

# Partnership for Clean Fuels and Vehicles: Evaluation of the Design and Implementation of the Lead Campaign

Final Report

Promoting Environmental Results  
←—————→  
Through Evaluation

## ACKNOWLEDGEMENTS

---

This report, *Partnership for Clean Fuels and Vehicles: Evaluation of the Design and Implementation of the Lead Campaign*, was developed for the United States Environmental Protection Agency's (US EPA) Office of Policy under Contract EP-W-10-002 between EPA and Industrial Economics, Inc. (IEc) of Cambridge, Massachusetts. The evaluation team included IEc and Ross & Associates Environmental Consulting, Ltd. (Ross & Associates) of Seattle, Washington. The evaluation team (also referred to as the "evaluators" throughout this report) consisted of Anna Williams, Athena Bertolino, and Megan Parker from Ross & Associates, and Andrew Schwarz from IEc.

Angela Bandemehr and Teresa Kuklinski of US EPA's Office of International and Tribal Affairs provided critical assistance and background information on the Partnership for Clean Fuels and Vehicles throughout the course of this study. John Heffelfinger, Carl Koch, and Britta Johnson of US EPA's Office of Policy Evaluation Support Division provided technical support and advice for the evaluation. A broader Evaluation Advisory Group, consisting of representatives from the US EPA Office of International and Tribal Affairs and the US EPA Office of Air and Radiation also provided feedback on the evaluation plan and interim reports.

This report was developed under the Program Evaluation Competition, sponsored annually by US EPA's Office of Policy. Program Evaluation is one of the performance management tools US EPA uses to assure itself, the public, and other interested stakeholders that US EPA programs are protecting human health and the environment effectively and efficiently. The information obtained through program evaluations can shed light on whether US EPA programs are meeting their goals and objectives, provide the evidence and road map needed to replicate successes, and identify those aspects of US EPA programs needing improvement. To access copies of this or other US EPA program evaluations, please visit US EPA's Evaluation Support Division's website at <http://www.epa.gov/evaluate>.

# TABLE OF CONTENTS

---

Executive Summary.....	ES-1
Chapter 1. Introduction .....	1
Evaluation Purpose and Audience.....	1
Related Evaluations and Studies .....	2
Regarding Other Efforts to Phase out Lead From Fuel.....	3
Regarding the Scope of PCFV’s Work to Phase Out Lead.....	4
Chapter 2. Methods.....	5
Chapter 3. A Brief History of Lead In Fuel .....	11
Chapter 4. PCFV Overview.....	18
Chapter 5. Findings on PCFV Lead Campaign Startup and Design .....	24
1. Preceding Developments.....	24
2. A Timely Opportunity with Support from Senior Leadership .....	29
3. Clear, Measureable, and Ambitious-yet-Achievable Goal.....	29
4. Strong Partnership Design and Design Process that Fosters Ownership and Trust .....	32
Chapter 6. Findings on Lead Campaign Implementation .....	34
1. Multi-Faceted Implementation Strategy Covers Key Issues and Engages Key Stakeholders .....	34
2. Partners Bring Expertise and Commitment through Complementary Roles.....	38
3. Modest PCFV Resource Investments Build Awareness and Capacity.....	40
4. Partners Address Challenges and Learn through Experience.....	41
Chapter 7. Relevance of Findings on Lead Campaign to Other Voluntary Partnerships.....	44
1. Core Lead Campaign Strengths Could Also Serve Other Partnerships .....	44
2. When a Voluntary Partnership Model Might be Suitable in Other Contexts .....	45
3. Emerging Partnership Design Principles that are Consistent with PCFV .....	46
Chapter 8. Conclusions.....	50
Appendix A. Bibliography .....	51
Appendix B. The Global Benefits of Phasing Out Leaded Fuel: Executive Summary .....	58
Appendix C. Outcome and Influence Evaluation of the UNEP Partnership for Clean Fuels and Vehicles (PCFV): Executive Summary.....	60
Appendix D. Example Interview Guide.....	64
Appendix E. PCFV Governance Rules.....	67
Appendix F. List of PCFV Partners.....	72
Appendix G. PCFV Lead Campaign National and Regional Activities through 2009 .....	75

# ACRONYMS

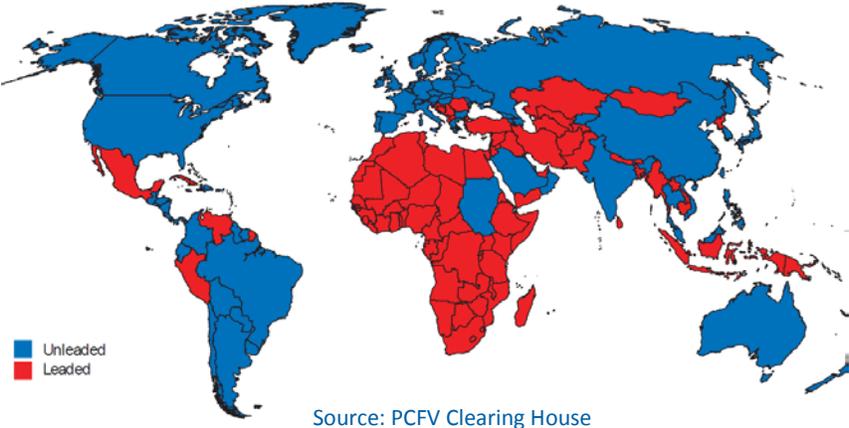
---

BLL	Blood lead level
CARB	California Air Resources Board
GDP	Gross domestic product
ICCT	International Council for Clean Transportation
IPIECA	International Petroleum Industry Environment and Conservation Association
MECA	Manufacturers of Emission Controls Association
NGO	Non-governmental organization
NRDC	Natural Resources Defense Council
PCFV	Partnership for Clean Fuels and Vehicles
TEL	Tetraethyl lead
UNEP	United Nations Environment Programme
US AID	United States Agency for International Development
US EPA	United States Environmental Protection Agency
WSSD	World Summit on Sustainable Development

# EXECUTIVE SUMMARY

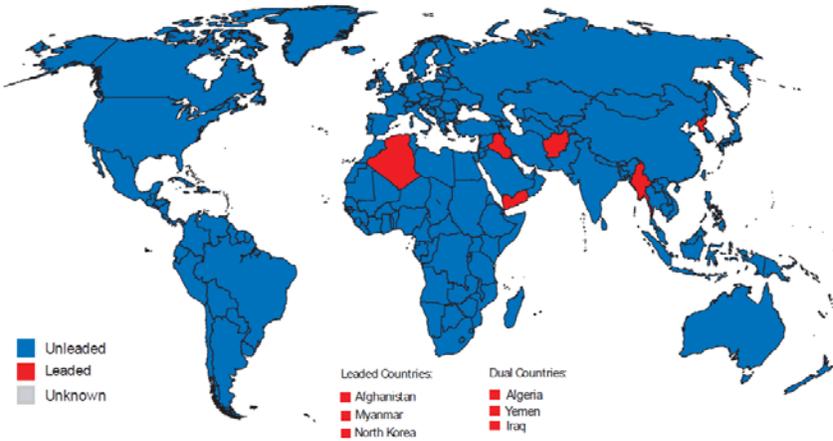
In 2002, the Partnership for Clean Fuels and Vehicles (hereafter referred to as PCFV or the Partnership) was launched at the World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa. This voluntary, global, public-private partnership promotes the reduction of air pollution from vehicles in developing and transitional countries through three campaigns: (1) the Lead Campaign, aimed at eliminating lead in fuel; (2) the Sulfur Campaign, aimed at reducing levels of sulfur in diesel and gasoline; and (3) the Clean Vehicles Campaign, aimed at promoting the adoption of cleaner vehicle technologies.

