

Lao PDR Lead Phase-Out Workshop

4th – 5th August 2008

the Partnership for Clean Fuels and Vehicles (PCFV)



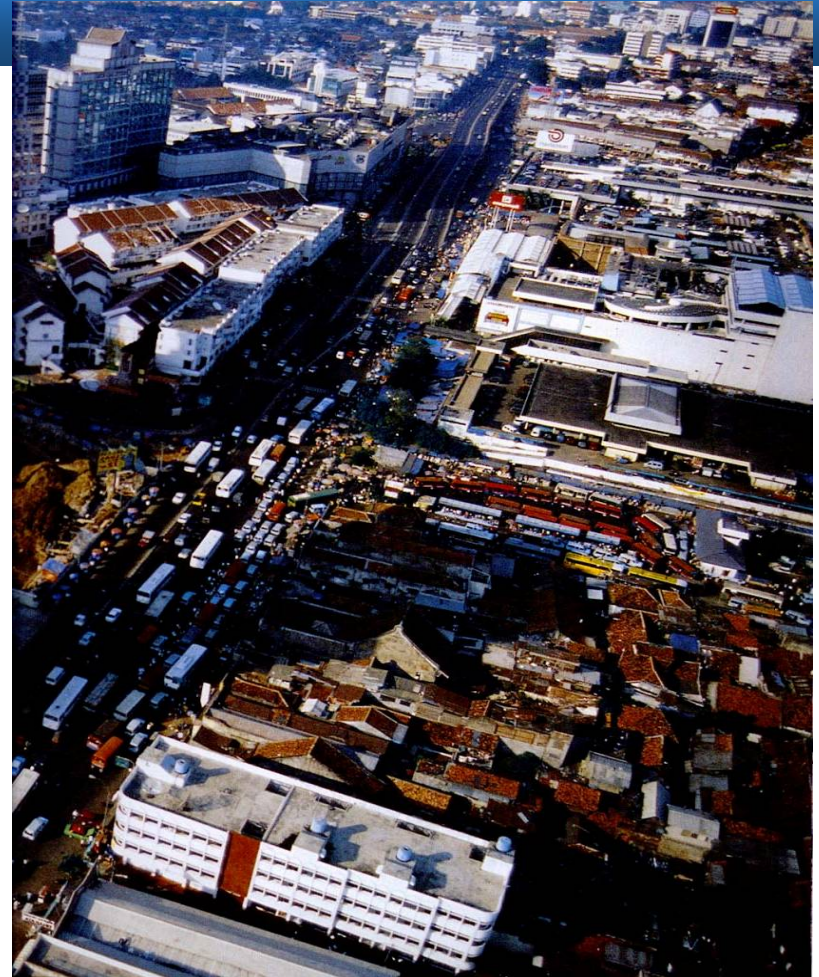
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United Nations Environment Programme

