

Symposium on Future Challenges of Transport and Environment

Transport Development in Latin America

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Background

CO₂ emissions

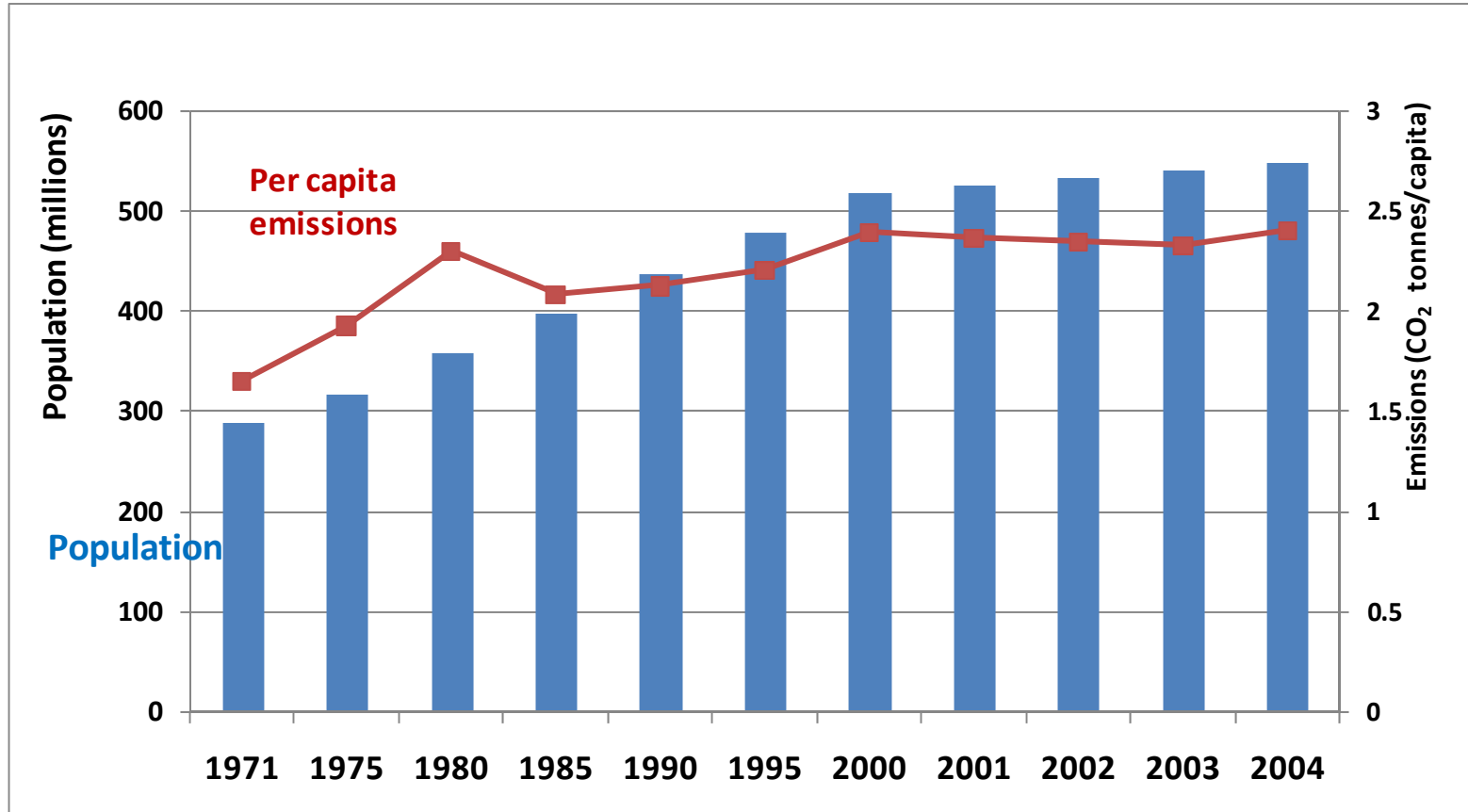
Transportation sector & energy demand

— Transport demand, vehicular fleet and other figures for LA countries

Bio-fuels

Energy efficiency - Mexico

Per capita CO₂ emissions from fuel combustion in Latin America (tonnes)



Source: International Energy Agency. 2006. CO₂ emissions from fuel combustion 1971-2004. OECD/IEA. Paris, France.

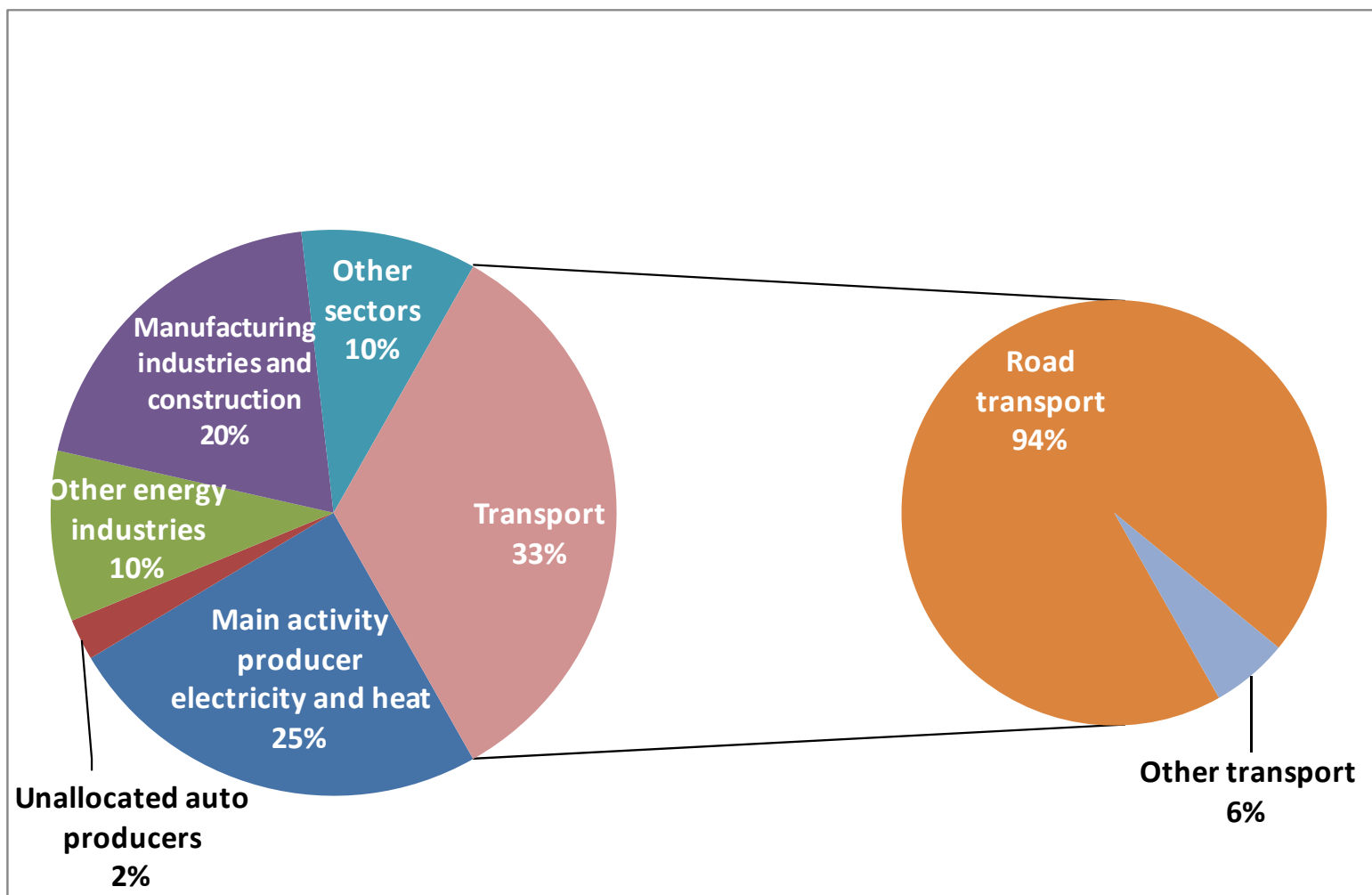
CO₂ Emissions

Where do some LA countries stand?



