

Partnership for Cleaner Fuels and Vehicles



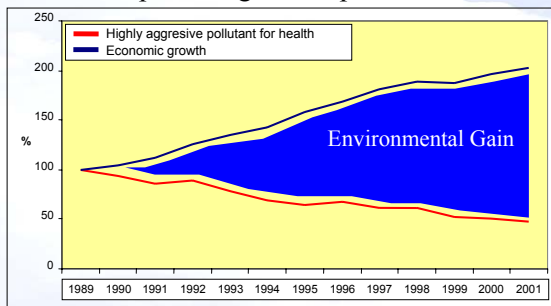
Gianni López

Latin American and Caribbean CAI President
CONAMA Director

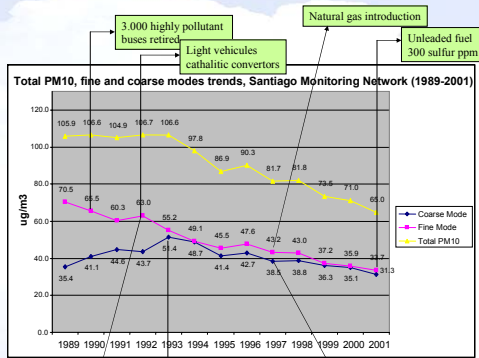
CONAMA-Chile

Air Quality progress in Santiago

Sustainable Development emphasizing health protection



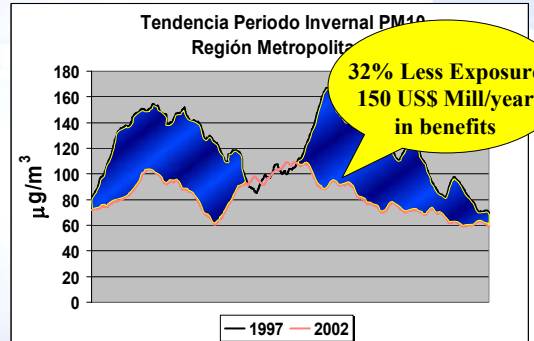
Fine and coarse modes trends 1989-2001



Balance

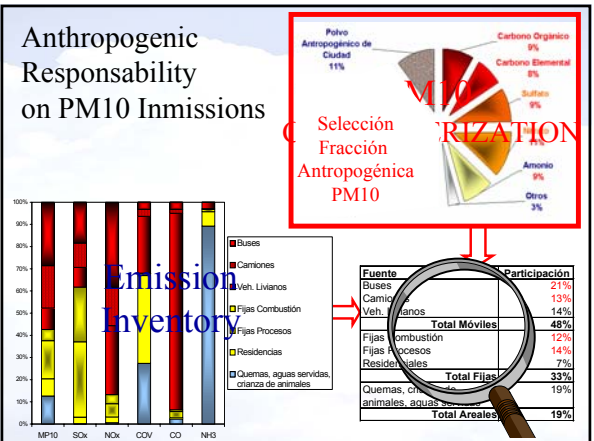
	10 YEARS AGO	NOW
Buses	14.000 buses 15 years in average	7.500 buses 5 years in average
Diesel	5000 ppm sulfur	300 ppm sulfur
Gasolines	All leaded	All unleaded
Light Vehicles	100% conventionals	25% conventionals 75% cathalitics
Industry	Wood, coal and heavy diesel oil	Natural Gas and "City" Diesel (300 ppm)
Electric Generation	Coal	Natural Gas

ENVIRONMENTAL GAIN



Key issues to address
Air Quality problems

Anthropogenic Responsibility on PM10 Inmissions



Anthropogenic Responsibility on PM10 Inmissions

Source	Participation
Buses	21%
Trucks	13%
Light Vehicles	14%
Mobile Total	48%
Combustion Fixed	12%
Processes Fixed	14%
Homes	7%
Fixed Total	33%
Firewood, farmland, sewage	19%
Area Total	19%

Actions effectiveness- tons/year

Medida	NOx	SO2	MP10	Polvo
Compensación emisiones MP en industria			447	
Criterio de paralización FF	309	578	122	
Cupos de emisión MP en procesos			375	
Norma de emisión CO en industria	244		8	
Norma Tier1 VL y VC	1.425	4.406	53	
Buses EURO III diesel	1.788		37	
Buses híbridos				
Convertidor CC buses diesel nuevos				
Retrofitting CC buses EPA94 existentes		-1	103	
Retrofitting CC buses EPA91 existentes		-1	88	
Retrofitting CC buses no licitados			117	
Norma EURO III camiones	6.618		659	
Retrofitting CC camiones			433	
Prohibición de calefacción con leña	72		586	
Mejora calidad del diesel. 1200-300 ppm		1.109	618	
Mejora calidad del diesel. 300- 50 ppm		392	101	
Mejora calidad de la gasolina, año 2003	2.203			
Mejora calidad de la gasolina, año 2005	1.950			
Aspido de calles				4.804
Pavimentado de calles				4.635
Total Medidas	14.672	6.483	3.727	9.439