FIGURE ES 1. GLOBAL STATUS OF LEAD PHASE OUT AS OF 2002



Since 2002, nearly all of the 100-plus countries using leaded fuel at that time have since eliminated lead from their fuel supplies. PCFV’s Lead Campaign is considered by many to have catalyzed the phase out of leaded fuel in many of these countries over the past nine years, particularly in Sub-Saharan Africa, where phase out rapidly and completely occurred between 2002 and January 1, 2006. The six countries that have yet to eliminate lead from fuel are expected to do so within the next few years.

FIGURE ES 2. GLOBAL STATUS OF LEAD PHASE OUT AS OF JANUARY 2011



The United States Environmental Protection Agency (US EPA), one of the founding partners of the PCFV, initiated this third-party evaluation to identify and examine lessons from the PCFV's Lead Campaign that may be transferable to other existing or future international partnerships. The evaluation focused on the Lead Campaign's startup and design, implementation, and overarching lessons that could inform other partnership efforts. The evaluation did not identify the benefits of eliminating lead from fuel or the role (influence) of PCFV in the elimination of leaded fuel, as these have been studied previously. With the intent of building on past efforts, and in light of PCFV's strong reputation, *this evaluation assumes as a starting point that the Lead Campaign has been effective*. The evaluation methods consisted of a qualitative analysis of information on PCFV, results of 41 formal interviews, and review of literature on voluntary partnerships.

## FINDINGS

### PCFV LEAD CAMPAIGN STARTUP AND DESIGN

The evaluators sought to understand whether the Partnership's launch and design phase ultimately contributed to the Lead Campaign's effectiveness. The evaluators found that four factors supported a strong start and successful implementation of the Campaign later on: (1) preceding developments; (2) a timely opportunity with support from senior leaders; (3) a clear, measurable, and ambitious-yet-achievable goal; and (4) strong partnership design and design process that fosters ownership and trust.

#### *1. Preceding Developments*

Several developments transpired prior to the conception of PCFV, including strong evidence of lead's public health impacts, decades of experience showing the feasibility and affordability of eliminating lead from fuel, a scenario where most stakeholders had much to gain and little to lose from making the switch to unleaded fuel, commitment to facilitate change by a group of experts from core stakeholder groups, and the momentum begun in 2001 for moving to unleaded fuel in Sub-Saharan Africa.

#### *2. A Timely Opportunity with Support from Senior Leaders*

The 2002 WSSD in Johannesburg provided an opportunity to launch an initiative to eliminate lead worldwide. Most of the ad-hoc group that had informally joined forces the prior year decided to pursue a partnership using the WSSD as the "launching pad" with public support from high-level political leaders.

#### *3. A Clear, Measurable, and Ambitious-yet-Achievable Goal*

The Lead Campaign's clear goal of eliminating lead from fuel helped to focus the Partnership's efforts and enable clear map-based progress tracking that had a strong "peer pressure" side benefit when countries would see others making more rapid progress. In 2005, when it became clear that Sub-Saharan African countries would phase out lead by January 2006, the partners chose a strategy of

targeting 2008 for global phase out of leaded fuel to spur rapid phase out, knowing that this target date may be unrealistic for countries facing substantial barriers to change.<sup>1,2</sup>

#### *4. Strong Partnership Design and Design Process Fosters Ownership and Trust*

PCFV's basic design features are fairly standard,<sup>3</sup> consisting of a mission statement, goals and objectives, requirements for participation, an advisory body, a secretariat function, and ad-hoc efforts to address particular issues. It is the details, such as a consensus-based decision process, use of the Chatham House Rules at meetings, and establishment of a neutral (or "honest broker") Clearing House, as well as the investment in building agreement on these features that bolstered partnership rapport and sense of joint ownership, mutual trust, and respect amongst the partners. Lasting relationships built during the design phase have translated into only rarely needing to call upon the formal governance rules.

### **LEAD CAMPAIGN IMPLEMENTATION**

Lead Campaign implementation has combined strong features, summarized here as: (1) multi-faceted implementation strategy covers key issues and engages key stakeholders; (2) partners bring expertise and commitment through complementary roles; (3) modest yet focused resource investments build awareness and capacity; and (4) partners address challenges and learn through experience.

#### *1. Multi-Faceted Implementation Strategy Covers Key Issues and Engages Key Stakeholders*

The Partnership's implementation strategy, which evolved over time, provides insight into how a voluntary partnership can facilitate change that benefits both public and private interests. The multi-level strategy combined national and regional awareness-raising regarding public health impacts from leaded fuel; utilization of maps to apply peer pressure to countries that had yet to make the change; engagement with key advocates and leaders at the regional and national levels; capacity building within government, industry, and civil society; deference to national partners' leadership; and advocacy. Over time, the strategy covered all the key "fronts" and involved all key stakeholder groups.

#### *2. Partners Bring Expertise and Commitment through Complementary Roles*

A core group of global partners has contributed significant leadership and commitment since the Campaign's inception. The United Nations Environment Programme (UNEP) has played a fundamental and critical role. As part of the United Nations, UNEP provides political credibility and offers political connections at high levels. The UNEP staff team has served in the invaluable Clearing House capacity as a neutral coordinator, information provider, and funds manager. US EPA has been one of the Partnership's largest and most consistent financial contributors, but beyond its financial support, US EPA has provided international credibility, staff assistance, and technical support. Finally, the Partnership

---

<sup>1</sup> IPIECA. "Partnerships in the Oil and Gas Industry: The Partnership for Clean Fuels and Vehicles." 2006.

<sup>2</sup> United Nations Environment Programme (UNEP). *Outcome and Influence Evaluation of the UNEP Partnership for Clean Fuels and Vehicles (PCFV)*. 2010, 7-8. <http://www.unep.org/transport/pcfV/PDF/leadphaseoutreport.pdf>.

<sup>3</sup> Other partnerships and international stakeholder initiatives that are similarly structured include the UNEP Global Mercury Partnership, the Global Alliance for Clean Cookstoves, the Stop TB Partnership, and the Forest Stewardship Council.

could not be effective without its regional and national partners, who have served as the on-the-ground leaders and implementers.

### *3. Modest yet Focused Resource Investments Build Awareness and Capacity*

The Partnership's cumulative funding since 2002 has totaled approximately US \$11.4 million, of which the Lead Campaign's costs have been approximately US \$6 million.<sup>4</sup> Costs in terms of Partnership management and implementation and in terms of on-the-ground implementation have been relatively low. The public health benefit and economic savings significantly outweigh the cost of lead elimination by orders of magnitude, with the cost to consumers at the pump translating to only \$0.01-0.02 per liter, and in some cases less.<sup>5</sup>

### *4. Partners Address Challenges and Learn Through Experience*

The partners have encountered several challenges, which, while slowing down decisions or actions in some cases and resulting in debates on strategy and scope, do not appear to have stalled the Campaign's momentum. The Partners have been able to navigate challenges and continue progress, even if this has meant making tough decisions involving tradeoffs. When asked what they would do differently if they were to design the Lead Campaign over again today, some interviewees had no suggestions for improvement, whereas others offered ideas such as identifying regional partners and examples earlier on and trying to recruit more private sector partner involvement. Those who have been deeply involved from the beginning said that, even if they would do things differently today, they view the Campaign's "learning by doing" as invaluable, strengthening the Partnership on the whole.

## **RELEVANCE OF FINDINGS ON THE LEAD CAMPAIGN TO OTHER VOLUNTARY PARTNERSHIPS**

Findings on the relevance of the Lead Campaign's design and implementation to other voluntary partnerships are divided into three areas: (1) core Lead Campaign strengths could also serve other partnerships; (2) when a voluntary partnership model might be suitable in other contexts; and (3) emerging partnership design principles that are consistent with PCFV.