LA countries: less than 5 tons/capita of CO₂ are emitted

CO₂ emissions from fuel combustion in LA By sector (2004)

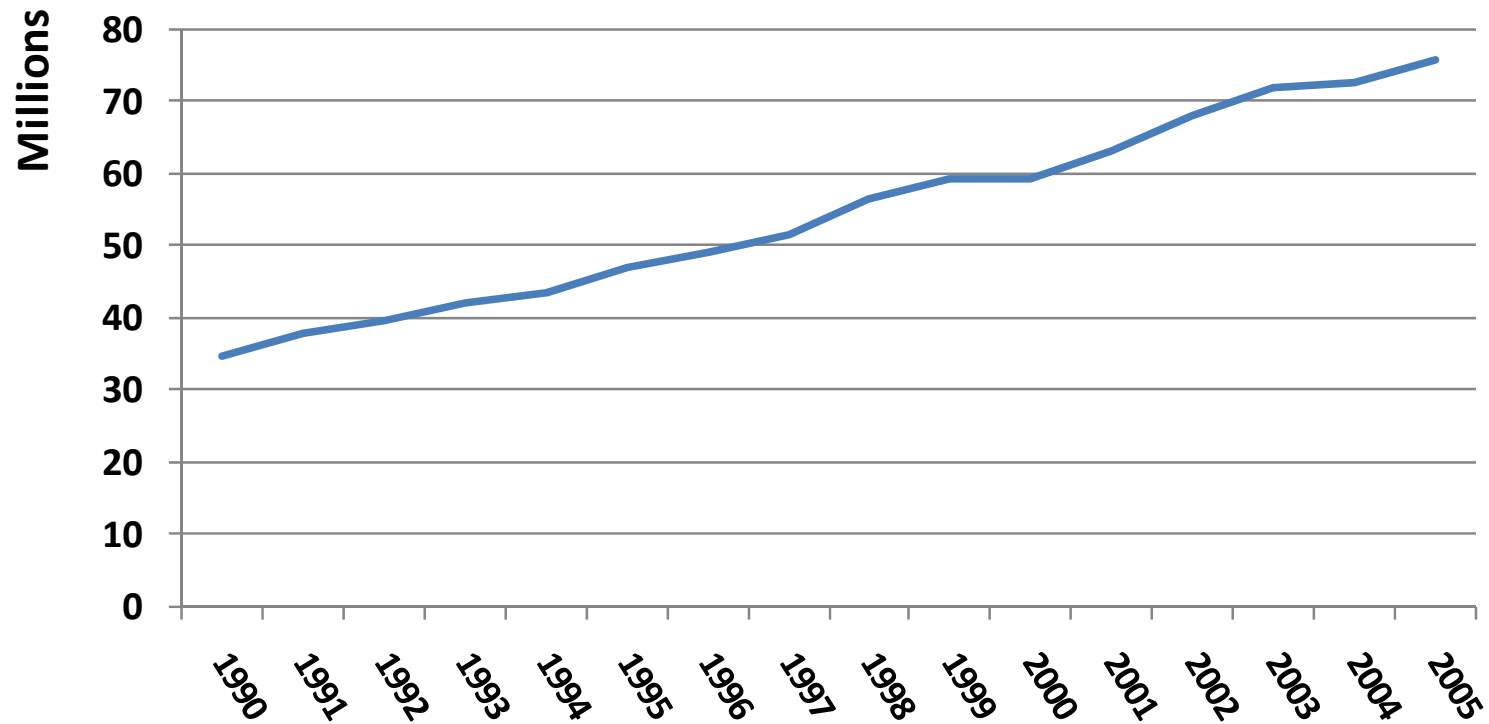


Diesel quality and Low Sulfur Diesel Introduction Calendar

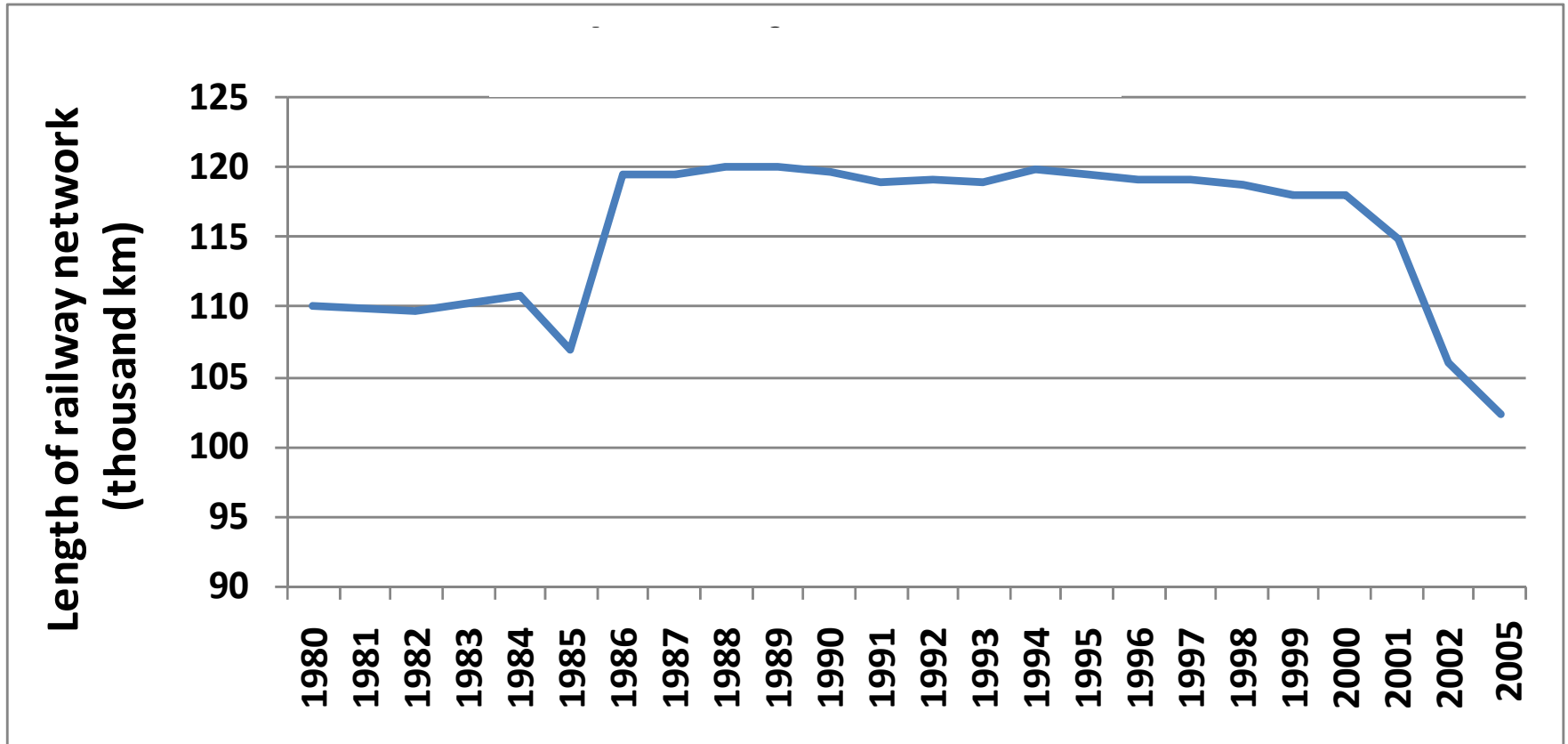
	2006	2007	2008	2009	2010
México	500/300**	500/15**	500/15**	15*	15*
Chile	350/50*	350	350	350	50/10***
Argentina	2500/1500*				500/50
Perú	3000/1500*				50
Colombia	4500/1200*				500
Venezuela	5000				2000
Ecuador	7000/5000*				50
Uruguay	8000				50