Lao PDR, 4-5 August 2008



Challenge: Vehicle growth



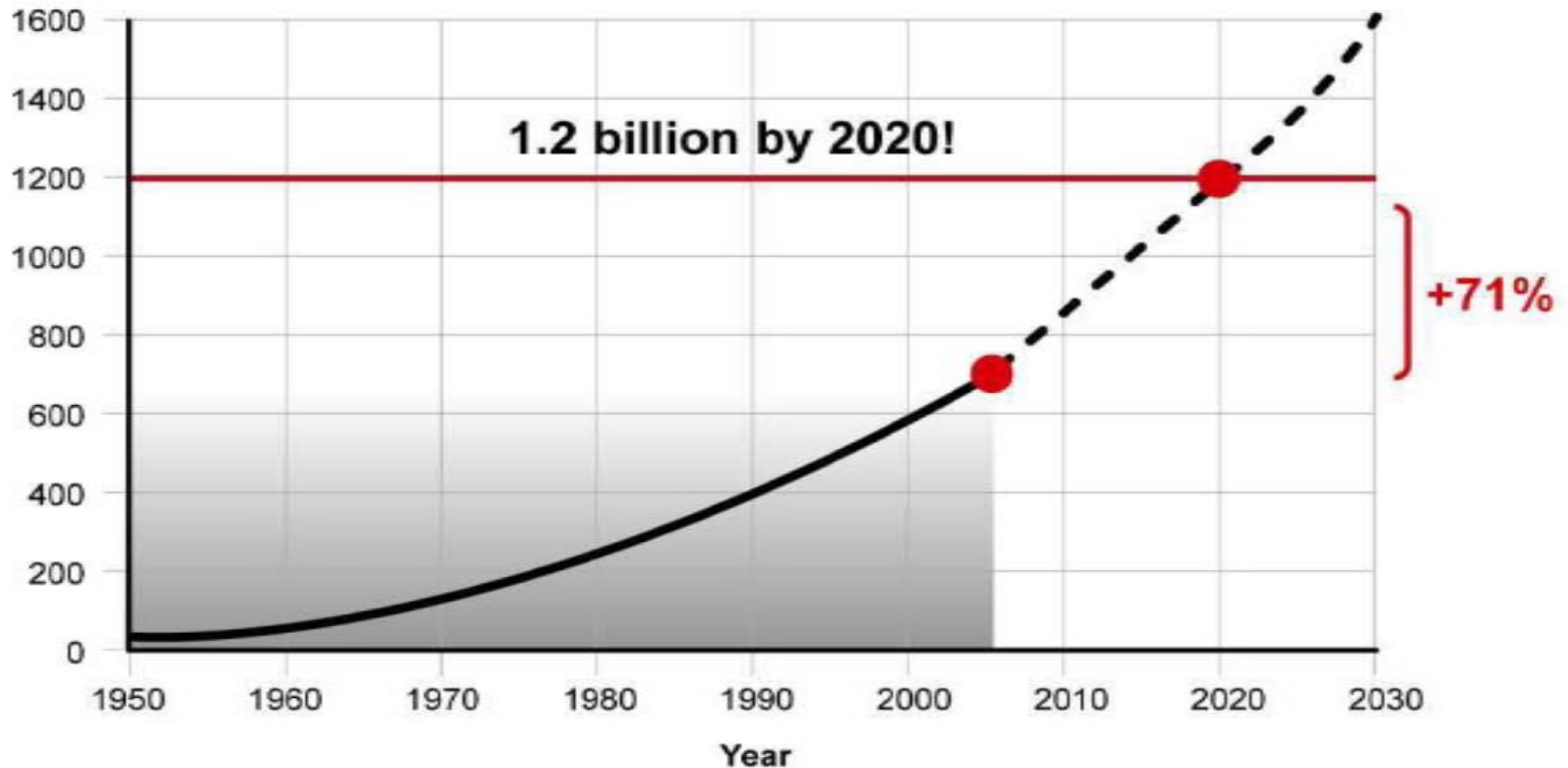
... annual growth?

Transportation Systems Size

- ❖ Vehicular Population is > 700 million → 1 billion (soon). ~ 11.5% Increase 1995-2000.
- ❖ Kilometers traveled (per capita per year) Tripled (since 1970).
- ❖ Transportation consumes 25% of world Energy & 50% of Oil.
- ❖ Fuel Consumption for Transportation Doubled (since 1970), is 18 MB → 27 MB (2010), 50% increase in 10 years (1.5%/year Developed & 3.6% Developing Countries).



The Challenge of Greening a Growing Global Vehicle Fleet Sulphur Fuels and Particulate Matter