### *1. Core Lead Campaign Strengths Could Also Serve Other Partnerships*

Several core strengths have supported the Lead Campaign's effectiveness. These strengths would also serve other international partnership efforts. They include:

- Preceding developments that support a strong start and can help to quickly build momentum;
- Strong design and design process that engendered joint ownership and trust;

---

<sup>4</sup> Includes contributions received by PCFV by October 2011, including UNEP in-kind support and contributions to PCFV for its work on the Global Fuel Economy Initiative. Source: UNEP PCFV Clearing House

<sup>5</sup> Several studies have demonstrated a positive net benefit to economies that eliminate lead from fuel. See, for example, the Tsai-Hatfield 2010 report. Previous reports utilized by PCFV during the Lead Campaign included a 1996 study on health benefits of the lead phase-out in Thailand demonstrating dramatic decreases in BLLs after lead phase out and a monetary value of health benefits to be US \$280 million, while the costs of the phase-out were US \$8 million. See: UNEP. "Benefits of Lead Phase-out."

- Strategic, multi-level, multi-angle implementation supported through a neutral secretariat; and
- Exceptional people and enduring relationships.

## 2. When a Voluntary Partnership Model Might be Suitable in Other Contexts

Determining whether to choose a voluntary partnership approach to catalyze or cause a particular change is a strategic decision. Issue-specific considerations, such as which parties are needed to solve particular problems or the number of entities from a particular sector needed for sufficient coverage to address a problem, can guide whether to pursue a voluntary partnership approach. These decisions are best considered within the context of the underlying dynamics of the issue and an analysis of available options.

It also appears that there are general conditions, which if applicable, can signify that a voluntary partnership approach may help to achieve or leverage meaningful change. These conditions, listed below as a set of questions, are likely to be or applicable to many situations. In some instances only a few conditions may be in place, while others would need to be established through the efforts of the partnership itself. Thus, similar to the issue-specific considerations, a strategic analysis is needed to determine if a voluntary partnership is the most productive approach.

### EXHIBIT ES-1. QUESTIONS TO CONSIDER WHEN WEIGHING WHETHER TO PURSUE A VOLUNTARY PARTNERSHIP

- › Is there a clear need or problem that requires involvement of multiple parties and perspectives to be successfully addressed, and a defined role that a partnership could perform to address the need or problem?
- › Is there a set of individuals and organizations with the right expertise, authority, credibility, and influence that are willing to commit to starting and productively participating in a partnership?
- › Would key stakeholders individually and collectively gain by participating through aligning agendas and combining resources to magnify the rewards and spread the risks?
- › Has demonstrable progress on the issue in question already occurred (or could it occur relatively quickly), and could a partnership accelerate progress beyond what would occur otherwise?
- › Is there is commonly accepted evidence behind the need for action to address the challenge?
- › Is there powerful, organized opposition to the objectives of the partnership that could prevent a partnership from succeeding?
- › Are there sufficient resources for partnership launch? Can reasonable certainty be provided that funding requirements can be met for the duration of the partnership?

### 3. Emerging Partnership Design Principles that are Consistent with PCFV

Once a decision is made to pursue a voluntary partnership approach, several issue-specific factors can inform design, implementation, and ultimately effectiveness. Considering these factors early on can help to maximize a partnership's potential to influence change and avoid uncertainty, misunderstanding, and a lack of progress. The evaluators identified a set of emerging voluntary partnership design principles that are consistent with the Lead Campaign and PCFV more broadly. These principles, shown below, are elaborated upon in Chapter 7 of this report.

#### EXHIBIT ES-2. EMERGING PARTNERSHIP DESIGN PRINCIPLES

- > Develop clear goals
- > Build a strong core membership
- > Thoughtfully design the partnership and utilize this process to engender buy-in and trust
- > Make clear the power and authority of each partner
- > Maximize voluntary and comprehensive participation
- > Ensure neutral management
- > Secure commitments for funding sufficient to launch the partnership, while also identifying long-term funding opportunities
- > Build in the ability to adapt and course correct
- > Empower sustained change in the field
- > Guarantee transparency and accountability

PCFV and the Lead Campaign evolved over time and as such learned by doing rather than starting with a comprehensive partnership design template. The process of learning and adaptation, coupled with the exceptional suite of people involved, have contributed as much to the Lead Campaign's strengths as has the design itself. Several preceding developments also assisted, if not "empowered," the Lead Campaign from the beginning. The evaluators believe that the potent combination of preceding developments, sound design, strong implementation strategy, and exceptional partners have made the Lead Campaign an extraordinary example in the realm of voluntary partnerships.

Pursuing a voluntary partnership approach, even when the conditions are particularly well suited to that approach and the partnership is well designed and implemented, does not guarantee success. It is the opinion of the evaluators that the considerations and principles identified in this evaluation can nonetheless increase the chances that governments, non-governmental organizations, civil society, and business interests can effectively work together for the common good.

# CHAPTER 1. INTRODUCTION

---

In 2002, the Partnership for Clean Fuels and Vehicles (hereafter referred to as PCFV or the Partnership) was launched at the World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa. This voluntary global partnership promotes the reduction of air pollution from vehicles in developing and transitional countries through three campaigns: (1) the Lead Campaign, aimed at eliminating lead in gasoline; (2) the Sulfur<sup>6</sup> Campaign, aimed at reducing levels of sulfur in diesel and gasoline; and (3) the Clean Vehicles Campaign, aimed at promoting the adoption of cleaner vehicle technologies.

Since 2002, nearly all of the 100-plus countries using leaded fuel have since switched and are considered to be “unleaded.” PCFV’s Lead Campaign is considered by many to have catalyzed the phase out of leaded fuel in many of these countries over the past nine years, particularly in Sub-Saharan Africa, where phase out rapidly and completely occurred between 2002 and January 1, 2006. The six countries that have yet to eliminate lead are expected to do so within the next few years.

Perceptions that the Lead Campaign has contributed substantially to the phase out of lead from fuel in Sub-Saharan Africa were supported by the findings of a 2010 evaluation of PCFV conducted by David and Hazel Todd,<sup>7</sup> commissioned by the independent evaluation office of the United Nations Environment Programme (UNEP). This evaluation summarizes the findings from the 2010 evaluation (hereafter referred to as the UNEP evaluation) in the discussion of past studies and their relationship to this evaluation.

## EVALUATION PURPOSE AND AUDIENCE

The US Environmental Protection Agency (US EPA) initiated this evaluation to identify and examine insights from the PCFV’s Lead Campaign that may be transferable to other existing or future international partnerships focused on environmental, health, and technological outcomes. The evaluation focused on the Lead Campaign’s startup and design, implementation, and insights that could inform other partnership efforts. This evaluation did not focus on identifying the benefits of eliminating lead from fuel or the role (influence) of PCFV in the elimination of leaded fuel, as these topics have been studied previously. To be clear, this evaluation did not involve an analysis of the relationship between PCFV’s Lead Campaign activities and when (and why) countries across the globe have eliminated lead from fuel. This report contains a brief discussion of previous evaluations and reports and how they relate to this evaluation.

The primary audiences for this evaluation are the US EPA managers and staff who oversee and implement PCFV and other international programs. UNEP is also interested in the outcomes of this evaluation, as may be additional PCFV partners and entities engaged in other partnership efforts.

---

<sup>6</sup> This report uses the US spelling of this word.

<sup>7</sup> David and Hazel Todd are with the consultant firm International Development, Environment and Disasters.