- * Metropolitan areas
- ** Northern border region
- *** City of Santiago

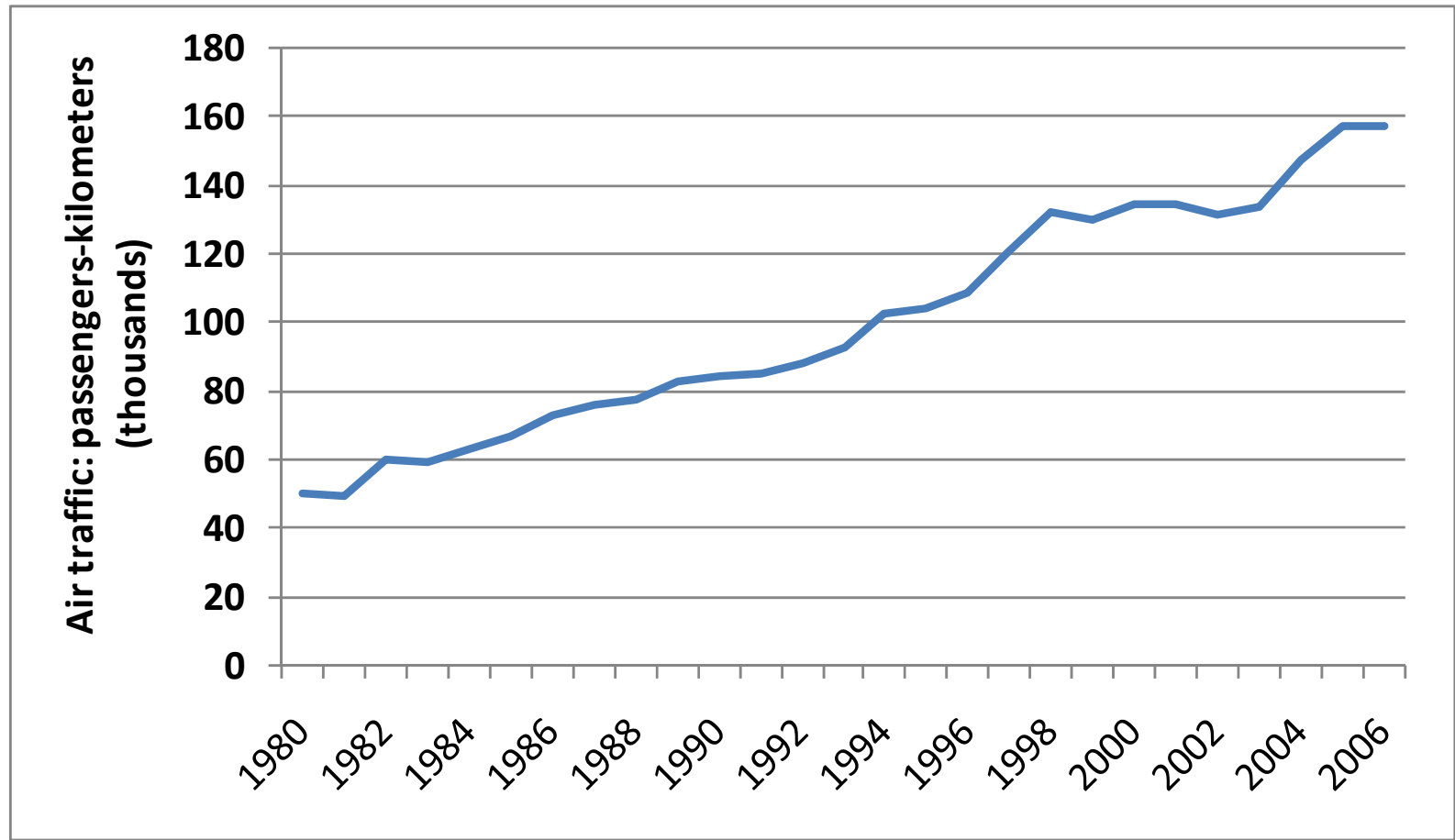
Motor Vehicular Fleet



Railway Infrastructure



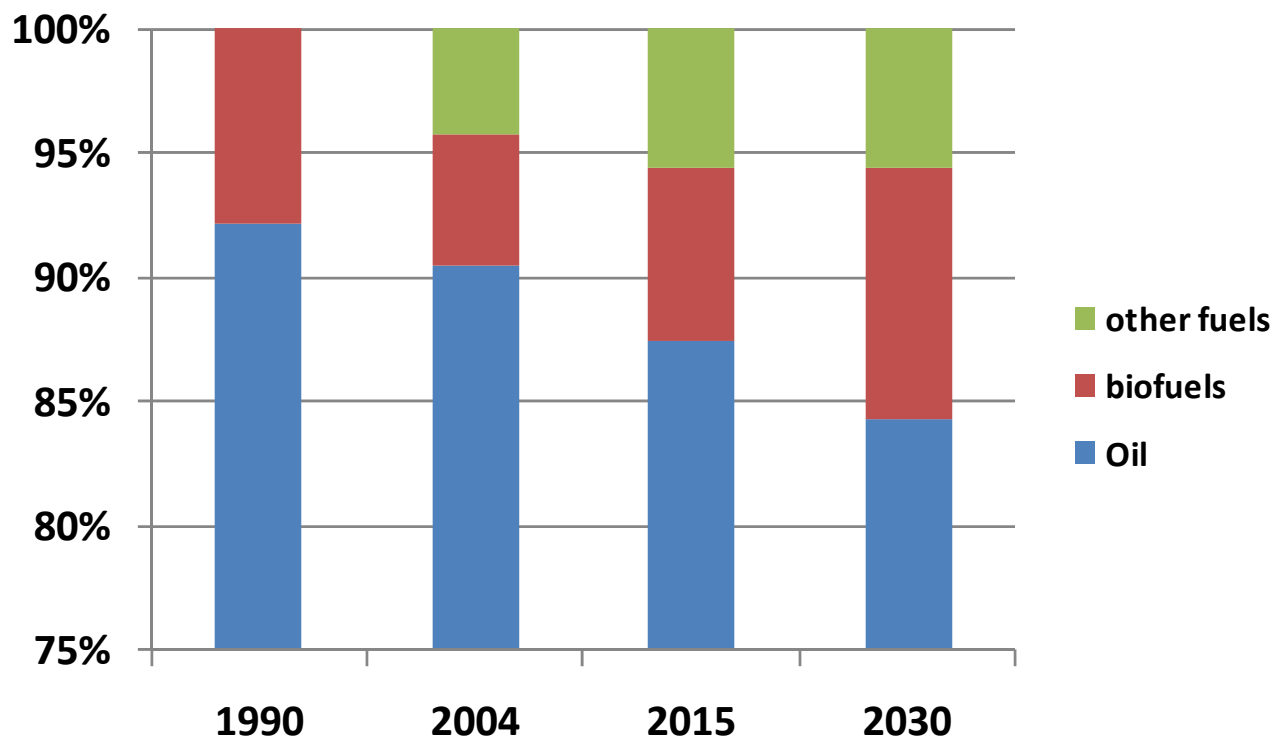
Air Traffic Trends



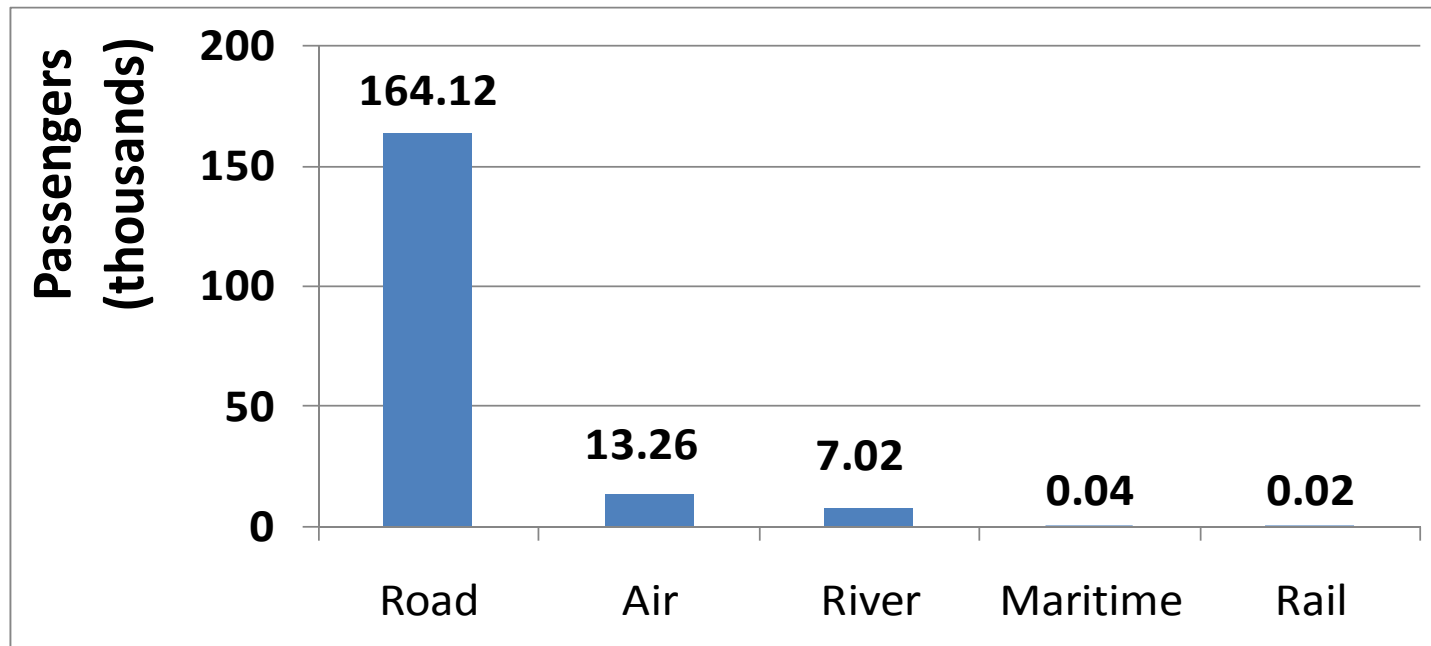
Source: CEPAL, 2007. Anuario estadístico de América Latina y el Caribe 2007.

