

# Partnership for Clean Fuels and Vehicles



*Outcome and  
Influence Evaluation  
of the UNEP Based  
Partnership for Clean  
Fuels and Vehicles  
(PCFV)*



*The views expressed in this report are not necessarily the opinion of and/or endorsed by all Partners of the Partnership for Clean Fuels and Vehicles*

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## Introduction

The United Nations Environment Programme (UNEP) is host to the Clearing House for the Partnership for Clean Fuels and Vehicles (PCFV). In 2009, UNEP's Evaluation Office commissioned an independent outcome and influence evaluation of the PCFV campaign to phase out leaded gasoline in Sub Saharan Africa. The evaluation was conducted by Mr. David Todd and Mrs. Hazel Todd of IDEDS (International Development , Environment & Disasters). The objective of the evaluation was to assess the impacts of the PCFV campaign to phase out leaded gasoline in Sub Saharan Africa and, in general, to learn lessons from the PCFV public-private partnership model. The authors presented their evaluation report in August 2010. This publication is the summary of the evaluation report. The full report is available at <http://www.unep.org/transport/pcfiv/PDF/leadphaseoutreport.pdf>.

## Summary

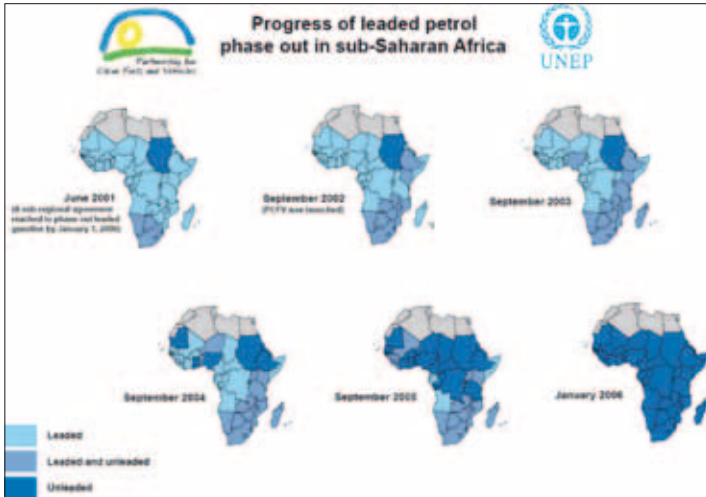
The Partnership for Clean Fuels and Vehicles (PCFV) is a global initiative to promote and support better air quality through the introduction of cleaner fuels and vehicles in developing and transitional countries. It is a public-private partnership launched by a group of committed partners from governments, international organizations, industry and non-governmental organizations (NGOs). The United Nations Environment Programme (UNEP) - based Partnership Clearing-House provides technical, networking and financial support for improved capacity and technology transfer through regional, national and local activities related to cleaner fuels and vehicles. The Partners decided on three key PCFV objectives: (i) to phase out leaded gasoline worldwide; (ii) to reduce fuel sulphur levels (to 50 parts per million or less); to (iii) concurrently with the introduction of cleaner fuels, introduce cleaner vehicles. The Outcome and Influence Evaluation focused on the first objective – the phase out of leaded gasoline. It specifically focused on the campaign in Sub Saharan Africa (where most countries were still using leaded petrol).



The objective of the initial support provided by the Partnership in Sub Saharan Africa (SSA) was the total phase-out of leaded petrol in SSA by the end of 2005. If this state were attained, the Partnership would have achieved its objective.

In mid-2001, Sudan was the only SSA country to have totally removed leaded petrol from use within its borders. This meant that some 48 Sub-Saharan Africa countries remained with total or (in a few cases) partial use of leaded petrol, which would need to be reversed within a period of four and a half years.