Source: Handbook of automotive industry 1999

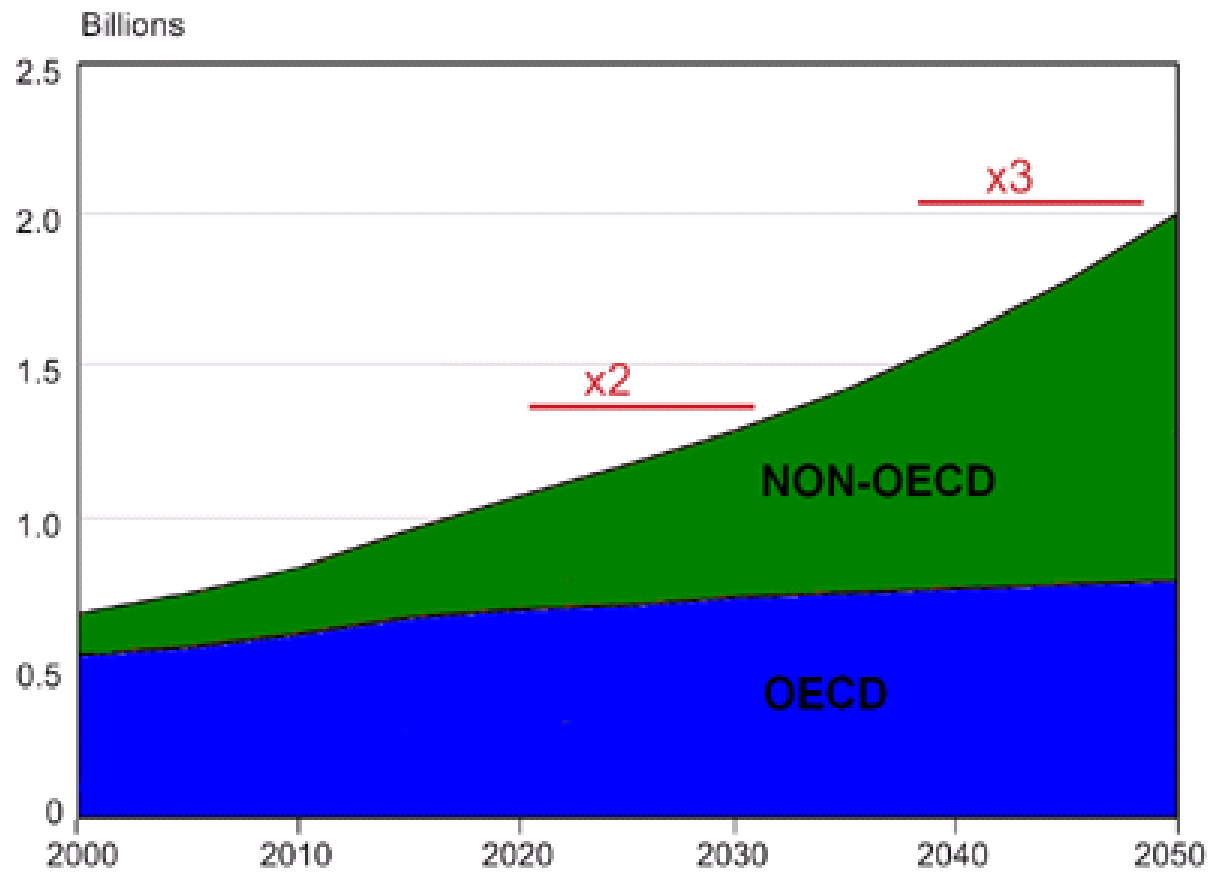


Role of Developing & Transition Countries

- almost all of the vehicle growth will take place in developing & transition countries
- more efficient vehicles and new technologies (eg HEV, PHEV) are being introduced in developed countries, but less in developing countries. In many developing countries second hand cars have biggest market share
- and vehicle life expectancy in developing countries much higher