Energy demand in Latin America – Transport sector

Source: World Energy Outlook 2006 – Reference scenario



Colombia



Transport demand:

184 million passengers
(2006)

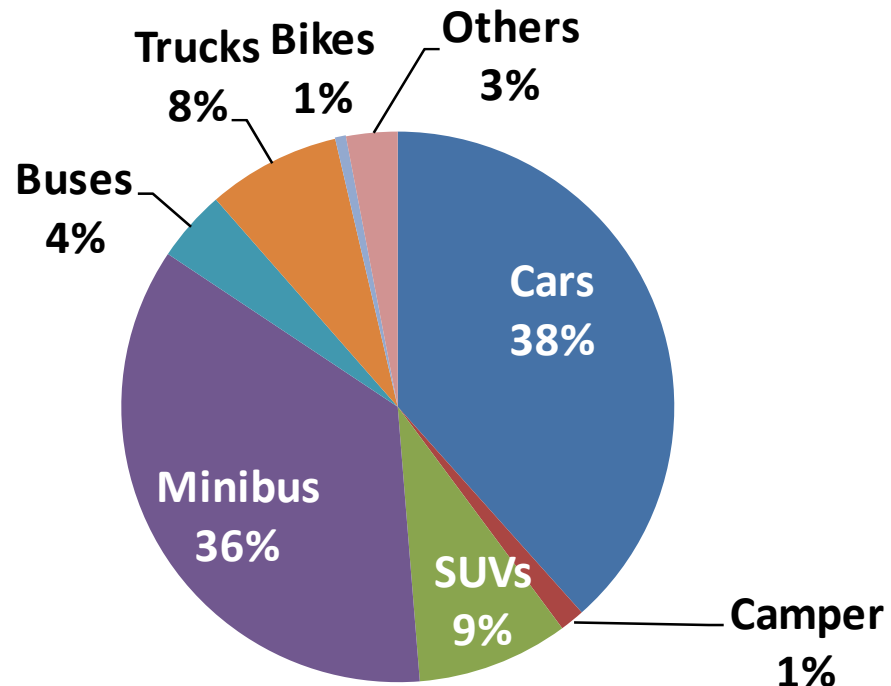
Transport infrastructure (2006):

- Roads: 12,251 km
- Riverways: 18,225 km
- Railways: 2,136 km
- 581 airports

Colombia

Vehicle fleet (2006)

- 4.3 million vehicles
- 60% fleet is 10 years old or more
- Buses: 66% diesel, 34% gasoline
- Light vehicles: 97% gasoline, 3% diesel



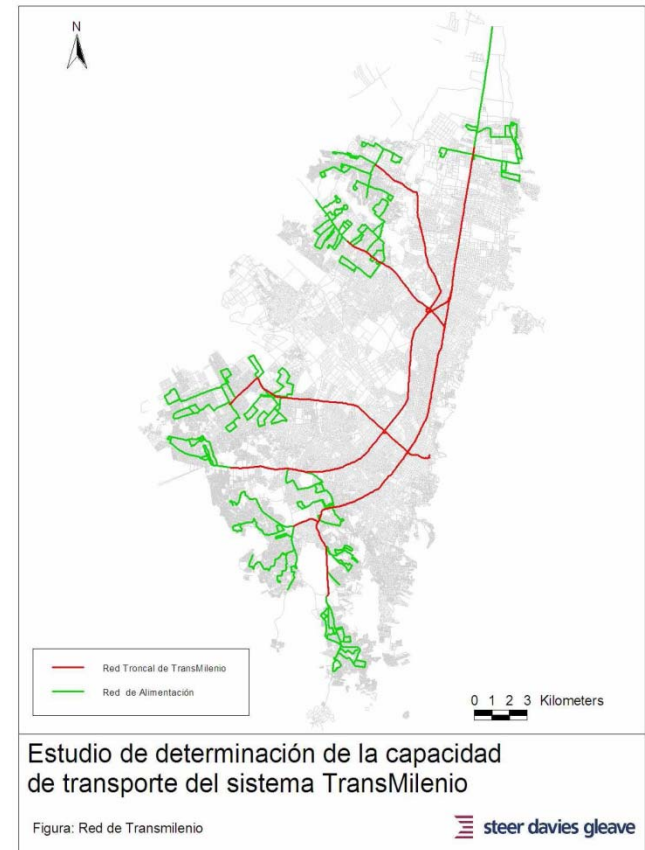
Bogotá, Colombia

Transport integrated system “Transmilenio”

- Operations initiated in January 2001
- Length: 388 Km. of bus exclusive lane
- 114 stations in operation
- 1,071 buses
- 2,000 million passengers transported up to February 2008



Source: Transmilenio, S.A., 2008.

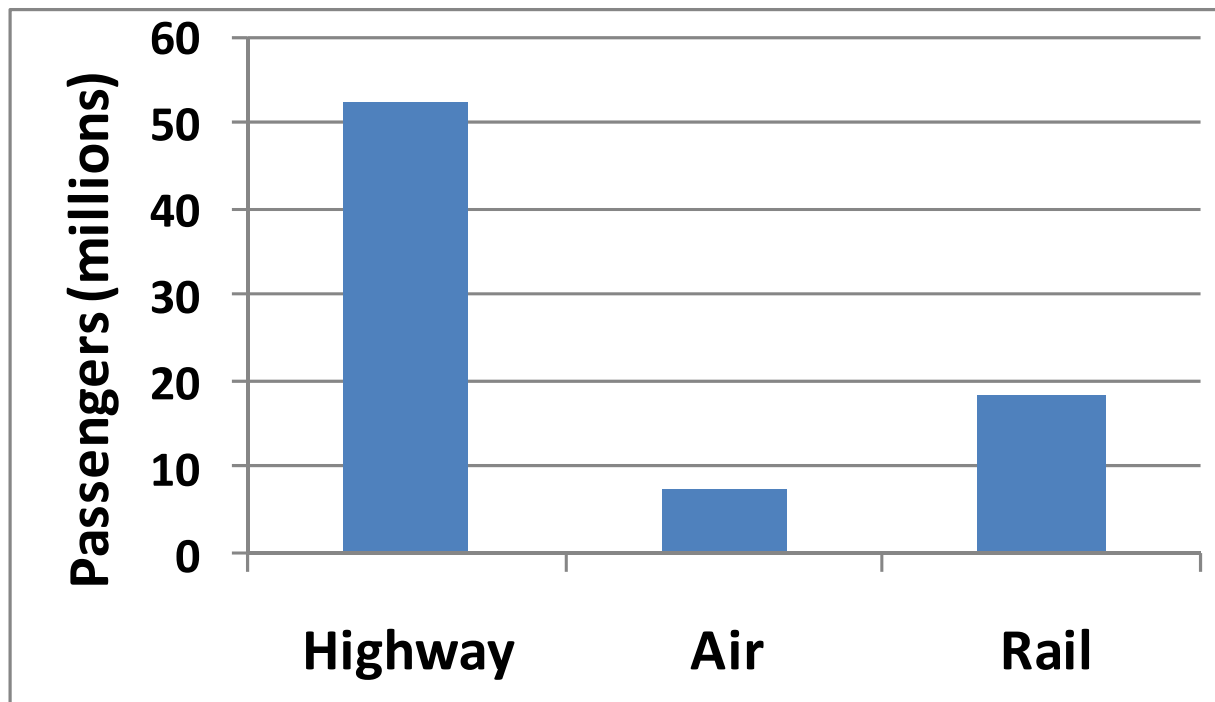


Chile

Transport infrastructure (2006):

