or keeping the modal share of the most efficient mode
- Improving existing forms of motorized transport through technological improvements
BRT in Mexico: Metrobus

Scope and Scale

- Transport: BRT in heavily traveled arterials (Insurgentes, Eje 4)
- Reform of model for operators in a corridor
- Little direct concern for CO2 (hybrid buses would have saved little)

Impacts –80,000 ton/CO2 year (2 corridors)

- Roughly 1/3 from bus switch, 1/3 from better traffic, 1/3 from mode switch
- Time saving, pollution, fewer accidents large benefits
- In $, CO2 small benefit even at $85/tonne CO2

Lessons: Transport First, CO2 as a Co-benefit

- Most of CO2 saving comes from non-project vehicles (!)
- Having good long-term data (Inventories) essential for CO2 monitoring
- 1 good transport project can spark dozens like Insurgentes II & Eje 4)
Mexico’s City Metrobus Lines

450,000 people/day over 2 lines (50 km in total)
Lower emissions, CO2, reduced car traffic
Metrobus CO2 Changes by Component

- A. 20 Extra Metrobus
- B. Original 70 Metrobus on Route
- C. Colectivos and RTP Buses Removed
- D. Car Users Shifting to Metrobus
- E. Delays to vehicles crossing Insurgentes
- F. Additional Distance for Left turns
- G. Savings from improved parallel traffic
- H. Remaining parallel traffic

Source: Rogers 2006, 2009
Benefits from Metrobus: Broad Than Just CO2

- CO2 reduction in parallel traffic
- CO2 reduction, mode shift car to bus
- CO2 reduction from bus switch
- Fuel savings to parallel traffic
- Fuel saving, mode switch car to bus
- Fuel Savings from bus switch
- Air Pollution/Health Benefits from lower air pollution
- VKt external costs -- reduction in all traffic
- Time Savings of Bus Riders

For Low CO2 Value ($5/tonne):
- CO2 reduction: $5
- Fuel savings: $10
- Air Pollution/Health Benefits: $5
- Time Savings: $0

For High CO2 Value ($85/tonne):
- CO2 reduction: $5
- Fuel savings: $10
- Air Pollution/Health Benefits: $5
- Time Savings: $0

Million $US (2005)
Federal Support Program for Mass Transit (PROTRAM)

The Federal Government under the framework of Fondo Nacional de Infraestructura (FONADIN) in BANOBRAS Developed by the Treasure (SHCP) with World Bank assistance

The Federal Mass Transit Program (PROTRAM)

Objectives:

- Support cities in developing Mass Transit Investment Projects with high social justification
- Support Projects that are Integral to Sustainable Mobility Plans
- Complement Local Government investment & maximize private investment
- Strengthen local institutions in urban transport planning, regulation & management.
New passenger vehicles fuel economy evolution in Mexico 2002-2008

Source: INE, 2008
Standard proposal

Objective: to achieve 18 km/l corporate average fuel economy for the new light duty vehicle fleet in 2015 (equivalent 130gr CO2/km)

Policy to:

- Mitigate GHG emissions
- Curve fossils fuels consumption
- To cut fossil fuels subsidies (1.87% of the GDP, 2008)
- To diminish fossil fuels imports (44% of the total consumption in 2008)
Standard characteristics

A non attribute flat standard using combined fuel economy (average weighted by sales) of the total new light duty vehicle fleet

- Gasoline only (ULS diesel is not yet available in Mexico)
- Avoiding incentives to increase weight
- As similar as possible with the rest of North America
- Scheme by traders (not manufacturers)
- As flexible as possible allowing changes in fleet composition, technological change and allowing a market to compensate between traders
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World Trade Center, Ciudad de México

Ciudades Competitivas Bajas en Carbono

www.congresotransportesustentable.org
THANK YOU

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