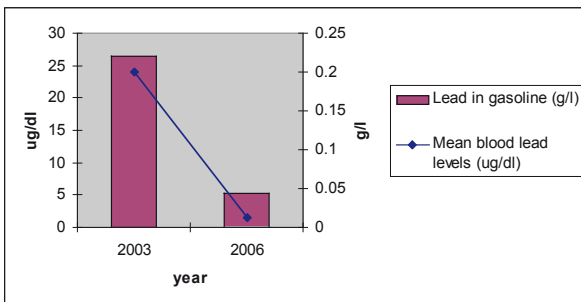
By the deadline of the end of 2005, the target of helping Sub Saharan Africa to be totally free of leaded petrol was attained. In order to assess the results of the Partnership, a hypothetical "business as usual" counterfactual scenario was calculated. The reduction achieved in use of leaded fuel in SSA was of the order of Metric Tons (MT) 17,745 per annum at the end of 2005, rose to about MT 20,138 per annum in 2010 and to MT 23,071 p.a. by 2015. This gives a total of approximately Metric Tons 90,000 avoided by mid 2010, rising to MT 190,690 by 2015 and to MT 304,770 by 2020.



Map: Lead Phase-out progress in Sub-Saharan Africa from 2001 to 2006

We cannot precisely predict how long it would have taken to achieve the phase out without the contributions of the PCFV and other players. However, it is clear that there had been very little progress prior to the original Dakar Conference in 2001, with only Sudan totally lead-free and motorists in South Africa, Namibia and Botswana having limited access to unleaded fuel. This suggests that, as a very conservative estimate, it would have taken ten years rather than five to achieve that. On this basis, the total amount of leaded petrol avoided would have been at least MT 190,000; with a strong likelihood that this figure would have actually been nearer to MT300,000, in view of the minimal progress, which had been made prior to the Dakar Conference and the establishment of the PCFV. The urban population potentially benefitting from these reductions was expected to rise from 411 million in 2000 to 470 million by 2015.

Research on the connection between Blood Lead Levels (BLLs) and health across continents indicates that the phase out of leaded petrol is the critical factor in reducing overall human exposure to lead. Evidence from Hungary and Thailand is consistent with that for the United States; whilst PCFV-supported research in Ghana showed dramatic decreases in BLLs after the phase out



in that country. It is therefore clear that the Partnership contributed to substantial health benefits in Sub Saharan Africa; which in turn promoted social and economic gains through reduced sickness and improved physical and mental development, particularly of children in urban areas.

Reduction in Blood Lead Levels from leaded fuel phase out in Ghana

UNEP made a substantial contribution to this process, operating at three levels. As an institution, often represented at the highest level, UNEP promoted and reaffirmed the importance and achievability of the objective at a series of conferences throughout the region. The widely-respected expertise of UNEP in the realm of international environmental management, coupled with its perceived absence of vested interests was a critical factor in enrolling national political support at the highest levels, which was essential to ensure that intentions were followed through with the intensity and persistence required to phase-out leaded petrol throughout the region.

As a member of the PCFV, UNEP helped to bring into the Partnership a broad range of stakeholders and to maintain their commitment through regular and ad hoc meetings. The experience of the organization in promoting regional (and even global) environmental management initiatives was invaluable in ensuring that the process occurred in a cost effective manner.

At the level of day to day guidance of the process, the UNEP-based and supported Clearing House (CH) provided effective support with, initially, very limited resources. Gradually, the range of activities increased, as did the available resources. The CH enabled the PCFV to operate by coordinating, advising, supporting the preparation of documentation, publishing, and a range of activities without which the Partnership could not have been effective. As funds increased, from UNEP and other sources, the CH also played a vital role in managing Partnership finances and other support to organizations in SSA countries, to hold meetings, run advocacy campaigns, conduct research and engage in activities essential to underpin the process of change; which often started from a low level of public knowledge and even substantial misconceptions concerning unleaded fuel.



*Blood test to determine levels of lead (Yemen)*

Although it is not possible to attribute the phase-out of leaded fuel to the support provided at these three levels by UNEP, or indeed to the PCFV as an institution, it is clear that the phase-out would not have been achieved in anywhere near the same timescale without them. The contribution of UNEP operated on different levels: as a high level advocate to Governments, influencing support in the right places; as a channel to resources within the Partnership, some of whom were attracted to join because of the reputation of UNEP; and as a facilitator and supporter of activities at various levels, but particularly at the country level.