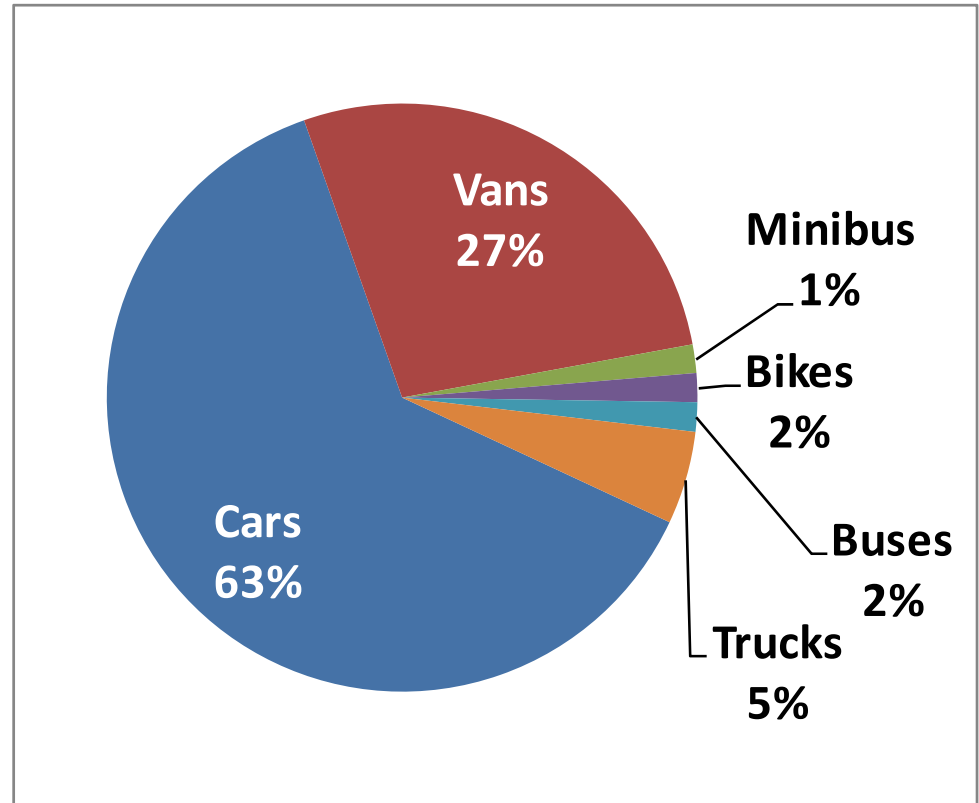
Transport demand: 78.8 million passengers (2006)

- Highways: 79,604 km
- Railways: 6,008 km



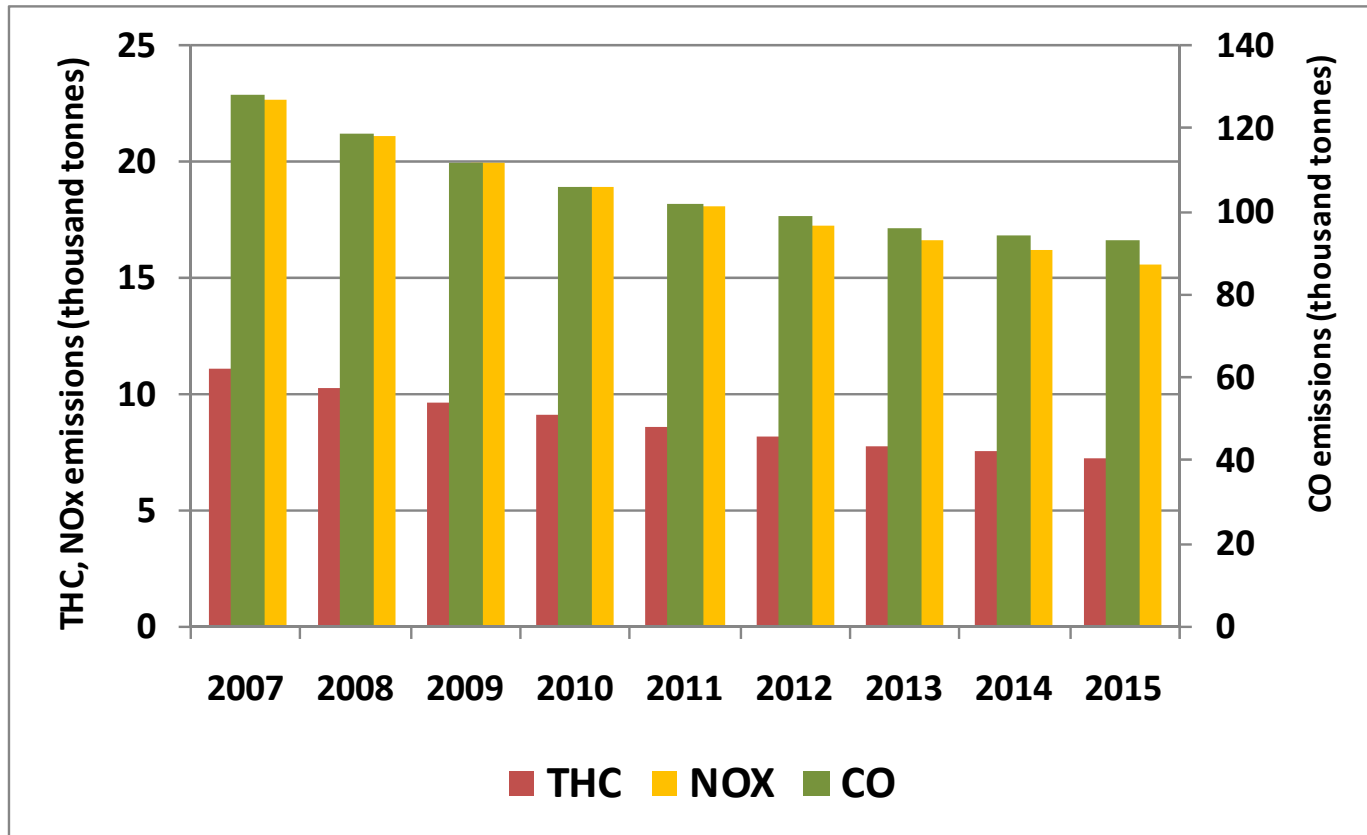
Chile

Vehicle fleet (2006):
2.6 million vehicles



Source: Transporte y Comunicaciones, Informe Anual, INE, Chile, 2006, DICTUC SA (2007) Evaluación de Nuevas Medidas de Control de Emisiones para el Sector Transporte en la Región Metropolitana, INFORME FINAL.

Santiago de Chile



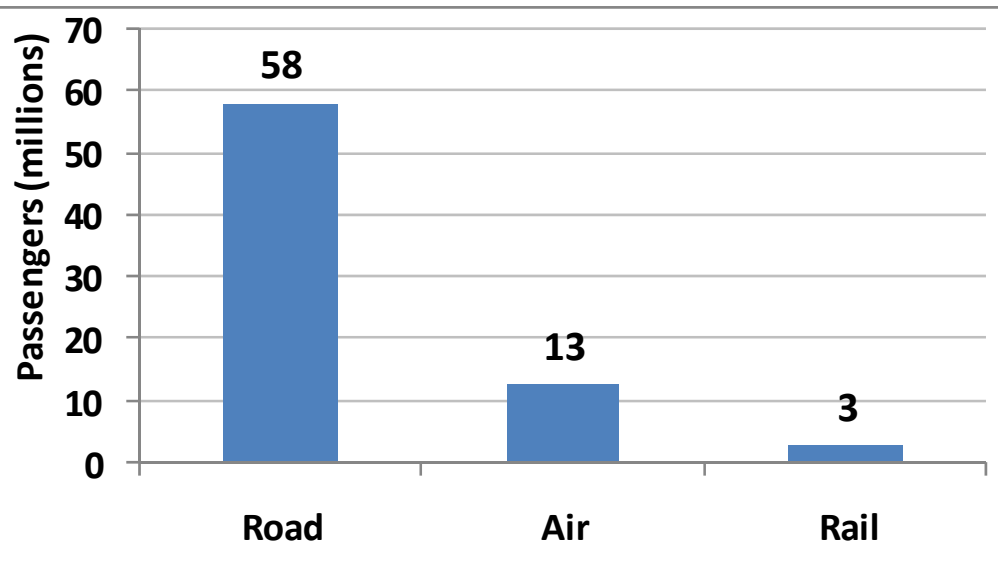
Bus renewal according to Transantiago, Euro III gasoline LDVs, Euro IV diesel light-duty vehicles (LDVs)

Argentina

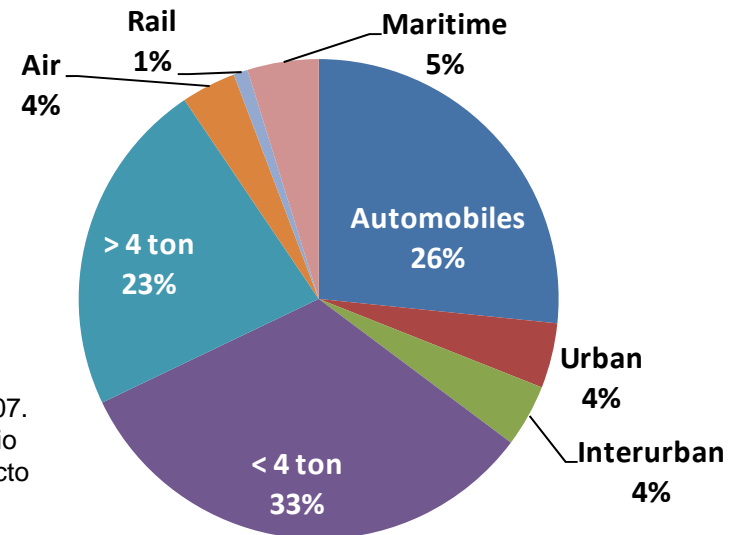
Transport demand: 73.3 million passengers (2006)

Transport infrastructure (2006):

- Highways: 231,374 km.
- Railways: 30,818 km.



