

The Partnership for Clean Fuels and Vehicles



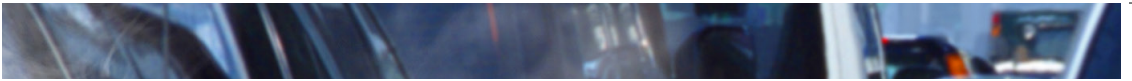
*An Overview of the
Partnership for Clean
Fuels and Vehicles
(PCFV)*



Partnership for
Clean Fuels and Vehicles



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Introduction

The Transport Sector

The transport sector is one of the largest contributors to outdoor air pollution and an important source of CO₂ and non-CO₂ emissions, such as particulate matter. Road transport remains the primary source of urban air pollution in many countries, contributing as much as 80% of urban air pollution in some cities. Second-hand cars and trucks fitted with obsolete technology and fuelled with high sulphur fuels contribute a significant portion to the local emissions from transport.

Despite concerns over the impacts of current pollution levels, road transport emissions are projected to increase sharply over the next 30 years. This is due to the expected growth in vehicle ownership worldwide – resulting to between 2 and 3 billion vehicles by 2050 (IEA Energy Technology Perspectives 2010); the majority of which will be found in developing and transitional countries as incomes grow and consumption patterns change.

Impact of Transport

- 3.2 million premature deaths are caused by global outdoor air pollution and particulate matter (The Health Effects Institute: December 2012).
- Global outdoor air pollution and particulate matter are classified as the leading environmental cause of lung cancer and death (International Agency for Research on Cancer: October 2013).
- The transport sector as a whole is estimated to account for 19% of global black carbon emissions, an important contributor to climate change (Climate and Clean Air Coalition Heavy Duty Diesel Vehicles & Engines Fact Sheet; November 2012).

Air Quality and Climate Change

Vehicles, both petrol and diesel, emit a number of pollutants that affect air quality, including nitrogen oxides, sulphur oxides, particles, carbon monoxide, and hydrocarbons. Research has increasingly focused on air-borne small particulate matter



Emissions from a bus in Kenya © UNEP/Andrew Hall

(PM) due to its disproportionate effect on human health. Health effects associated with fine PM in the air - which can be inhaled deep into the lungs – include premature death and aggravation of respiratory and cardiovascular disease.

A fraction of fine PM, is black carbon (or soot), which is an important contributor to global climate change.

Therefore, lowering PM emissions from cars and trucks will help to reduce global warming.

Solutions

Vehicle emissions can be reduced by using low-sulphur and lead-free fuels in combination with vehicles outfitted with emissions control devices that require such fuels. The benefits from such interventions are well documented. For example, the global elimination of leaded petrol is estimated to result in overall global benefit of \$2.45 trillion/year, including over 1.2 million premature deaths avoided per year, of which 125,000 are children (Journal of Environmental Health, Hatfield, 2011). The Partnership for Clean Fuels and Vehicles (PCFV) has been supporting developing and transition countries to prioritise the reduction of vehicle emissions by implementing lead free and low sulphur fuels, and cleaner vehicle policies.



A Nairobi street © UNEP/Susan Kabogo

About the PCFV

The Partnership for Clean Fuels and Vehicles (PCFV) is the leading global public-private initiative supporting the reduction of vehicle emissions through the promotion of cleaner fuels and vehicles in developing and transitional countries. The PCFV support to countries is mainly coordinated by a Secretariat that is based at the United Nations Environment Programme headquarters in Nairobi, Kenya.

The PCFV helps developing and transitional countries address increasing emissions from vehicles. This international partnership was formed in September 2002 at the World Summit on Sustainable

Development in Johannesburg, South Africa. The PCFV is the only global-scale effort dedicated to cleaner air and lower greenhouse gas emissions from road transport through the introduction of cleaner fuels and vehicles. Its work provides developing and transitional countries with access to technology and knowledge responsible for



A global partners meeting © UNEP/PCFV

significant reductions in pollutants from road transport in developed countries.