Cost/ Benefits - Action Plan 2001-2005 for Santiago

	Emission reduction (ton/year)	Cost	Benefits
Actions	<ul style="list-style-type: none"> • 2.755 MP • 14.732 NOx 	127 US\$ mill/year	260 US\$ mill/year

18 measures of High Impact (2001-2005) with a Technological Perspective

- **Renovation of buses:**
 - Reduction of 75%PM10 and 40% NOx with the Urban transport plan
 - Retirement of 2,700 pre-EPA buses
 - Incorporation of low emission's buses and post treatment systems starting year 2004
- **Renovation of trucks:**
 - EURO III and EPA98 Standards
 - Incorporation of post combustion treatment systems.
- **New standards for light vehicles.**
 - Tier1 and EURO III Standards
- **Dust Control:**
 - Street dust control
 - Street pavement programs
- **Fuel Improvement:**
 - Diesel Quality from 300 to 50 ppm by 2004
 - Gasoline Quality improvement by 2003
 - Gasoline Quality improvement by 2005
 - Progressive regulations on firewood burning
- **New industry standards:**
 - CO emission standards
 - SOx emission standards
 - Reduction program of SOx in major industrial processes
- **Integrated System of Compensations and Tradable Emission Permits**
 - Emission shares of NOx in the industry
 - Emission shares of PM10 in industrial processes
 - A 150% emissions compensation for all new activities (industry and transport)



Clean Air Initiative in Latin American Cities

Main Features

- program launched in Dec. 1998 that now has seven cities and sixteen other partners
- a clear mission statement:
Support cities in the Latin American Region to improve air quality
- three core components:
 - a) local workshops and city action plans
 - b) information dissemination and training
 - c) promotion of clean technologies

CAI Steering Committee

- Buenos Aires
- Lima-Callao
- Santiago (presidency)
- Mexico City
- Rio de Janeiro
- San Pablo
- Bogotá
- ARPEL
- ICLEI
- IPIECA
- Daimler Chrysler
- Carl Duisberg Gesellschaft (CDG)
- CETESB
- Environment Canada
- GTZ
- Interamerican Development Bank IADB
- The Netherlands Ministry of Foreign affairs
- PHAO
- US EPA
- The World Bank - **Technical Secretary**

CAI Work Program

- Action Plans in:
 - Buenos Aires
 - Mexico City
 - Rio de Janeiro
 - Sao Paulo
 - Lima-Callao
 - Santiago
- Clean Technologies Information Pool
- Transport and Air Quality Toolkit

- Workshops
- Distance Learning
- Web-site
- External Evaluation

Work Plan 2002-2003

- **CREATION OF AN INFORMATION AND KNOWLEDGE INFRASTRUCTURE**
 - Follow-up and Assessment of Health Effects Program
 - Emission Factors for LAC
 - Emission Inventories for any city
- **ENCOURAGING THE DEVELOPMENT OF EMISSION REDUCTION ALTERNATIVES**
 - Pilot and demonstrative programs of new technologies
 - Economical and technical characterization of emission reduction alternatives, including new technologies
 - Info pool update
 - Vehicle Inspection Training Program
- **LAYING THE FOUNDATION FOR SUSTAINABILITY IN AIR QUALITY MANAGEMENT CAPABILITY**
 - Extended Network from cities to others Institutions with regional and international expertise in technical-academic matters
 - improve the communication capabilities

Promotion of Clean Technologies



- clean technologies exhibits in Rio de Janeiro and Santiago with local and int. participation;
- clean technologies “information pool” under preparation;
- transport and air quality toolkit being prepared with USEPA

Clean Technologies Infopool

www.CAI-Infopool.org

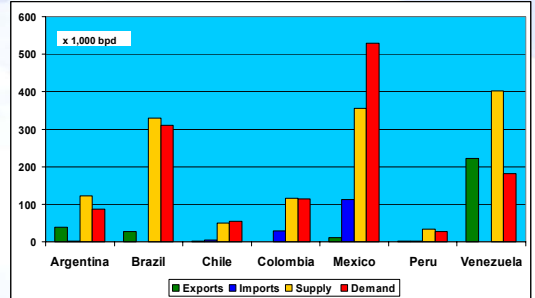


Information dissemination and training

- Strong regional and international communication campaign (TV, print)
- Tri-lingual web-site active since June '99
- Participation of LAC representatives in international events on air quality
- Distance learning course on urban air quality management WB-PAHO-USEPA delivered to 17 cities and 600 participants
- CAI newsletter and brochure