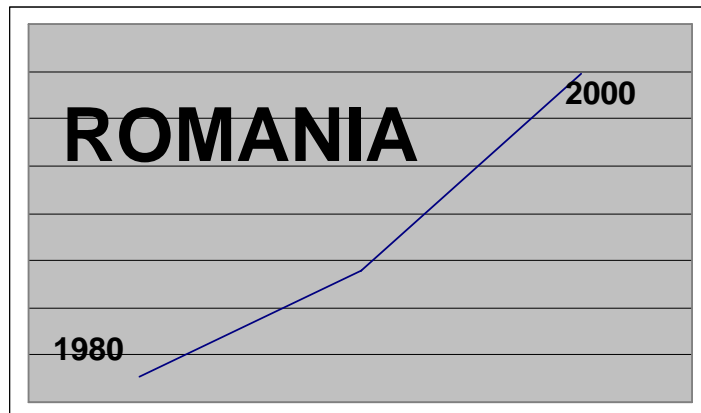
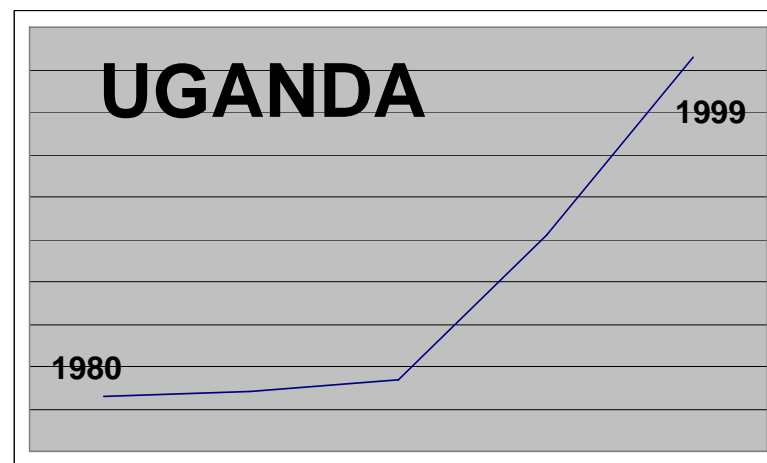
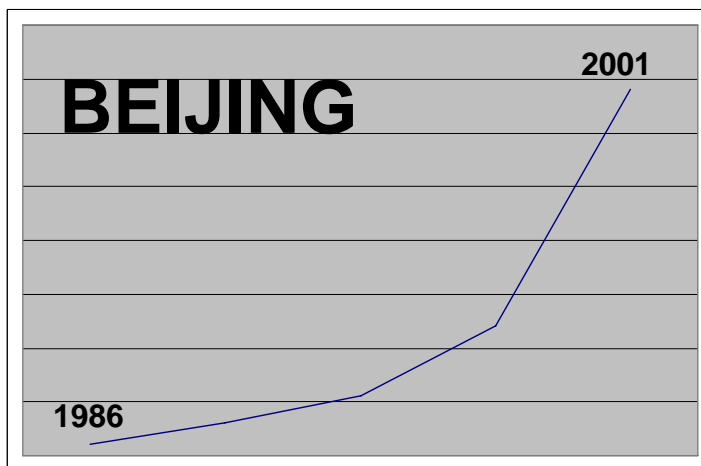


Global Growth Light Duty Vehicles



Source: WBCSD, 2003

Example Non OECD Vehicle Growth



Beijing: from 1 car per 1000 persons to 45 cars per 1000 persons (1986-2001)

Romania: from 11 cars per 1000 persons to 139 cars per 1000 persons (1980-2000)

Uganda: from 25,000 cars to almost 190,000 cars in less than 20 years (1980-1999)



Impacts

- **Health:** 1 billion people exposed to outdoor air pollution exceeding WHO standards
- **Cost of urban air pollution** estimated to be 2% - 5% or more of GDP (e.g. 7% China)
- **Leaded petrol** – lead particles emissions very toxic - organs effected, and also IQ of children
- High **sulphur levels in fuels** – problems with small particulates; cardio and respiratory problems, carcinogenic
- Cleaner fuels are necessary for the introduction of **modern vehicles** that are **90% or more cleaner** and more efficient
- Technology transfer from developed to developing countries – for **cleaner and more efficient vehicles**
- Transport sector emitting one-quarter of **global greenhouse gas emissions**

**Greetings from
Los Angeles**



Jakarta Today...