## RELATED EVALUATIONS AND STUDIES

PCFV has been the subject of at least one past evaluation and several reports and studies (see the resources in Appendix A denoted by two green dots (••) for a more complete list). This evaluation

### EXHIBIT 1. 2010 TSAI-HATFIELD STUDY ON THE GLOBAL BENEFITS OF PHASING OUT LEADED FUEL

*Note: This 2011 US EPA evaluation refers to, but does not critique or take a position on Tsai and Hatfield's 2010 evaluation findings.*

In April 2010, Dr. Thomas Hatfield, Chair of California State University, Northridge, Department of Environmental and Occupational Health and his student Peter L. Tsai produced a study, commissioned by UNEP, on the global benefits of phasing out leaded fuel. The report analyzed direct effects (health impacts due to urban air pollution) and the indirect effects (e.g., socioeconomic effects of reduced IQs) of lead in fuel and reviewed all existing studies and combined them into one global impact model. The study found that the phase out of lead in fuel is expected to annually prevent:

- › Close to 1.1 million deaths;
- › Loss of 322 million IQ points;
- › Close to 60 million crime cases;
- › Economic loss of US \$2.4 trillion per year (4% of global GDP)

The study was peer reviewed and the final report was published in December 2011.

The executive summary from this study is provided in Appendix B.

Peter L. Tsai and Thomas H. Hatfield. "Global Benefits From the Phaseout of Leaded Fuel." *Journal of Environmental Health*. 74: 8-14. 2011.

summarizes the findings of two recent analyses – a 2010 research study on the global benefits of phasing out leaded fuel and the 2010 UNEP evaluation of the PCFV's role in phasing out lead in Sub-Saharan Africa – because they are significant and they provide important context for this evaluation. Based on these past analyses and also anecdotal information provided in other past reports and through interviews conducted for this evaluation, the evaluators assume that the phase out of lead has had significant public and economic benefits and also that PCFV has been a major contributor to this phase out in Sub-Saharan Africa. The evaluators do not make assumptions about PCFV's role and influence in other regions, as this has not been thoroughly studied in past evaluations; however, the evaluators do make note in a few places in this evaluation of interviewee examples and stories from other regions where PCFV was active.

A 2010 study conducted by Peter Tsai and Thomas Hatfield of California State University (hereafter referred to as the Tsai-Hatfield study) assessed the global benefits of phasing out leaded fuel in terms of deaths prevented, IQ points saved, crime cases avoided, and economic savings. This study, which has since been published,<sup>8</sup> found that among other benefits, over one million deaths are avoided each year and over US \$2 trillion (or 4% of global GDP) is saved by eliminating lead from fuel.<sup>9</sup> Here are a few statistics that put the Tsai-Hatfield study's findings on lead into perspective: In 2008, malaria caused nearly one million deaths, mostly among African children.<sup>10</sup> The number of

<sup>8</sup> While the Tsai and Hatfield study has been published, US EPA did not review the document for technical accuracy and does not take a position on the methodology of the study or endorse its findings. See: Peter L. Tsai and Thomas H. Hatfield. "Global Benefits From the Phaseout of Leaded Fuel." *Journal of Environmental Health*. 74: 8-14. 2011.

<sup>9</sup> Peter L. Tsai and Thomas H. Hatfield. *The Global Benefits of Phasing Out Leaded Fuel*. California State University, Northridge. 2010.

<sup>10</sup> World Health Organization. "Malaria." Fact Sheet. <http://www.who.int/mediacentre/factsheets/fs094/en/>

people who died of AIDS-related deaths in 2009 was 1.8 million and of these, 1.3 million were in Sub-Saharan Africa.<sup>11</sup> Finally, tobacco causes nearly six million deaths globally each year.<sup>12</sup> (For more details from this study, see Exhibit 1 and Appendix B).

Separately, in 2009, UNEP's Evaluation Office commissioned an independent evaluation to assess the impacts of the Lead Campaign in Sub-Saharan Africa and, in general, to learn lessons from the PCFV public-private partnership model. This evaluation, titled *Outcome and Influence Evaluation of the UNEP Based Partnership for Clean Fuels and Vehicles* (hereafter referred to as the UNEP evaluation), was published in 2010. The UNEP evaluation found that, as a very conservative estimate, in the absence of PCFV it would have taken ten years rather than five to achieve the elimination of lead from fuel in Sub-Saharan Africa. It further found that the role of PCFV contributed in several ways to the phase out. Exhibit 2 provides a summary of the UNEP evaluation's key findings, and the executive summary from this evaluation is provided in Appendix C.

PCFV and the Lead Campaign have also been described in other reports including the 2009 European Union *Monitoring Report: Cleaner Transport for Better Urban Air Quality and Reduced Global Emissions*, the 2008 UNEP Global Mercury Partnership *Review of Global Multi-Stakeholder Partnerships*,<sup>13</sup> and IPIECA's 2006 *Partnerships in the Oil and Gas Industry: The Partnership for Clean Fuels and Vehicles* case study.<sup>14</sup> The European Union report details European Union funding for the PCFV as well as an evaluation of the PCFV program related to the relevance and quality of design, efficiency of implementation and effectiveness to date, impact prospects, potential sustainability, and key observations and recommendations through 2009. The UNEP report discusses key implementation issues in global multi-stakeholder partnerships based on a review of four partnerships, including PCFV. The IPIECA case study summarizes the Partnership development, challenges, and lessons learned through 2006.

## REGARDING OTHER EFFORTS TO PHASE OUT LEAD FROM FUEL

It is important to note that before and since PCFV launched the Lead Campaign, other parties were also advocating for the phase out of leaded fuel in developing and transitional countries. In some cases, other efforts worked in conjunction with the Partnership, and in other cases they worked independently but complemented each others' work. The evaluators did not research other efforts to eliminate lead, though were made aware of a few such efforts during the interviews. On the whole, interviewees described their awareness of and impressions of PCFV's role in the phase out of lead from fuel, and they viewed the Lead Campaign to be a strong and successful partnership, even when they were aware of other simultaneous efforts to phase out lead.

---

<sup>11</sup> US Agency for International Development. "HIV/AIDS: Frequently Asked Questions." [http://www.usaid.gov/our\\_work/global\\_health/aids/News/aidsfaq.html#deaths](http://www.usaid.gov/our_work/global_health/aids/News/aidsfaq.html#deaths)

<sup>12</sup> World Health Organization. "Tobacco." Fact Sheet. <http://www.who.int/mediacentre/factsheets/fs339/en/index.html#>

<sup>13</sup> Available: <http://www.chem.unep.ch/mercury/UGMP/INF%207.pdf>.

<sup>14</sup> Available: <http://www.ipieca.org/sites/default/files/publications/partnerships.pdf>

## REGARDING THE SCOPE OF PCFV'S WORK TO PHASE OUT LEAD

As of 2009, the Lead Campaign had supported activities in 77 developing and transitional countries around the world. Some developing countries, including most located in Latin America, had phased out lead prior to PCFV's engagement in that region.<sup>15</sup>

### EXHIBIT 2. 2010 UNEP REPORT: OUTCOME AND INFLUENCE EVALUATION OF THE UNEP-BASED PARTNERSHIP FOR CLEAN FUELS AND VEHICLES

Note: This 2011 US EPA evaluation refers to, but does not critique or take a position on UNEP's 2010 evaluation methodology or findings.

The following is excerpted from the summary report from the 2010 UNEP evaluation. See Appendix C for the complete UNEP report executive summary.

#### Key Findings

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.

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 summary report from the UNEP evaluation can be found here:

[www.unep.org/Transport/PCFV/PDF/leadEvaluation\\_summaryreport.pdf](http://www.unep.org/Transport/PCFV/PDF/leadEvaluation_summaryreport.pdf).

---

<sup>15</sup> Numerous interviewees, including UNEP PCFV Clearing House staff, described this history to us during the evaluation.