## Key Success Factors

The Partnership for Clean Fuels and Vehicles has demonstrated that the instrument promoted by the 2002 World Summit on Sustainable Development of a “Type 2 Outcome,” or Partnership between governments, the private sector, civil society and international organizations can deliver its intended results under certain circumstances. The PCFV is often cited as one of the most successful examples of this instrument and this evaluation has confirmed its results and analyzed the factors, which enabled these to be achieved.

Evaluation of the role of the PCFV in the phase out of leaded petrol in Sub Saharan Africa shows several key aspects, which contributed to its success. These included:

- Intervention design well-focused on its objectives
- Comprehensive composition of the Partnership
- Ability to support multi-level processes
- Approach tailored to available finance
- High quality management and staff.

Areas which were not fully successful and which would warrant additional consideration in any future Partnerships include:

- Need to maximize awareness of established best practice from an early stage
- Develop and implement agreed systems of compliance monitoring and, where feasible, sanctions for non-compliance.

## The Global Benefits of Phasing Out Leaded Fuel

In April 2010, Professor Hatfield, chair of California State University and his student Peter L. Tsai, Northridge, published a major study, commissioned by the PCFV, on the global benefits of phasing out leaded fuel. The report looks at the direct effects (health impacts due urban air pollution) and the indirect effects (eg. socioeconomic effects of reduced IQs) and reviews all existing studies and combines them into one global impact model. The estimated global annual impacts of lead in fuels were found to be significant:

- Close to 1.1 million deaths;
- A loss of 322 million IQ points;
- Close to 60 million crime cases;
- Economic loss of USD 2.4 trillion per year (4% of global GDP)

For Africa the study concluded that the phase out of leaded gasoline had resulted in benefits amounting to USD 92 billion per year.

The study was peer reviewed by other senior scholars who have confirmed its findings, and the final report is to be published in 2011.

### a. Design Well-Focused on Objective

For its initial objective, the phase out of leaded petrol in Sub Saharan Africa, the PCFV designed a specific and relatively simple objective with a set time scale. The process involved was designed to begin with meetings to secure high level political commitment, which proved the critical factor in ensuring progress in spite of the voluntary nature of the phase out. Thereafter, regular regional and sub-regional meetings were programmed, which established a process of competitive emulation amongst countries, under which the governments sought to ensure that they were able to conform to new standards being attained by their regional peers.

### b. Comprehensive Composition of the Partnership

The Partnership included a broad range of stakeholders, each of whom was able to make a specific contribution to the process, within an agreed framework for action. The sum of the Partnership was greater than its individual parts, since the diverse membership enabled it to address a complex

range of issues and tasks within a short time frame, with coordination provided by a small central function (the Clearing House). In particular, the partners included:

- international agencies able to generate and maintain high level political support;
- technical specialists, able to assist in specifying what actions were needed to meet the commitments made and what standards were appropriate and feasible within the specified time frame;
- agencies able to offer financial support, which could be used to provide assistance to countries with such aspects as research and public awareness campaigns;
- industry support able to provide peer pressure for producers to move towards industry best practice.

### c. Ability to Support Multi-Level Processes

The Partnership was able to keep processes moving at several different levels at the same time. At the global level, the Partnership had members who were able to promote its cause in all regions of the world; which in turn raised the profile of lead phase out as the international norm, against which non participants would be seen as unnecessarily risking the health of their population and in particular children. The identity of the Partnership as a UNEP-supported entity gave it a high level of international credibility and assured national governments that its aims represented environmental best practice.

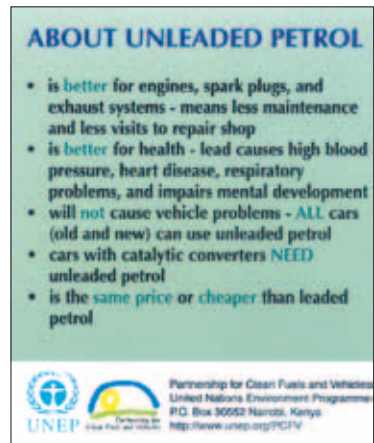
In terms of the industries involved with fuel and vehicles worldwide, the Partnership offered a range of support for specific technical issues important to the phase out process, as well as the incentive of a network of industrial Partners supporting a common cause and approach.