Transportation Systems Air & Health Quality Impact

- ❖ Fuel Consumption for Transportation (1550 MTOE/year): ~ 40% Diesel & 60% Gasoline (<2% Alternative Fuels) .
- ❖ WHO: Only 15% of Cities in Developing Countries have acceptable air quality.
- ❖ ~460,000/year Die Prematurely because of Air Particulates.
- ❖ US EPA: 60% of annual cancers are due to Air Pollution from Automotive Emissions.



Transport in Global Climate Agreements

UNFCCC and Kyoto Protocol. Clean Development Mechanism (CDM) supports cleaner technology for developing countries to reduce their GHG while not blocking development

Transport virtually absent in CDM portfolio – only a few and all on BRT and biofuels


Problems include: baseline issues, relative benefits of transport interventions, very dispersed, no clear leader, biofuels issues, ...

Transport, due to its large and increasing contribution will need to be addressed under post Kyoto agreement and mechanism

Esp. as it combines security, energy and GHG issues

But still unclear how ...

What can governments and private sector companies do to contribute? In developing countries?



Strategies to Reduce Transportation Emissions in Urban Areas

Environment and transport strategies:

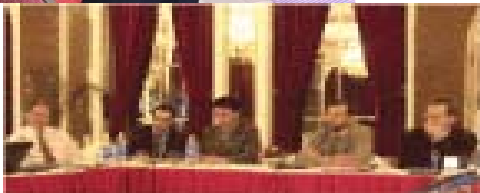
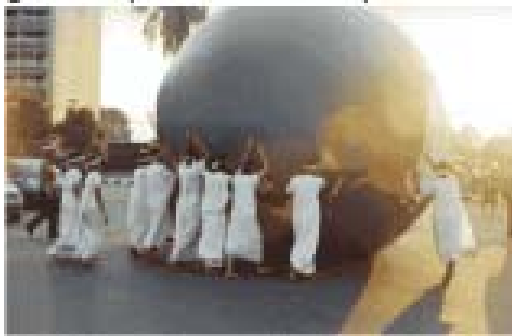
- Modal splits (subsidies & new modes)
- City planning
- Promoting non-motorized transport
- Promoting public transport
- **Cleaner fuels and vehicles**



Partnership for Clean Fuels and Vehicles



PCFV Established





Partnership for Clean Fuels and Vehicles (PCFV)

- set up at the World Summit on Sustainable Development, August 2002
- public – private Partnership, 110 members – governments, private sector (oils & vehicles), civil society and international organisations
- to promote cleaner and more efficient fuels and vehicles in developing and transition countries
- Clearing-House at UNEP Headquarters in Nairobi, Kenya
- Activities at global, regional and national level
- Technical, networking, financial and outreach activities and support
- Leading global initiative for developing & transition countries



PCFV Objectives

“The elimination of **lead** in gasoline and the phase down of **sulphur** in diesel and gasoline fuels, concurrent with; the adoption of **cleaner vehicle technologies**”

website: www.unep.org/pcfiv



Approach

Consensus-driven approach, “Chatham House” rules, and in-person meetings were critical to developing trust among partners

Developing clear objectives and mission statement helped define success and focused our efforts on most important activities

Global focus—with regional and national implementation—created flexibility and appeal for disparate partners



PCFV Substantive Activities

- Global level
 - * Working groups
- Regional level
 - * Regional action plans
- Sub-regional
 - * Sub-regional workshops
- National level
 - * Direct support



PCFV Activities

- Technical Support
- Networking Support
- Joint Activities
- Involve Other Partners
- Information/Communication
- Financial Support



Some PCFV Partners





Enablers

**Vehicle
Technology**

**Traffic
Management**

Air Quality + Global Warming + Energy Security

**Fuel
Quality**

**I/M
Air Quality
Monitoring**



PCFV: vehicles and climate change

- Global vehicle fleet to triple
- Almost all growth in developing and transition countries
- Greenhouse gas contribution of global vehicles fleet to grow from one-quarter to one-third
- While OECD countries are moving ahead with fuel efficiency strategies apart from China no non-OECD have climate strategies for vehicle fleets
- Global responses absent (global mechanisms lacking, CDM, GEF, WB, ...)
- PCFV supporting development and implementation of fuel efficiency strategies in all non-OECD countries