## CHAPTER 2. METHODS

---

### EVALUATION SCOPE AND ASSUMPTIONS

US EPA initiated this evaluation to understand what can be learned from the PCFV Lead Campaign to inform other international partnerships in light of the perception that PCFV is an especially effective partnership and that the Lead Campaign in particular has been highly successful. US EPA requested that this evaluation focus on building upon, rather than repeating, past evaluations and studies of PCFV, including the 2010 UNEP evaluation (see discussion on pages 2-3), and that it focus on evaluating what can be learned from the Lead Campaign's design and implementation rather than on its influence or outcomes. The intended primary recipients and users of the evaluation's findings would be US EPA senior managers, although presumably the findings would also be of interest to additional PCFV partners and entities engaged in other partnership efforts. It was thought that these recipients would use this evaluation to inform current and future work in the arena of international partnerships. Further, US EPA did not envision that this evaluation would identify recommendations, either in the context of PCFV design or operations or in the context of US EPA's other international partnership work, though the results of this evaluation could inform both of these.

In light of this direction, the evaluators determined that this evaluation would not assess PCFV's role and influence in the phase out of lead and therefore this is not an "outcome" or "summative" evaluation, which would involve identifying PCFV's results and influence; nor is this a "process" evaluation in the traditional sense that such evaluations typically are accountability focused, aimed at determining whether an intervention has been implemented as intended. Instead, this evaluation falls within the framework of "utilization-focused" evaluation. A "utilization-focused evaluation" – a term coined by evaluation expert Michael Quinn Patton in his 1997 book by this name – focuses on tailoring evaluation designs to the needs and interests of particular users and uses.<sup>16</sup>

As described by Patton, utilization-focused evaluation is highly personal and situational. It does not advocate any particular evaluation content, model, method, theory, or even use. Rather, it is a process for helping primary intended users select the most appropriate content, model, methods, theory, and uses for their particular situation.<sup>17</sup> These utilization-focused principles guided the methods used for this evaluation.

### EVALUATION DESIGN

The evaluation is designed to answer a set of evaluation questions. The discussion below summarizes the process of identifying the evaluation questions and methods used to answer them while considering the intended users and uses described above.

---

<sup>16</sup> The fourth edition of this book was published in 2008. See: <http://www.sagepub.com/books/Book229324>

<sup>17</sup> Michael Quinn Patton. "Utilization-Focused Evaluation Checklist." 2002. [http://web.idrc.ca/uploads/user-S/10905198311Utilization\\_Focused\\_Evaluation.pdf](http://web.idrc.ca/uploads/user-S/10905198311Utilization_Focused_Evaluation.pdf)

## IDENTIFYING EVALUATION QUESTIONS

The first step in the evaluation was to refine the initial evaluation questions that had been submitted as a part of the proposal from the US EPA Office of International and Tribal Affairs to be funded as part of the US EPA Office of Policy's annual Program Evaluation Competition. Once this evaluation was selected for funding (note that both US EPA Offices provided funding for this evaluation) the questions were refined first within US EPA, including close collaboration with the Office of Air and Radiation, and then in consultation with the evaluation contractors from Industrial Economics and Ross & Associates (hereafter referred to as the "evaluators" or "evaluation team"). The final questions, intended to elicit an understanding of what can be learned from the Lead Campaign's design and implementation to inform international partnerships more broadly, were as follows:

### Topic I: PCFV Startup and Design

1. What drivers led to the Partnership's formation?
2. What are the Partnership goals for the Lead Campaign?
3. What were the US EPA and other partners' reasons for participating in the Partnership's Lead Campaign?
4. How was the Partnership structured (e.g., governance, oversight, funding mechanisms) to meet the Lead Campaign's goals?

### Topic II: PCFV Implementation

5. What roles have US EPA and other partners played in the Lead Campaign?
6. How has the Partnership worked to engage partners in meeting the Lead Campaign's goals?
7. How has the Partnership Lead Campaign implementation varied by region and partner type?
8. What roles have funding and other resource investments played in implementation of the Lead Campaign?
9. What other features of the Partnership have enhanced implementation or accomplishment of the Lead Campaign's goals?

### Topic III: PCFV Learning and Improvement

10. What obstacles did the Partnership encounter and how has the Partnership worked to address those obstacles to ensure effective implementation of the Lead Campaign?
11. How has the Partnership assessed and reported out on the Lead Campaign's progress? (e.g., annual summaries, mapping)?
12. What other evaluations or assessments have been previously conducted on the Partnership's Lead Campaign design, implementation, and results?

#### **Topic IV: PCFV Key Lessons and Insights**

13. What additional insight does this evaluation provide on the Partnership's design and implementation of the Lead Campaign?
14. What can US EPA and others learn from the design and implementation of the Lead Campaign to inform their engagement in existing and future international partnerships?

#### **INFORMATION COLLECTION AND ANALYSIS APPROACH**

The evaluation questions, coupled with the utilization-focused evaluation intent, necessitated a qualitative analysis based on stakeholder and expert opinion, informed by available information and literature on both PCFV and multi-stakeholder international partnerships more broadly. Most of the research focused on PCFV and the Lead Campaign itself on the premise that the evaluation resources would be best devoted in this area. A smaller amount of evaluation resources were devoted to collecting and reviewing information on international partnership trends and best practices. The general steps taken to collect and analyze the information, as well as the types of information used are described below.

##### *PCFV Lead Campaign Literature Review*

The evaluation team reviewed relevant US EPA strategic reports and guidance, excerpts and documents from the PCFV website, reports, fact sheets, media communications, past evaluations, and other material provided by US EPA and UNEP, which sent a substantial amount of background information to the evaluators for this evaluation. The literature review informed the next steps, namely the stakeholder interviews and subsequent additional literature review on multi-stakeholder partnerships. The literature review was conducted while the evaluators worked with US EPA to refine the evaluation questions and conducted initial scoping calls, described below.

##### *Evaluation Scoping Calls*

The evaluators conducted several initial scoping calls with US EPA staff and UNEP staff to gain input on the evaluation approach, potential interviewees, and other resources that could inform the evaluation. These scoping calls provided, among other things, the basis for a draft list of evaluation interviewees.

##### *Interviews*

Interviews with PCFV partners and other experts familiar with PCFV served as the primary source of information collected for this evaluation and the basis for many of this report's findings. The evaluators designed the interviews to gain perspectives from a wide range of Lead Campaign participants covering both the Lead Campaign's geographical scope and a variety of partners representing US EPA, UNEP, the PCFV Clearing House, industry, NGOs, other national governments, and international organizations. The evaluators aimed to maximize the number of interviews considering sectoral and regional representation and the history of the Lead Campaign. For instance, the Lead Campaign was very active

in Sub-Saharan Africa and, by contrast, not active in Latin America;<sup>18</sup> therefore the evaluators conducted relatively more interviews with individuals in Sub-Saharan Africa.

Interviews were conducted by phone with the exception of the interviews with UNEP PCFV Clearing House staff and Kenyan officials, which were conducted in person in Nairobi, Kenya.

The evaluation team conducted interviews with 41 individuals representing US EPA, UNEP, the PCFV Clearing House, industry, NGOs, other national governments, and international organizations. Interviewees were selected on the basis of their involvement with and knowledge of PCFV and the Lead Campaign. The evaluation team attempted to interview a range of parties from different sectors, partners, and geographic locations as broken down in the following table:

TABLE 1. INTERVIEWEE CATEGORIZATION

Category	Global	Sub-Saharan Africa	Asia & the Pacific	Central & Eastern Europe & Central Asia	Latin America & the Caribbean	Middle East, North Africa & West Asia
US EPA	4	1	0	1	0	0
UNEP	5	0	1	1	2	1
Government*	3	4	1	1	0	1
Industry	2	3	1	1	0	0
NGO	3	0	1	2	1	1
<b>Total (41)**</b>	<b>17</b>	<b>8</b>	<b>4</b>	<b>6</b>	<b>3</b>	<b>3</b>

\*Includes two government-funded international organizations and one foreign government that has contributed financially to PCFV and has not been the recipient of PCFV assistance.