The Partnership also brought together a range of international and national Civil Society Organizations, whose interest overlapped around the issue of phasing out leaded petrol, but did not necessarily coincide, on other issues. It created an issue-specific coalition, which acted as a pressure group and as a support to regional and local NGOs, which needed in particular, technical knowledge around which to base their advocacy campaigns.

At the regional level, the involvement of UNEP at the highest level promoted participation of Government officers at a sufficiently senior level to ensure that commitments made were followed by effective action. The close identification of UNEP with Africa was another positive factor in ensuring support for the initiative.

Nationally, the Partnership established links:

- with Government, through the series of regional, sub-regional and national meetings and support projects, in which it participated or offered support; and through its publications and the technical support made available through the members





- with civil society, through its direct support, particularly for awareness-raising programmes and through the international network of partners and production of supporting documents.

The Partnership was supported by a Clearing House located in UNEP Nairobi. Without this, it would not have been possible to keep the complicated multi-level strands of the phase out process moving at the pace required to meet the established deadline. The Clearing House made technical information available from its industry experts to all partners; notably governments, NGOs; and from private sector partners with specific experience and expertise, to others entering the process from a less advanced position. Furthermore, over time it raised additional funds, which it was able to use to provide small scale financial support, particularly for relevant awareness raising and research activities. The Clearing House proved to be a very cost-effective, efficient and innovative example of a development instrument. Key factors in its success included resisting the temptation to expand too much in terms of mandate and personnel, tailoring the approach to the actual and potential funding and high quality management and staff.

## Lessons Learned

### a. Tailoring the Approach to Available Finance

The role of finance in the Partnership provides a valuable lesson. On a number of occasions, stakeholders at national and industry level raised the issue of lack of finance as a barrier to the phase out process. At national level, government representatives made substantial estimates of the costs of campaigns considered necessary to raise public awareness and support. Industry practitioners suggested that the high costs of refurbishing refineries to produce high quality unleaded fuel would be a major barrier. In the event, the Partnership did not seek to obtain large amounts of finance and most of the grants it made to governments and civil society organizations were small. Despite this limitation, a major transformation was accomplished in Sub Saharan Africa region in a short time span. This indicates that for some types of issues, political commitment, regular follow up and comprehensive technical support may be as effective, if not more effective, than large scale financing.



### b. Need for Rapid and Effective Dissemination of “State of the Art” Information

One lesson from the processes of the SSA lead phase out is the importance of maximum circulation and publicity of authoritative technical information. The Partnership produced a range of high quality technical documents on most of the critical issues for the phase out process. Despite this, the numerous meetings held and national level studies commissioned or conducted by governments, and their working parties, task forces and the like showed a tendency to “reinvent the wheel,” by trying to investigate issues, which had already been resolved at an international level. To some extent, studies commissioned by the Partnership were bound to have a time lag before



reports were issued and still more before these became widely known. Furthermore, it seems that countries used the process of developing their own approach as an important element of reaching the decision to phase out. However, in any future programme based on a Partnership model the PCFV experience suggests that the earliest possible resolution of technical issues and circulation of definitive guidelines might offer scope to short-circuit the tendency of countries to seek national solutions for issues, for which international best practice has already been agreed

**c. Early Establishment of Compliance Monitoring Systems and Agreement on Sanctions for Non Compliance**

Another area where the phase out programme was not fully effective is that of monitoring compliance to the principle of exclusive use of unleaded fuel (for normal motoring purposes). Several regional and sub-regional meetings discussed the potential problems of the use of stockpiles of lead additives, smuggling of leaded fuel and fuel adulteration. However, monitoring of the extent to which such practices have actually occurred is modest and there are no agreed sanctions, which might be applied against any “guilty” parties. On the one hand, this issue is sensitive, given the voluntary nature of the phase out process. On the other, the results and health benefits of participating countries could be undermined by individuals or organizations, which do not conform to the new standards. The Partnership believes that it has been relatively successful in pressurizing countries to conform to their obligations through informal communication and the desire of countries not to be seen to be lagging behind their peers. For any future Partnerships dealing with changes for which compliance might become an issue, it would be important to consider from the earliest stage, whether there might be any approach to compliance monitoring and potential sanctions, which could work within a voluntary framework like the PCFV. In the case of lead phase-out, it is clear that the voluntary approach reached a high level of effectiveness. However, in other cases, where such sanctions appear essential, it may be that a voluntary approach would be less effective than a formal inter-governmental agreement.