Work on promoting clean vehicles

Activities:

I. Cleaner fuels for intro cleaner vehicles

Promoting need for clean fuel for intro cleaner vehicles (unleaded & sulphur)

II. Standards

Import standards/ regulations (age, catalytic converters)

III. Cleaner fleet management

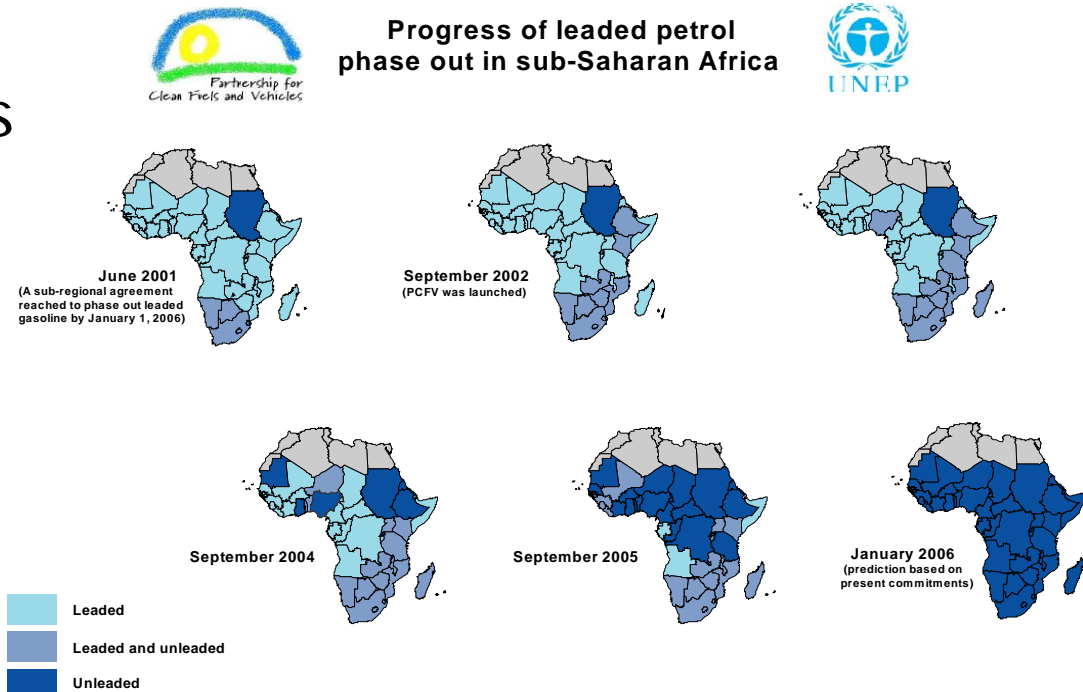
Motor bicycles

Support clean vehicles fleets

- Clean fleet management (toolkit)
- Busfleets

PCFV campaign – global elimination leaded gasoline

- Developed countries went unleaded in 80s – developing countries were still mainly leaded in 2002
- PCFV target: phase out world wide by end 2008
- Today only a handful of countries are left