\*\* Does not include the initial evaluation scoping calls.

The evaluators created interview guides based on the sectors of interviewees (NGO, Industry, International Organization, and Government) with specific guides for US EPA, UNEP, and other government officials. These guides tailored the overall evaluation questions to focus on the role of the interviewees based on their experience with PCFV. Appendix D. provides an example interview guide. The evaluators provided the specific guide to interviewees prior to the interview, which was then conducted based on these questions to inform the overall evaluation questions.

The interviews conducted remained confidential and internal to the evaluators. They were not distributed or included in the evaluation report, except with explicit permission to use attributed quotes from the respective interviewees. The evaluators passed on anonymous feedback offered by interviewees to both the UNEP PCFV Clearing House and US EPA, noting that these suggestions fell outside of the scope of this evaluation and that the evaluators did not try to determine the appropriateness or feasibility of any of the suggestions offered during the interviews. This report

<sup>18</sup> Latin American countries had already eliminated leaded fuel by the time the Lead Campaign was fully launched. PCFV is currently active in Latin America, but the focus there is on the Sulfur and Clean Vehicles Campaigns. The evaluators did conduct three interviews (two with UNEP staff and one with a representative of the Clearing House’s regional partner, the Mario Molina Center) to gain their input for this evaluation, but did not pursue government representative interviews because, according to those most familiar with the Lead Campaign, the government officials in Latin America would not have specific insights to offer on the Lead Campaign as they were not involved in it.

includes several quotes from the interviews in highlight boxes; sources of the quotes are not included to support agreed-upon confidentiality.

### *Partnership Literature Review*

The evaluation team conducted a limited scope literature review on multi-stakeholder and voluntary partnership principles and best practices to augment the lessons learned from the interviews and initial literature review on the PCFV and the Lead Campaign. This review focused on other assessments (reports, articles, etc.) that have been completed on multi-stakeholder, public-private partnerships, typically at the international level. This research informed the overarching findings of this report, particularly those described in Chapter 7.

### *Analysis of Collected Information*

The evaluation team focused the first phase of analysis on the information provided through the interviews. The team examined the ideas and opinions from the interviews and considered them from multiple perspectives to determine if there was variation in responses by interviewee geographic location, sector, role, etc., understanding that the number of interviewees was limited in any one region or category. The evaluators found that the responses were quite consistent; interviewees consistently had the same ideas surrounding the Partnership's strengths, regardless of the length of engagement in the Partnership or type of engagement, for example, as a funder or recipient of technical support. Some interviewees were less familiar with the Partnership outside of the direct interactions they had when receiving assistance, but in these cases their feedback was still consistent regarding what features of the Partnership stood out. The evaluators noted where there were differences in opinion and also kept track of suggestions on what the interviewees would do differently if they were to design PCFV themselves today knowing what they know now.

The evaluators summarized the (consistent) themes from what they heard through the interviews and reflected upon them in light of the 2010 UNEP evaluation and other reports that discussed PCFV. From this reflection of the interview findings against the backdrop of previous assessments, they again found consistency in the views of the Partnership's design and implementation features. The interviews from this evaluation though, as intended, elicited additional ideas and feedback not present in past assessments.

The evaluation team handled feedback provided through the interviews on potential PCFV improvements in two ways. First, thematic feedback (i.e., from more than a few interviewees) on areas where the Partnership could have benefited from some alternative design features fits within the scope of this evaluation, and the evaluators have included such feedback in the findings of this report. Notably there were few thematic findings in this area, first because several interviewees when asked could not identify things they would do differently in terms of design and implementation, and second, because there was agreement in the few areas where interviewees had suggestions in this area (e.g., providing regionally-specific examples at workshops where possible). The remainder of the suggestions heard were compiled, stripped of their attributions and any identifiable information, and provided to US EPA

and the Clearing House, noting that the evaluators were passing on the suggestions without considering their merit or feasibility.

After synthesizing the results from the interviews and reflecting on how they related to past assessments of PCFV, the evaluation team conducted the additional review of literature on multi-stakeholder partnership trends and best practices. This was a limited-scale review. Even at the limited scale, however, the evaluators were quickly able to identify common themes in these areas, including a set of what appeared to be emerging themes amongst those who have studied these types of partnerships. The evaluators also noted that there still appears to be a wide range of interpretations on what multi-stakeholder (or public-private) partnerships are, as well as a variety of opinions on their credibility and effectiveness.<sup>19</sup> On the whole the evaluators found from this review that the design and implementation strengths the evaluation team had already identified through the PCFV-specific analysis were supported by the literature.

The final steps involved drafting the findings in a manner that responded to evaluation questions, identifying and then filling gaps in information, and vetting the findings for input on factual accuracy. Where any factual errors were identified (e.g., on the description of the Partnership's process), the evaluators made corrections.

Notably, the evaluators found that, even in light of what appeared to be an emerging set of best practice principles, there did not appear to be a strong sense in the field of how effective voluntary multi-stakeholder partnerships have been on the whole. There also appears to be a fair amount of skepticism about whether this approach is as transparent, trustworthy, and accountable to the public good as are, for example, binding intergovernmental agreements. This evaluation was not intended to address either of these issues; however, the evaluators recognize that they are important from the broader perspective on approaches to bringing about change and views on which approaches are both appropriate and effective.

---

<sup>19</sup> The term "partnership" has several definitions. For the purpose of this evaluation, the evaluators use the following definition from the United Nations Environment Programme: "Voluntary and collaborative relationships between various parties, both public and nonpublic, in which all participants agree to work together to achieve a common purpose or undertake a specific task and, as mutually agreed, to share risks and responsibilities, resources and benefits."

United Nations General Assembly Resolution 60/215 "Toward Global Partnerships." March 3, 2006. <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N05/500/50/PDF/N0550050.pdf?OpenElement>

## CHAPTER 3. A BRIEF HISTORY OF LEAD IN FUEL

---

Although PCFV was formally launched in 2002, the evaluators believe it is important for the reader to understand the reasons for the introduction of lead into automotive fuels during the twentieth century, the human health effects due to vehicle emission, and lead exposure in particular, and the global efforts to reduce vehicle emissions and remove lead from fuels during the decades leading up to the PCFV launch. This chapter provides a brief history of these important contextual factors which preceded the launch of the Partnership.

### LEADED FUEL, AIR QUALITY, AND CATALYTIC CONVERTERS

In the 1920s lead became a popular additive to gasoline to increase the octane level for use in high-compression internal combustion engines. In turn, the increase in octane provided engines with increased power and efficiency. The lead additive, known as Tetraethyl lead (TEL), was initially controversial, and some experts expressed concern over its use for reasons including the known toxicity of lead, deaths of several workers during the process of manufacturing TEL, and lack of sound scientific evidence surrounding the risks of widespread, but low-level releases of TEL into the atmosphere via automobile tailpipes.<sup>20</sup> Nonetheless, TEL quickly became the universal octane enhancer.