GHG emissions from transport 2000 (Gg CO₂ eq)

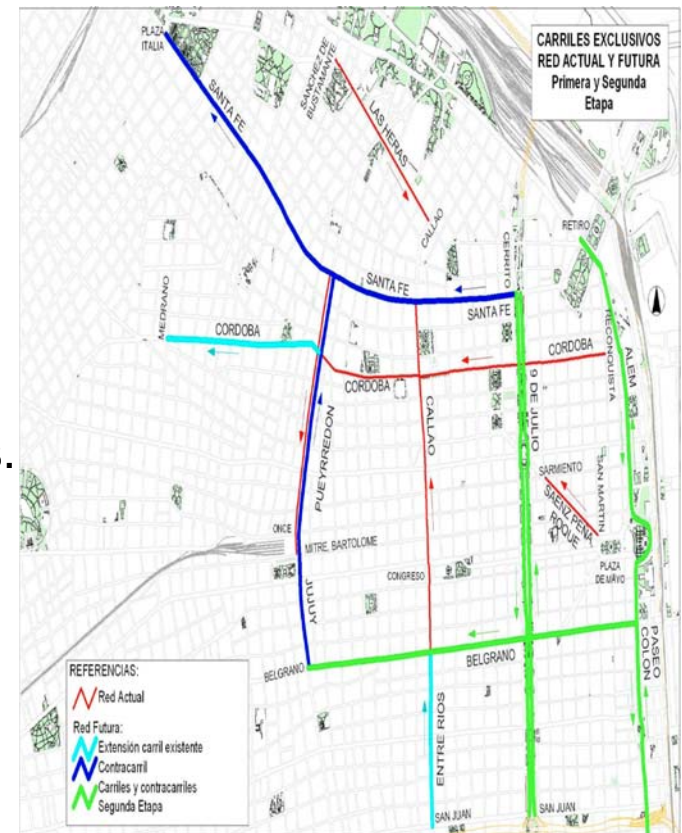


Source: Instituto Nacional de Estadísticas y Censos de la Rep. Argentina, 2008. CEPAL, 2007. Anuario estadístico de América Latina y el Caribe 2007. Fundación Bariloche 2005. Inventario nacional de la República Argentina, de fuentes de emisiones y absorciones de gases de efecto invernadero, no controlados por el protocolo de Montreal

Buenos Aires, Argentina

Buenos Aires Urban Transportation Program (PTUBA)

- Integration of different transportation ways.
- Construction of elevated bridges on railroad crossroads.
- Modernized instalations of subway línea A.
- Buses restricted lanes.
- Development of transport development politcs.



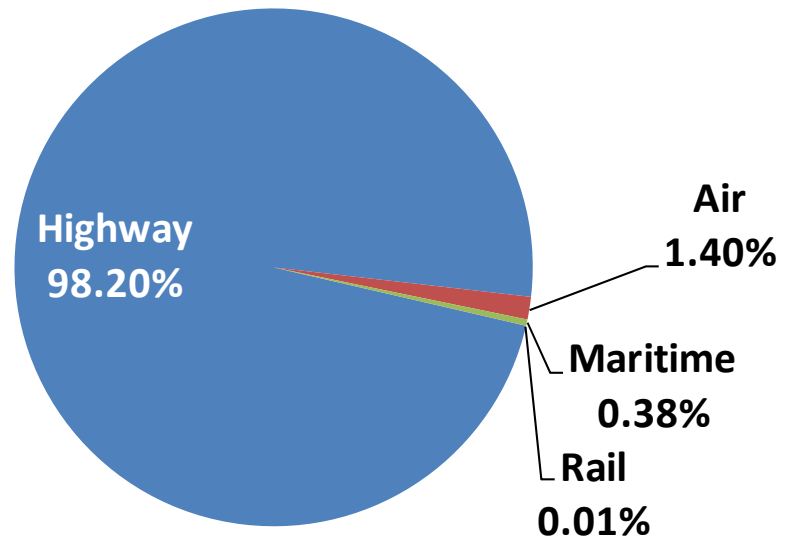
México

Transport demand: 3,000 million passengers (2005)

Transport infrastructure:

- 332,031 Km. highways
- 26,662 km. F.F.C.C.
- 1,425 airports

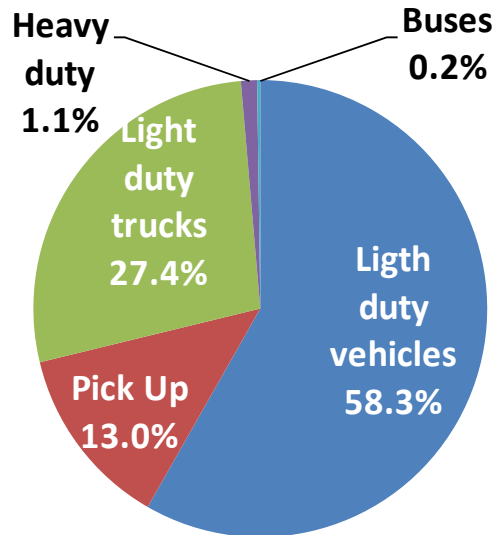
Transport demand by mode (2006)



México

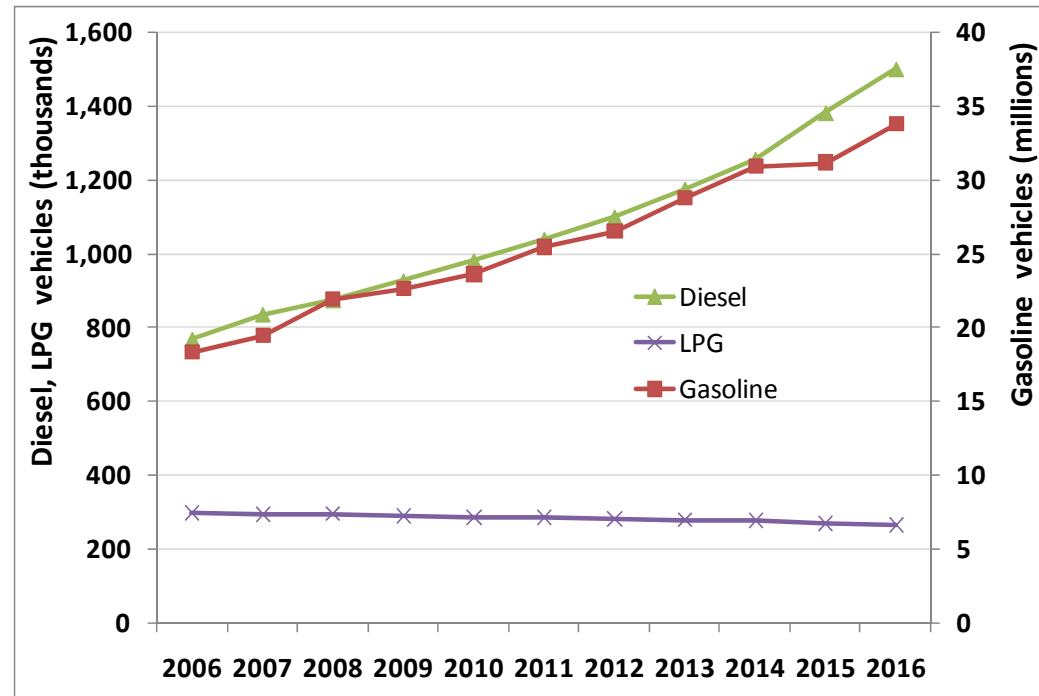
Vehicle fleet (2005)

- 17.6 million vehicles
- Trucks: 87% diesel, 13% gasoline.
- Buses: 99.2% diesel, 0.8% gasoline.