The PCFV provides a broad range of technical, financial and networking support for governments and other stakeholders to help improve urban air quality by putting in place needed cleaner fuels and vehicles standards. Since its founding, the PCFV has directly supported the implementation of cleaner fuel and vehicle programs in over 100 countries in all developing and transitional regions globally. This is possible mainly through the diverse expertise and participation of its partners coupled with the leadership and implementation activities of its Secretariat.



Screenshot of www.unep.org/pcf

The PCFV is widely recognised for its two major global initiatives – 1) the phase-out of leaded petrol and 2) the reduction of sulphur in vehicle fuels. In 2012, ten years after its formation, partners met in London to re-launch the PCFV. At the meeting, partners agreed to move towards a ‘systems approach’ to cleaner fuels and vehicles to be implemented through two new PCFV campaigns:

- The Petrol Campaign
- The Diesel Campaign (see section below on PCFV Campaigns).

Vehicle emissions standards paired with complementary fuel quality standards promote not only cleaner, but more efficient vehicles and reduce emissions of conventional pollutants (sulphur and nitrogen) and also climate pollutants (carbon dioxide and black carbon). Cleaner and more efficient vehicles using cleaner fuels emit fewer pollutants and utilize less fuel. Through this approach the PCFV addresses urban air quality and human health concerns as well as global climate change and energy security.

For more information about the PCFV, please visit our website: <http://www.unep.org/transport/pcf>; or contact: pcf@unep.org.



The PCFV Goals

The PCFV works to help countries to reduce emissions from road transport by introducing fuels and vehicle standards in a “Systems Approach” (see section on Systems Approach). The PCFV has agreed on specific goals on fuels and vehicle standards to cost-effectively support reduce vehicle emissions (see text box below). The PCFV provides regional and national level support to countries to ensure that as cleaner fuels are introduced in developing and transitional countries, complementary vehicles emission standards are adopted.

PCFV Goals

	Petrol	Diesel
Fuels	Support complete elimination of leaded petrol in the remaining 6 countries	Continue to support countries to reduce sulphur levels to 50 ppm or less
Vehicles	Support measures that ensure that only catalyst equipped vehicles are introduced in countries	Support countries to put in place vehicle emissions standards complementary to their fuel sulphur levels

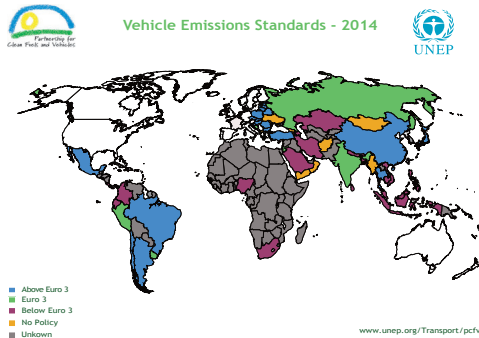
The PCFV Campaigns

A Systems Approach

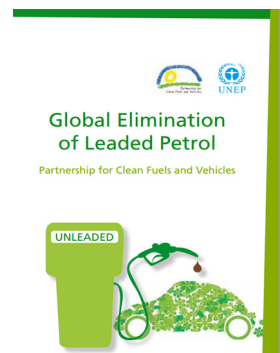
The PCFV recognizes that fuels and vehicles work together as a system, and that the greatest benefits are achievable by combining unleaded and lower sulphur fuels with appropriate cleaner vehicle and emission control technologies. With developing and transition countries adopting cleaner fuels, the PCFV will intensify its focus on the introduction of cleaner vehicles to match improving fuel quality. At present, few developing and transition countries have vehicle emission standards that match their fuel quality.

Only a handful of developing and transition countries have vehicle emission standards above Euro 3. The goal of the PCFV is for countries to aim for Euro 4 standards – see Vehicle Emission Standards map.