In the 1940s and 1950s the population of urban cities was rapidly increasing in many parts of the world. At the same time, air quality concerns began to mount. In the US, Los Angeles' first recognized episodes of smog occurred in 1943 when visibility was three blocks and people suffered from "smarting eyes, respiratory discomfort, nausea, and vomiting."<sup>21</sup> In 1947, the Los Angeles County Board of Supervisors established the US's first air pollution control program by creating the Los Angeles County Air Pollution Control District. Other smog-related events, such as the "Killer Fog" that resulted in over 4,000 deaths in London, England, were occurring in large urban areas.<sup>22</sup> Studies were undertaken to analyze the sources of smog in Los Angeles, and in the 1950s automobile emissions, particularly ozone, were identified as a major source.<sup>23</sup> By the late 1950s, experts acknowledged that the rapidly increasing number of vehicles – fueled by a lack of public transit, long distances between communities, a widespread freeway network and a relatively prosperous economy – was a major cause of the smog problem.<sup>24</sup>

In 1960, the US Congress passed the Federal Motor Vehicle Act of 1960, which required federal research to address air pollution from motor vehicles.<sup>25</sup> Congress first enacted a federal Clean Air Act in 1963, with amendments by the Motor Vehicle Air Pollution Control Act of 1965 that allowed for direct federal regulation of air pollution. In 1970, the US Congress passed the Clean Air Act Amendments, this time

---

<sup>20</sup> Jamie Lincoln Kitman. "The Secret History of Lead." *The Nation*. March 2000. <http://www.thenation.com/article/secret-history-lead>.

<sup>21</sup> California Air Resources Board (CARB). "Key Events in the History of Air Quality in California."

<http://www.arb.ca.gov/html/brochure/history.htm>

<sup>22</sup> *Ibid.*

<sup>23</sup> South Coast Air Quality Management District. "The Southland's War on Smog: Fifty Years of Progress Toward Clean Air." May 1997.

<http://www.aqmd.gov/news1/Archives/History/marchcov.html#The Arrival of Air Pollution>

<sup>24</sup> *Ibid.*

<sup>25</sup> CARB, "Key Events in the History of Air Quality in California."

requiring a “90 percent reduction in emissions from new automobiles by 1975.” In 1970, the US Congress also established the US EPA, “giving it broad responsibility for regulating motor vehicle pollution.”<sup>26</sup>

Catalytic converters, devices used to convert toxic exhaust emissions from an internal combustion engine into non-toxic substances, were first widely introduced in the US market in 1975 to comply with the new US EPA regulations geared toward curbing air pollution and protecting human health. Catalytic converters further improved air quality by reducing emissions of carbon monoxide, nitrogen oxides, and hydrocarbons. Unleaded gasoline was introduced in 1974 to enable the use of catalytic converters because lead “poisons” or inactivates catalytic converters, rendering the converters useless in controlling emissions (see Exhibit 3). Thus, one key driver behind eliminating lead in gasoline was to provide a fuel that was compatible with catalytic converters. In addition, it was also found that use of unleaded gasoline resulted in dramatic reductions in ambient lead levels. The benefits of catalytic converters in improving air quality coincided with the growing evidence around the health impacts of lead exposure stemming from the automobile emissions. US EPA began to lower the limit on the amount of lead allowed in gasoline, continuing to lower the limit in the 1980s; by 1996 the phase out of lead from fuel in the US was completed with a ban on leaded gasoline for motor vehicles taking effect.<sup>27</sup>

### EXHIBIT 3. CATALYTIC CONVERTERS – AN OVERVIEW

Catalytic converters are devices used to convert toxic exhaust emissions from an internal combustion engine into non-toxic substances. A mechanical engineer invented the catalytic converter after reading the results of early studies of smog in Los Angeles and becoming concerned about the role of automobile exhaust in air pollution.

Catalytic converters are “poisoned” or inactivated when exposed to exhaust containing substances that coat the working surfaces, encapsulating the catalyst so that it cannot contact and treat the exhaust. Lead (in the form of tetraethyl lead, or TEL) is a catalytic converter contaminant; therefore vehicles equipped with catalytic converters can only run on unleaded gasoline. Automobile manufacturers and fuel refineries introduced unleaded fuel primarily to provide a viable option for automobiles using catalytic converters.

Source: Chemical Heritage Foundation. “Eugene Houdry.” <http://www.chemheritage.org/discover/chemistry-in-history/themes/petrochemistry-and-synthetic-polymers/petrochemistry/houdry.aspx>

It is important to note that, both historically and today, when countries are considered to have eliminated lead from fuel, it does not mean that the TEL additive is not used as an additive for some applications. TEL is still used in one type of aviation fuel for piston-engine aircraft, and may still be used for some professional racing automobiles.

### INCREASING EVIDENCE OF PUBLIC HEALTH HAZARDS DUE TO LEAD EXPOSURE FROM AUTOMOBILES

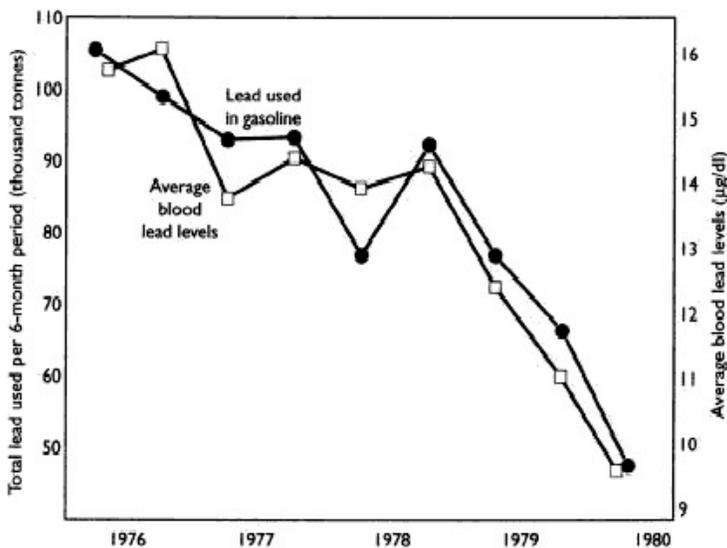
While the US and other countries, beginning with Japan, were in the process of phasing out lead, an increasing number of studies found that lead exposure was causing public health impacts, including

<sup>26</sup> US Environmental Protection Agency. “US EPA Mobile Source Emissions - Past, Present, and Future: Milestones.” <http://www.epa.gov/otaq/invntory/overview/solutions/milestones.htm>

<sup>27</sup> Ibid.

impaired mental development, reduced intelligence, and behavioral disorders in children, as well as high blood pressure, cardiovascular disease, and cancer in adults.<sup>28</sup> Several factors make children more susceptible to lead exposure than adults, and many experts viewed the neurodevelopmental effects of lead exposure to unborn and small children as the most significant public health hazard.<sup>29</sup> Although human exposure to lead occurs through many pathways, the most significant came from the lead additives in gasoline, accounting for 90 percent of human lead accumulation.<sup>30,31</sup> The elimination of lead from fuel was found to be highly correlated to the decrease in blood lead levels in the US (see Figure 1).<sup>32</sup>

FIGURE 1. BLOOD LEAD LEVELS AND LEAD USED IN GASOLINE IN THE UNITED STATES, 1976-1980



Source: Annest et al, 1982

### MANY COUNTRIES BEGIN TO ELIMINATE LEAD FROM FUEL

As the evidence of the detriments of lead mounted, other countries began to eliminate lead from fuel. As noted, Japan followed the US, phasing out lead in ten years.<sup>33</sup> Western European countries introduced unleaded fuel in the late 1980s and many were still in the process of phasing out lead at the

<sup>28</sup> US EPA and US Agency for International Development. "Implementer's Guide to Phasing Out Lead In Gasoline." Hager Bailey Services. March 1999. <http://nepis.epa.gov/EPA/html/DLwait.htm?url=/Adobe/PDF/400004HW.PDF>

<sup>29</sup> CARB, Stationary Source Division. Technical Support Document, "Proposed Identification of Inorganic Lead as a Toxic Air Contaminant, Part B, Health Assessment." March 1997. [As cited in Manufacturers of Emission Controls Association (MECA). "The Case for Banning Lead in Gasoline." January 2003.]