Source: INE, 2008

Projections to 2016



Source: PEMEX, 2007. Prospectiva de Petrolíferos, 2007-2016



Bio-fuels prospect in Latin America (LA)

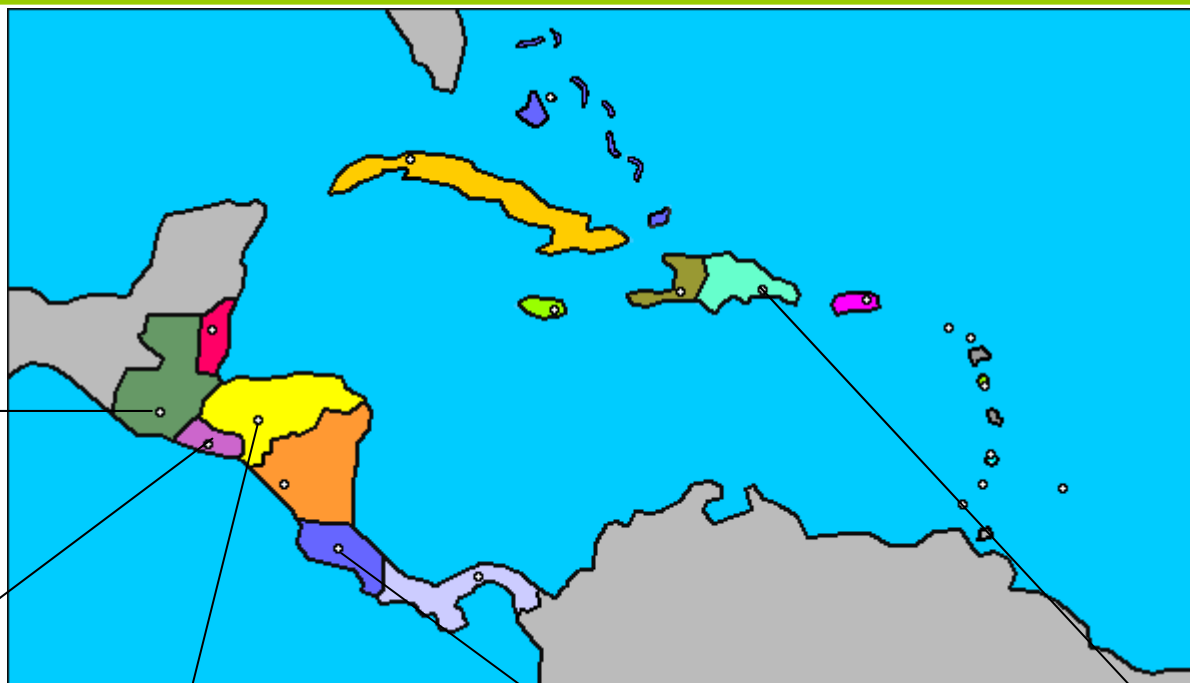
Current situation in LA (1)

GUATEMALA

- No clear legal framework
- Several major distilleries
- Potential to consume
- Immense potential to produce

EL SALVADOR

- Legal framework in progress
- Ethanol exporter and biodiesel experimental producer
- Projected to increase



HONDURAS

- Legal framework in progress
- Nascent projects
- 2011 – 30% energy from bio-fuels
- Capacity for large scale production

COSTA RICA

- Advanced in regulation
- 40 million liters of ethanol p/year produced
- Potential to consume
- Immense potential to produce

DOMINICAN REPUBLIC

- Ethanol legislation since 1948
- Small scale producer of ethanol and biodiesel and potential producer
- 2010 – blend: gasoline 22%
diesel 20%

Current situation in LA (2)

COLOMBIA

- Regulation began in 2004
- Mandatory blend targets
- Ethanol 10%
- Promising production just after Brazil

PERU

- 2003 bio-fuel market law
- Initial investments for production
- Gradual introduction until 2010:
 - Ethanol 7.8 %
 - Biodiesel 5%

VENEZUELA

- No legal framework
- Fostered 10% blend to replace MTBE for rural development support
- Substantial imports from Brazil
- No near term progress for production

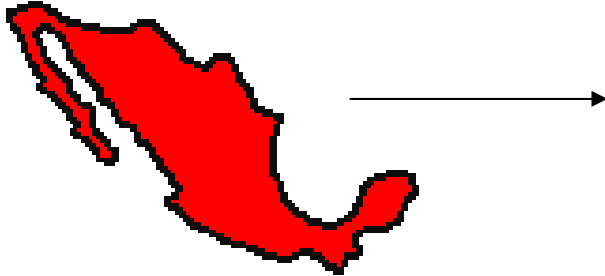
ARGENTINA

- Recent regulation
- Use of bio-fuels since 1928 on a Ford Model T running on 80% ethanol mix
- Small producer
- Could become a significant producer in the future



(BID, 2007)

Current situation in LA (3)



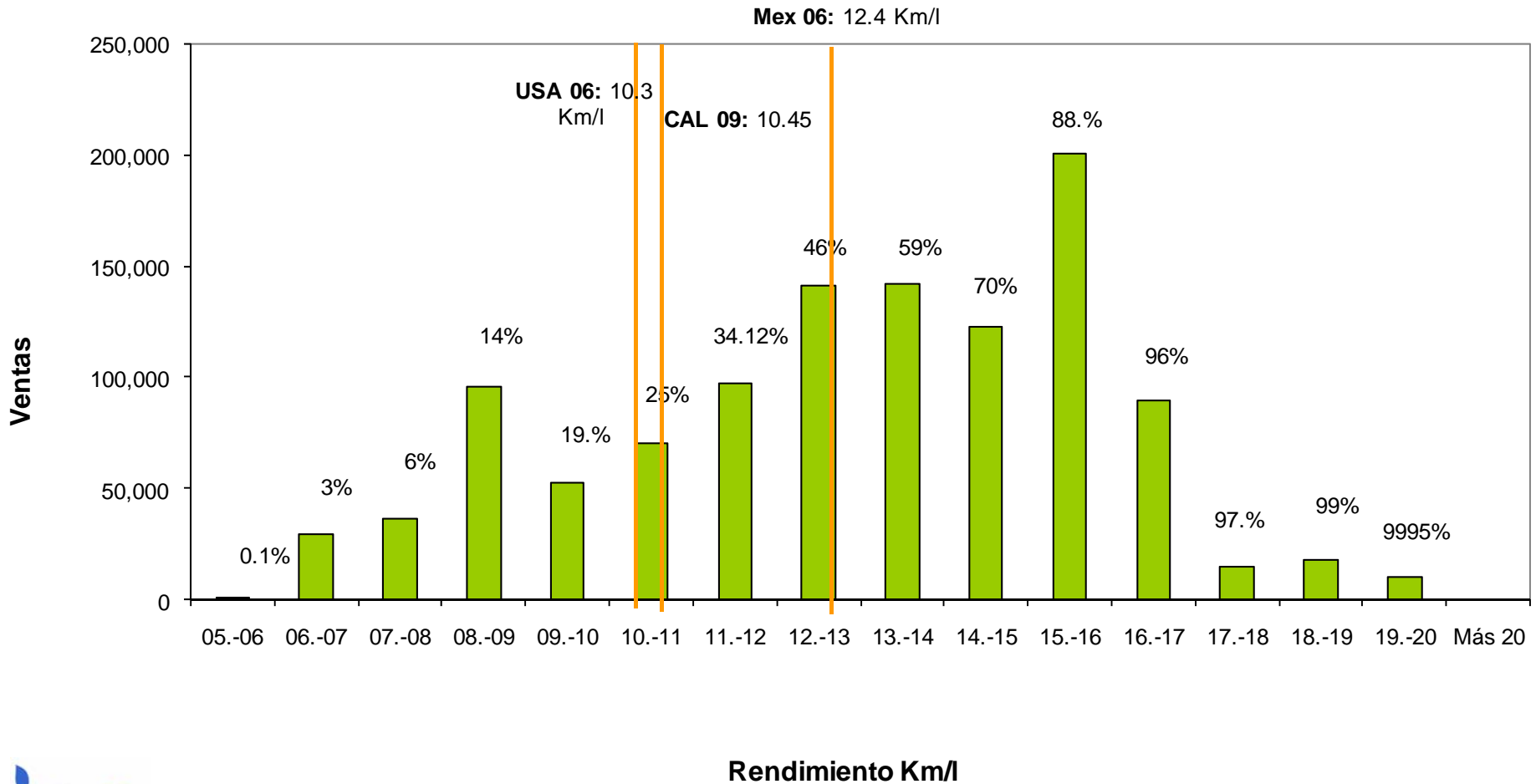
MEXICO

- Recent legal framework (2008) and regulation in progress
- Introductory program in progress
- Production starting in some states in the north and central Mexico
- Pilot project for introducing ethanol (2%) in gasoline:
 - Guadalajara in 2010
 - Monterrey and Mexico City Metropolitan Area follow
- Potential large scale producer