**d. Factors that facilitate the use of Partnership approach**

UNEP should consider a Partnership approach for issues for which:

- voluntary change at the desired level appears a feasible objective
- an alliance of different stakeholders can address all dimensions including:
  - political commitment
  - technical expertise
  - financial support
  - public awareness and support
  - industry best practice

- UNEP's reputation as a leader in international environmental change processes can engage high level political support.

#### **e. Principles**

Partnerships should be built around the following principles:

- Clear objectives and commonly agreed goals.
- Timescale with milestones.
- Guiding principles.
- Early attention to high level political commitment.
- Each partner makes a unique contribution and is essential for success.
- Clear governance rules and structure.
- Regular review of Partnership performance.
- Ability to listen and compromise.
- Monitoring system for compliance.
- Active consideration of possibilities for sanctions for non-compliance.

#### **f. Essential "impact drivers" are set in motion early**

In order to move from outcomes, which the project can (mainly) directly deliver, to the intended long term impact objectives of the intervention, (which are mainly delivered by other stakeholders) partnership interventions should ensure that essential "impact drivers" are set in motion from the earliest possible stage. These should be determined during the design stage and may include:

- High level support and specified commitments from concerned governments: including high level champions, participation of all appropriate agencies, technical capacity, defined personnel responsibilities, and an adequate level of secured funding.
- Active engagement of civil society organisations at international and national level, with specified contributions and adequate monitoring and assistance to ensure focus on intervention objective.
- Focussed participation of private sector representative bodies or companies with specific expertise and interests, which conform closely with those of the partnership.
- Public awareness and support, based on production and circulation of materials detailing international best practice standards and support to national organisations, which can interpret and advocate the issues effectively in local contexts.
- An appropriate coordination and support mechanism, which can: keep processes moving in line with the agreed schedule; offer or facilitate technical support in response to specific requests; provide financial support, particularly for such areas as local advocacy campaigns, research and monitoring; facilitate linkages and exchanges among partners, and between partners and participating countries; assemble, organise and disseminate up-to-date information to a broad range of interested parties.
- Development and implementation of effective monitoring mechanisms, to determine progress towards the partnership objective, highlight areas of low performance in need of additional attention and assess compliance once time-based deadlines have been passed.
- Early consideration of possible sanctions against non-compliance, which might be viable and effective within a voluntary programme of change.