The global map on the current state of vehicle emissions standards shows that only a handful of developing and transition countries have European vehicle emission standards equivalent of Euro 3 (implemented by the EU in 2000) and above – the goal of the PCFV is for countries to aim for Euro 4 vehicle standards (that would be enabled by the adoption of 50 ppm fuel sulphur). In addition, the interventions of the PCFV have



other co-benefits, namely improvements in vehicle fuel economy. The introduction of cleaner fuels also allows for the importation of cleaner, more fuel efficient vehicles, leading to a cleaner and more efficient global fleet. This will contribute towards national air quality improvements and the mitigation of CO₂ emissions. The PCFV will implement this integrated systems approach through two campaigns – one focusing on petrol vehicles and the other on diesel vehicles. These campaigns are detailed below.

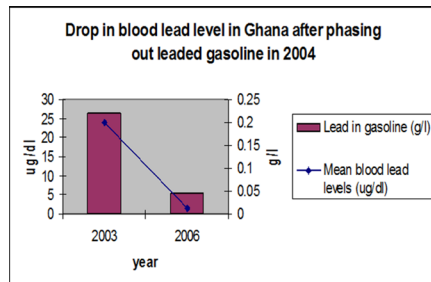


Global Elimination of Leaded Petrol Brochure

The Petrol Campaign

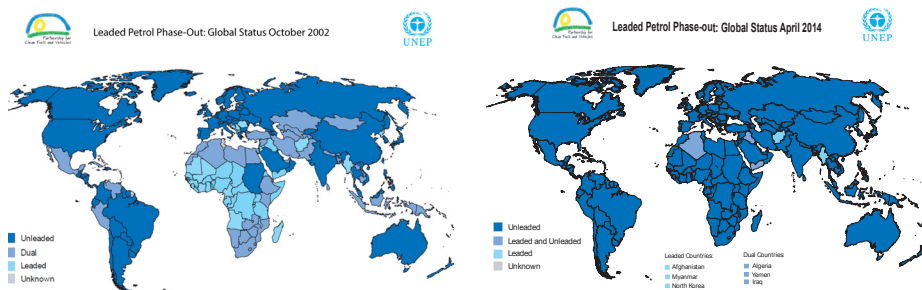
One of the most notable accomplishments of the PCFV has been its work on the global phase-out of leaded petrol. When the PCFV was launched in 2002 the majority of developing and transitional countries were still using leaded fuel. A total of 82 countries were still using leaded petrol in September 2002 when the PCFV was formed. Today, mainly from PCFV support, only 6 countries still use leaded petrol. The PCFV Petrol Campaign has on-going programs in these 6 remaining countries and a complete elimination of leaded gasoline is within reach.

A recent study (Global Benefits from the Phase-out of Leaded Fuel - Journal of Environmental Health: December 2012) estimates the contribution to the global economy of eliminating leaded petrol at US\$2.4 trillion/year (4% of global GDP). This monetary saving is calculated by measuring social benefits such as heightened IQ levels and reduced criminality, in addition to health savings from reductions in illnesses such as cardiovascular disease.



Graph showing drop in blood lead level in Ghana after phasing out lead

This global effort to end the use of leaded petrol also means 1.2 million fewer deaths per year, of which 125,000 are children.



The global maps above show the countries that were still using leaded petrol at the time of the PCFV formation in 2002 and the global state as of April 2014. Most notably, the Sub Saharan Africa region managed to shift from predominantly leaded to unleaded in a couple of years.

Another major benefit of eliminating lead in petrol is that it allows the effective utilization of vehicle emission control technologies in petrol vehicles. The elimination of leaded petrol allows the introduction of emission controls like the catalytic converter. Catalytic converters have been shown to reduce harmful pollutants such as carbon monoxide, hydrocarbons, and nitrogen oxides emissions by 50 - 90%. Even a minute amount of lead can poison a catalytic converter and impair its function. Catalytic converters are now standard in all new vehicles worldwide. The PCFV supports countries that have already adopted lead free petrol to only import vehicles that are fitted with catalytic converters.

The PCFV Petrol Campaign has been successful. Today only 6 countries still use leaded petrol, a significant decrease in usage from the 82 in September 2002.

The Diesel Campaign

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https://www.yunbaogao.cn/report/index/report?reportId=5_16077