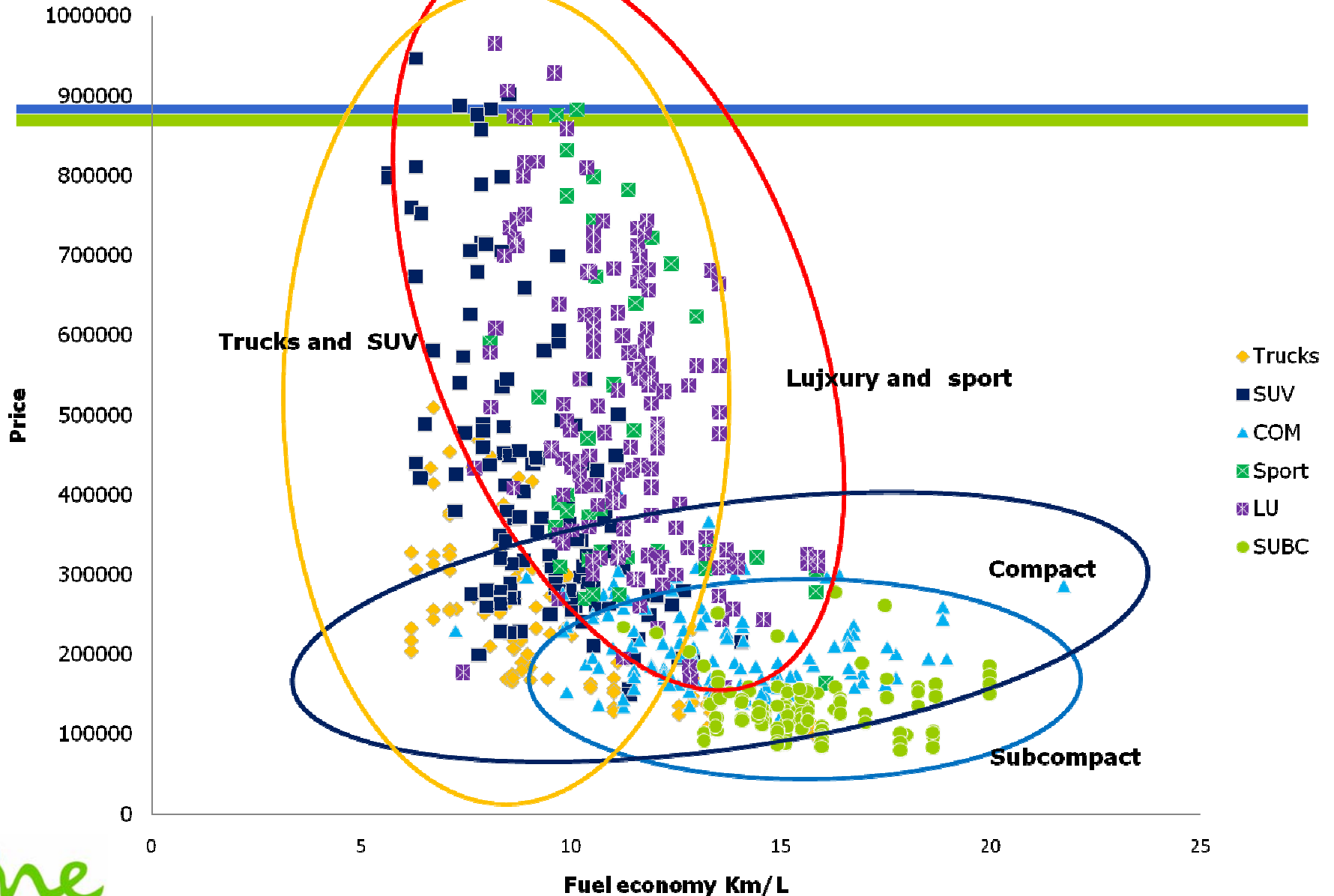
Latin American prospect

- **In Mexico:**
 - Bio-fuels could be an instrument for economic development if it reinforces the legal framework to ensure alimentary and environmental safety.
- **In Central America and the Caribbean:**
 - Guatemala, El Salvador and Costa Rica are considered the most prepared countries to receive investment and expand the bio-fuel industry
 - Honduras, Panama and Nicaragua are other potential countries that are just behind in infrastructure and adequate legislation
 - Jamaica has an important role on the ethanol market
 - Dominican Republic and Granada show great potential
 - Haiti has potential for biodiesel production
- **In South America:**
 - Argentina, Colombia and Peru are leading the race for infrastructure and promotion of bio-fuel industry
 - Chile is starting, but has conditions to rapidly improve
 - Venezuela, one of the main oil producers, has shown no signs of deep interest in further advancement

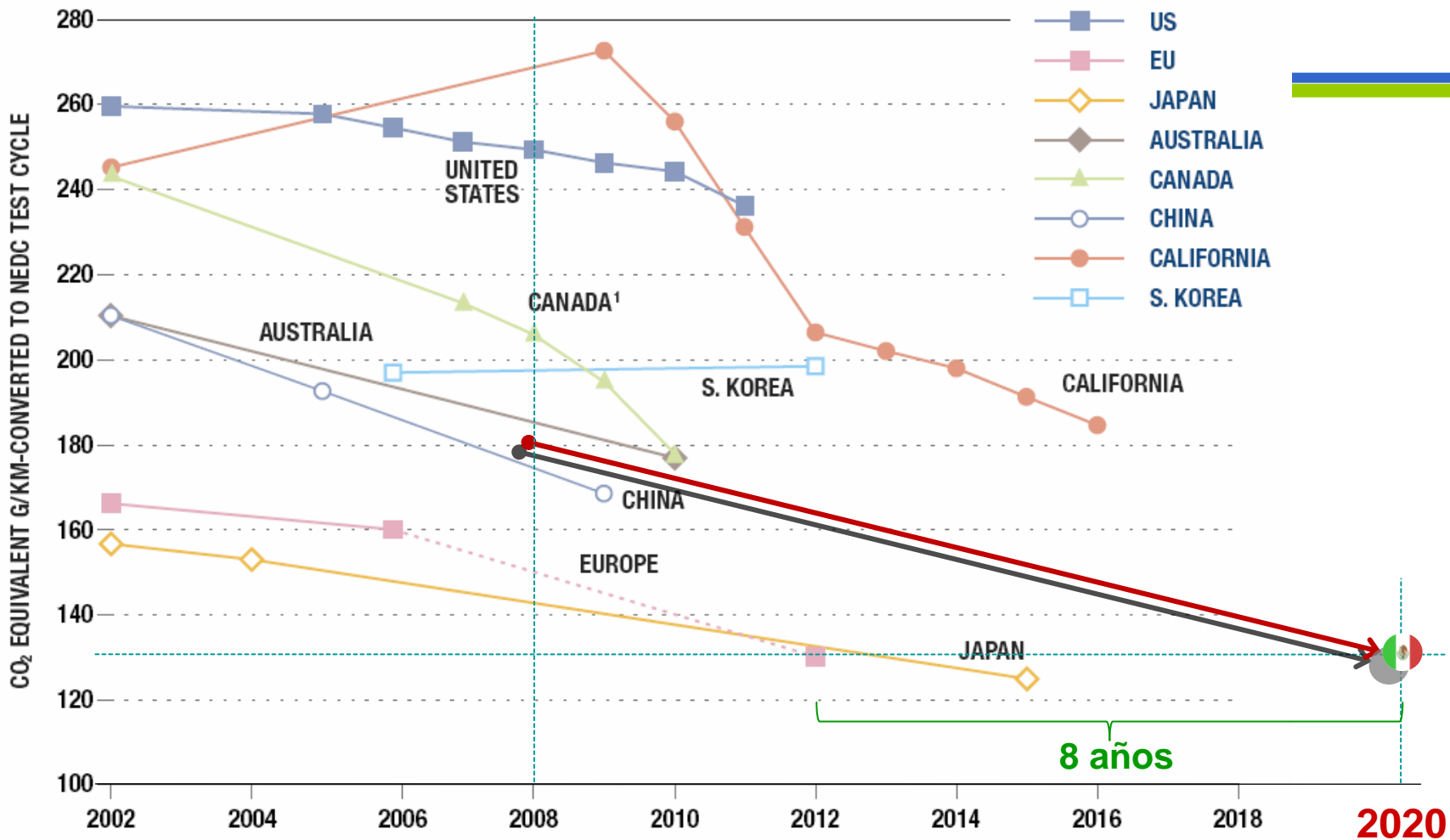
Fuel economy for new cars Mexico vs. US and California



New cars México 2007



Proposed Target for 2020 (from the Molina Center)



FUENTE: ICCT, 2007. *Passenger Vehicle Greenhouse Gas and Fuel Economy Standards: A Global Update.*

Final thoughts

Path forward for LA countries

BRTs

- Chile: Santiago
- Colombia: Bogota
- Mexico: Mexico City, Guadalajara, Monterrey

Biofuels

- Blend targets and increased use of biofuel share

Energy efficiency

Mexico: Standard in progress with proposed target



Thank you

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