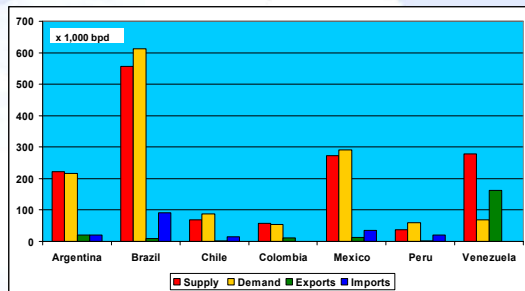
Gasoline and Diesel in LAC

Latin American Gasoline Market



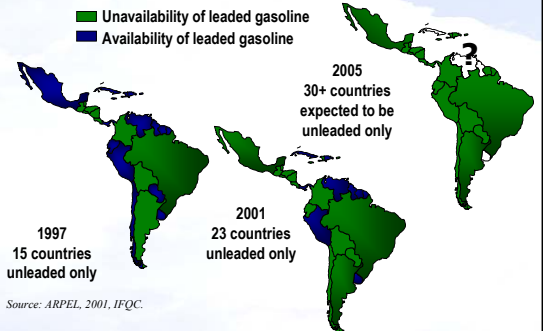
Source: US Energy Information Administration, International Petroleum Information, Table 3.4, World Exports of Refined Petroleum Products, 1999; Table 3.3 World Imports of Refined Petroleum Products, 1999; Table 3.5 World Apparent Consumption of Refined Petroleum Products, 1999; Table 3.2 World Output of Refined Petroleum Products available at <http://www.eia.doe.gov/emeu/international/petroleum.html>.

Latin American Diesel Market



Source: Source: US Energy Information Administration, International Petroleum Information, Table 3.4, World Exports of Refined Petroleum Products, 1999; Table 3.3 World Imports of Refined Petroleum Products, 1999; Table 3.5 World Apparent Consumption of Refined Petroleum Products, 1999; Table 3.2 World Output of Refined Petroleum Products available at <http://www.eia.doe.gov/emeu/international/petroleum.html>.

Lead Phase-Out Progression



Current Latin American Diesel Fuel Quality, 2002

	Cetane No, min	Cetane Index, min	Sulfur, ppm	T90, °C
Argentina (metro areas)	--	--	1,600	--
Bolivia	--	50	500	371
Brazil (metro diesel)(May 2002)	42	--	2,000 (ANP) 1,500 (IBAMA)	--
Chile --Santiago/Rest Country	--	48--	300/1,500	282-338
Colombia	--	47	5,000	360
Mexico	48	48	500	345
Peru --Lima-Callao/Rest of Country	50/45	45/40	1,500/5,000	282-360
Uruguay	45	48	8,000	360
Venezuela	47	47	5,000	282-357
World Bank Recommendations for 2005	47	--	2,000	360

Source: IFQC's A Summary of Worldwide Automotive Fuels Specifications, January 2002. *No spec, but reporting required.

How to make the CAI the way to introduce the Clean Fuels and Vehicles Partnership in LAC?

- **Supporting the CAI activities related with assessment of benefits for the introduction of Clean fuels and Veh. In LAC:**

- Emission Factors, Fleets characterization and timelines trends in vehicle emissions; ARPEL
- International Vehicles Emissions Model application in LAC; EPA-CONAMA & others
- Emission factors study in Lima-Callao;
- Characterization of PM10 in and health effects assessment in LAC; Harvard University & others
- Cobenefits for local actions; EPA- Conama - Univ. Catolica de Chile

- Supporting the characterization and promotion of emission reduction alternatives for transport in LAC
 - Technological alternatives for Public transport in Santiago; GEF-WB, CONAMA, Transport Ministry
 - Technological alternatives for Public transport in Mexico City; GEF-WB
 - Technological alternatives for Public transport in Lima-Callao (in preparation); GEF-WB, Air Quality Management Comittee
 - Phase-out leaded gasoline in Lima-Callao; Air Quality Management Comittee
 - Design of next phase of Transmillenium public transport proyect in Bogota; City authorities
 - Fuel Cell pilot program in Sao Paulo; PNUD, Sao Paulo Authorities
 - Vehicle Inspection Training Program for LAC; IAL
 - Development of second phase of Info-Pool



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WEBSITES

www.conama.cl

www.worldbank.org/wbi/cleanair/

www.sectra.cl