Leaded Petrol Phase-Out: Global Status



- Unleaded
- Dual
- Leaded

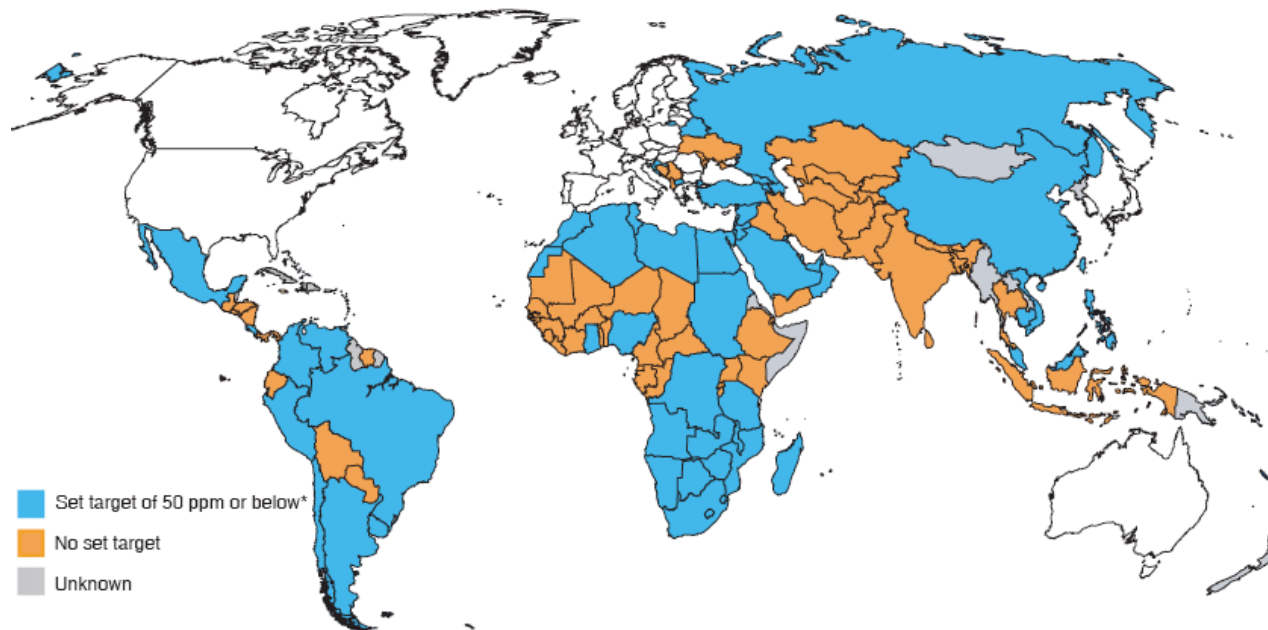
- To Go:**
- Afghanistan*
 - Algeria*
 - Bosnia-Herzegovina
 - Iraq
 - FYR Macedonia*
 - Laos
 - Mongolia
 - Montenegro
 - Morocco*
 - Myanmar
 - North Korea
 - Serbia
 - Tajikistan
 - Tunisia*
 - Uzbekistan
 - Yemen*



* working towards going unleaded by end 2008

PCFV campaign: sulphur

- Developed countries moving to 10 ppm sulphur in fuels, many developing countries at 5,000 or even 10,000 ppm
- PCFV Campaign – countries to introduce 50 ppm or less sulphur fuels. PCFV global, regional and national activities and support
- Many countries have developed strategies since 2005 (blue) – but still about one-third to go (orange)