## PCFV LIST OF PARTNERS

1. African Refiners Association (ARA)
2. Afton Chemical
3. Alliance of Automobile Manufacturers
4. American Honda
5. American Petroleum Institute (API)
6. Asian Clean Fuels Association (ACFA)
7. Association for Emission Control by Catalyst (AECC)
8. Association of European Automobile Manufacturers (ACEA)
9. Association of Intl. Automobile Manufacturers
10. Association of Southeast Asian Nations (ASEAN) Working Group
11. Blacksmith Institute
12. BP America Inc.
13. Canadian International Development Agency (CIDA)
14. Caucasus Environmental NGO Network (CENN)
15. Central American Commission on Environment and Development
16. Centre for Science and Environment (CSE)
17. Centre of Expertise and Certification of Oil and Oil Products 'Organic Ltd'
18. Centro de Transporte Sustentable
19. Centro Mario Molina Chile
20. Chile National Commission on the Environment (CONAMA)
21. China State Economic and Trade Commission
22. CITAC AFRICA LLP
23. Corpaire – Institution mandated by Ecuadorian Government for Air Quality Control
24. Daedalus LLC
25. Democratic Republic of Congo - Ministère de l'Environnement, Conservation de la Nature, Eaux et Forêts
26. Ecogestión
27. El Salvador Daily News
28. Energy and Environment Saving Ventures
29. Engine Manufacturers Association
30. Environment Australia
31. Environment Canada
32. Environmental and Energy Technology and Policy Institute
33. Environmental Defense
34. Environmental Liaison Centre International (ELCI)
35. European Commission
36. European Fuel Oxygenates Association
37. FIA Foundation
38. Fleet Forum
39. Forum For Environment
40. Ghana Environmental Protection Agency
41. Global Environment and Technology Foundation
42. Indonesian Ministry of Environment
43. Institute of Environmental Studies (IES) Albania
44. Institute of Petroleum Studies
45. International Energy Agency (IEA)
46. International Fuel Quality Center
47. International Petroleum Industry Environment Conservation Association (PIECA)
48. Israel Ministry of Environmental Protection
49. Italy Ministry of Environment and Territory
50. Japan Automobile Manufacturers Association
51. Japan Petroleum Energy Center (JPEC)
52. Kenya Auto Bazaar Association
53. Kjaer Group A/S
54. Komite Penghapusan Bensin Bertimbel (KPBB)
55. Korean Ministry of Environment (MoE)
56. Kukulkan Foundation
57. Lagos Metropolitan Area Transport Authority (LAMATA)
58. Lao PDR, Ministry of Public Works and Transport
59. Lawyers' Environmental Action Team (LEAT)
60. Lubrizol Corporation
61. Manufacturers of Emission Control Association (MECA)
62. Mexican Center for Environmental Law, A.C. (CEMDA)
63. Mexico - Instituto Nacional de Ecología (INE)
64. Mexico Office for Environment and Natural Resources (SEMARNAT)
65. Ministry of Environmental Protection (MEP, China)
66. Mongolia, Ministry of Nature, Environment and Tourism
67. Mozambique Ministry for Coordination of Environmental Affairs
68. National Association of Automobile Manufacturers of South Africa (NAAMSA)
69. Nigeria Automotive Council (Nigeria Ministry of Industry)
70. National Environment Management Authority (NEMA) - Kenya
71. Natural Resources Defense Council (NRDC)
72. Navistar Inc.
73. Netherlands Ministry of Housing, Spatial Planning & Environment (VROM)
74. Nigeria Federal Ministry of Environment
75. Observatoire du Sahara et du Sahel / The Sahara and Sahel Observatory (OSS)
76. Organisation Internationale des Constructeurs d'Automobiles (OICA)
77. Pan American Health Organization (PAHO)
78. Petrobras
79. Petroleum Corporation of Jamaica
80. Petroleum Institute of East Africa (PIEA)
81. Pontifical Catholic University of Rio de Janeiro
82. Regional Environment Centre for Central and Eastern Europe (REC-CEE)
83. Regional Environmental Centre for the Caucasus (REC Caucasus)
84. Salzburg AG Utilities UAE FZE
85. Scientific and Research Institute of Motor Transport (NIAT)
86. Serbian Chamber of Commerce
87. Society of Indian Automobile Manufacturers (SIAM)
88. Somali Ministry of Environment and Disaster Management
89. South Africa Dept. of Minerals & Energy
90. South African Petroleum Industry Association (SAPIA)
91. South Asia Co-operative Environment Programme (SACEP)
92. Southern Centre for Energy and Environment
93. Standards Organization of Nigeria (SON)
94. Thailand Ministry of Natural Resources and Environment (MoNRE)
95. The Clean Air Initiative for Asian Cities Center (CAI-Asia)
96. The Clean Air Institute/Clean Air Initiative for Latin American Cities
97. The Climate and carbon Market Department of the Environment Secretary of Rio de Janeiro State
98. The LEAD Group
99. The LEVON Group
100. TNT
101. Tracerco, U.K.
102. Trust For Lead Poisoning Prevention
103. U.S. Agency for International Development
104. U.S. Department of Energy
105. U.S. Environmental Protection Agency
106. United Nations Dept for Economic & Social Affairs (UNDESA)
107. United Nations Environment Programme (UNEP)
108. United Nations Industrial Development Organization (UNIDO)
109. United Nations World Food Programme (WFP)
110. Universidad Nacional de Colombia
111. Vanilla-Jatropha Development Foundation (VJDF)
112. VBD Automotive Technologies
113. World Resources Institute (WRI)
114. Yemen Environment Protection Authority



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