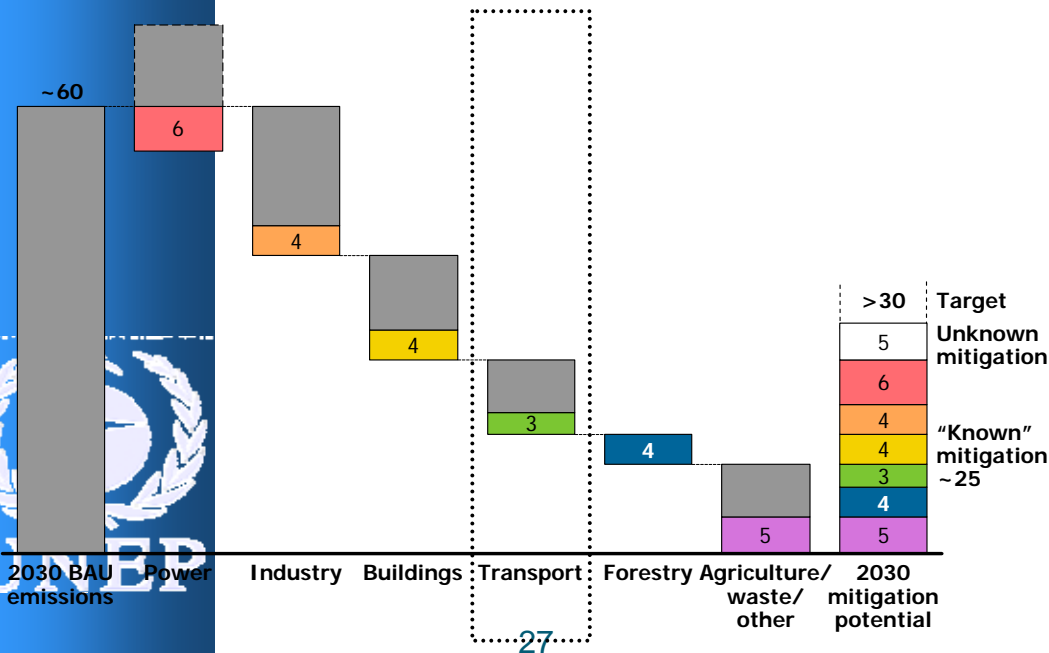


* Information in parts per million (ppm)

Vehicles

3 key interventions

- Low Emissions, Fuel-efficient cars
- Low-carbon fuels
- Reduced vehicle-miles traveled through congestion pricing, Bus Rapid Transit, etc.



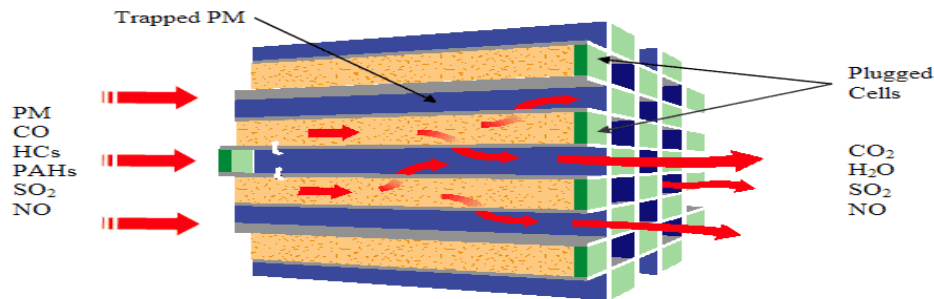


Vehicle Technologies

Figure 1: Diesel Oxidation Catalyst



Figure 2: Diesel Particulate Filter



Older Diesel

Modern Diesel



Fleet Demonstrations of Zero Emissions Technologies



- **100** Fuel cell light duty vehicles to date
- **Up to 7** Fuel cell buses
- Testing, outreach, data collection, validation



Some Conclusions



- Oil consumption, Climate Change and Urban Air Pollution Are Very Serious Problems
- Transportation is a Major Contributor To Each Problem
- These Problems Are Closely Interrelated
- A Wide Variety of Strategies/Policies Exist which Provide Co-Benefits or Ancillary Benefits
- Policies Encouraging Diesel Vehicles Can Be Counterproductive Unless Coupled With Stringent Fuel Neutral Emissions Standards
 - Seriously Hurt Urban Air Pollution
 - Undercut Climate Policy with Excess Black Carbon and NOx emissions
- Low Sulfur Fuels (50ppm or less) and Strong Government Policies Will Be Required To Obtain “Clean” Vehicles



The *Next Step*: Improve Fuels and vehicles

Both gasoline and ADO quality are need to be improved:

- To keep unleaded gasoline
- Reduce sulfur content in ADO become max 500 ppm.
- Fuels quality improvement by characteristic: aromatics, olefine, benzene, and cetane number.

It is the time to harmonize between fuels quality and lower emission vehicle technology:

- Binding commitment and willingness:
 - To realizing lower sulfur diesel fuel.
 - To implement vehicle standard regarding to the Government Regulation (Euro 2 Standard).
- Develop dialog among auto industry and fuels industry:
 - Global, regional, national
 - Involve related stake holder
 - Synergize effort to meet lower emission.
- Promote gas-fuel vehicle included retrofit program for in-use public bus.