<sup>30</sup> US EPA and US AID. "Implementers Guide to Phasing Out Lead in Gasoline." March 1999.

<sup>31</sup> MECA. "The Case for Banning Lead in Gasoline." January 2003. See also, I.H. Billick, et. al. "Relation of Pediatric Blood Lead Levels to Lead in Gasoline," Environmental Health Perspectives, Vol. 34. 1980, 213-217. [as cited in MECA. "The Case for Banning Lead in Gasoline." January 2003.]

<sup>32</sup> There appear to have been multiple studies that found significant correlations, including the US Centers for Disease Control National Health and Nutrition Examination Studies (cited in MECA 2003, 11-12) and the 1996 EPA study "Lead in the Americas: A Call for Action", cited in Exhibit 3. See also, US Environmental Protection Agency. "Implementer's Guide to Phasing Out Lead in Gasoline." 1999.

<sup>33</sup> Magda Lovei. "Phasing Out Lead From Gasoline: Worldwide Experiences and Policy Implications." World Bank Technical Paper No. 397. 1998.

*“By the time we had finished [with the phase out of lead from fuel in the US] it was much clearer how bad lead was. At the end of the process we looked at children’s health and were blown away by the science.”  
— US EPA Interviewee*

turn of the century. By the early 2000s, all Central American countries, China, Colombia, India, Vietnam, the Philippines, Thailand, and Taiwan no longer used leaded fuel.<sup>34</sup>

At the same time, leaded fuels were still used in over 100 countries, most of them developing nations, and some countries had increased the levels of lead in fuel.<sup>35</sup> Growth in urban populations and demands on urban transport in developing countries was (and still is) leading to increasingly poor air quality, especially in major cities. Air pollution was identified as causing millions of premature deaths worldwide.<sup>36</sup>

During the 1990s, an increasing number of international experts and organizations were helping to support the elimination of lead in developing and transitional countries where there was generally less knowledge about public health impacts associated with lead in fuel and options for eliminating lead in fuel. The World Bank, US EPA, International Petroleum Industry Environment and Conservation Association (IPIECA), and individuals like Michael P. Walsh,<sup>37</sup> John J. Mooney,<sup>38</sup> and Dr. Liu Xian<sup>39</sup> amassed substantial experience supporting countries including Mexico, China, India, Thailand, Vietnam, and many Central American countries to phase out lead. It was becoming increasingly clear that providing effective support, including awareness-raising, stakeholder engagement, and capacity building, had the potential to catalyze lead phase out in the rest of the world as well.

Although over 100 countries had yet to phase out lead, as a region Sub-Saharan Africa had made the least progress, where only one country (Sudan) did not have lead in fuel (as they had never added it).<sup>40</sup> Attention began to turn to the remaining countries. The World Bank, for instance, launched the Clean Air for Sub-Saharan Africa Cities Programme in 1998, with lead phase out as one of the campaign’s priorities.<sup>41</sup>

*“Lead was perfect: we had the science and the technology. From the car manufacturers it was clear that you didn’t really need the lead. It was a win-win situation. It was doing harm today right now and mainly to poor people.”  
— US EPA Interviewee*

<sup>34</sup> MECA. “Case for Banning Lead in Gasoline.” January 2003.”

<sup>35</sup> Ibid.

<sup>36</sup> Tatyana P. Soubbotina and Katherine A. Sheram. *Beyond Economic Growth: Meeting the Challenges of Global Development*. World Bank Development Education Program. 2000, Chapter 10. <http://www.worldbank.org/depweb/beyond/global/chapter10.html>

<sup>37</sup> Independent expert

<sup>38</sup> Independent expert

<sup>39</sup> Beijing Automotive Research Institute

<sup>40</sup> Sudan had never added TEL into their fuel in the first place and, instead, supplied a low-octane fuel in the country.

<sup>41</sup> Patrick Bultynck and Chantal Reliquet. “1998-2002 Progress Report: Working Paper Number 10.” World Bank Clean Air Initiative in Sub-Saharan African Cities. January 2003.

## ALTERNATIVE OCTANE ENHANCING ADDITIVES

The history of eliminating lead from fuel would be incomplete without some discussion of alternative octane-enhancing additives. In order to boost octane levels without TEL, refineries have options including refinery upgrades, changing fuel mixtures, or switching to other additives. Refineries in many countries have switched to unleaded without turning to alternative additives; those that have substituted TEL for another alternative have typically used one of the following octane boosters: MMT,<sup>42</sup> MTBE,<sup>43</sup> ETBE,<sup>44</sup> or ethanol. Some of these alternative additives have raised their own environmental and public health concerns, though most experts believe the problems or potential problems associated with them are modest compared to those surrounding TEL.<sup>45</sup> MMT, a manganese-based additive, is the most controversial, generating lawsuits and policy debates.<sup>46,47</sup> MMT is, however, believed to be used much more sparsely than was TEL in past years. In general, the TEL-alternative additives are believed to be less harmful to air quality and human health than TEL.<sup>48</sup>

*“Before [Dakar] we hadn’t taken it seriously at all. [The people in my country] were not aware or were aware but did not see it as a problem.”*

*— Interviewee from Sub-Saharan Africa*

## MOMENTUM BUILDS AND THE PARTNERSHIP FOR CLEAN FUELS AND VEHICLES IS LAUNCHED

By the early 2000s, the individuals and organizations that had been separately working to eliminate the use of lead in fuels throughout the world began to see the advantages – such as more efficiently sharing and leveraging resources, knowledge, and influence – of working together. Recognizing that Sub-Saharan Africa still had 49 (approximately half) of the world’s “leaded” countries, several organizations and individuals joined forces to organize a meeting in 2001 for representatives from Sub-Saharan Africa to facilitate learning and hopefully catalyze phase out in that part of the world. The World Bank, together with US EPA, UNEP, and others, sponsored the meeting with financial support from IPIECA. There was wide representation at the Dakar, Senegal meeting by industry, governments, NGOs, and international organizations, bringing credence to the idea that lead needed to be phased out. The meeting was attended by representatives from 25 Sub-Saharan African nations which, by the end of the meeting, proclaimed their support for phasing out lead in fuel by 2005 in what has since been known as “The Declaration of Dakar” or “Dakar Declaration.”<sup>49</sup>

<sup>42</sup> Methylcyclopentadienyl manganese tricarbonyl.

<sup>43</sup> Methyl tertiary-butyl ether.

<sup>44</sup> Ethyl tertiary-butyl ether.

<sup>45</sup> In the case of MMT, concern amongst some is assuaged because it is believed to be sparsely used.

<sup>46</sup> See: MECA, 2003, including, The Alliance to End Childhood Lead Poisoning. “Don’t Repeat the Lead Gasoline Experiment.” 2002. [www.globalleadnet.org](http://www.globalleadnet.org); US EPA and US AID 1999; Walsh, M. 2007; The International Council on Clean Transportation, 2010.

<sup>47</sup> Ibid. Also based on comments made during several interviews conducted for this evaluation.

<sup>48</sup> Regarding MTBE, see: <http://www.epa.gov/mtbe/water.htm>; [http://sd.water.usgs.gov/nawqa/vocns/mtbe\\_hh\\_summary.html](http://sd.water.usgs.gov/nawqa/vocns/mtbe_hh_summary.html); regarding ETBE, see: <http://www.epa.gov/oust/oxygenat/oxyetbe.htm>

<sup>49</sup> “Declaration of Dakar.” Regional Conference on the Phasing-out of Leaded Gasoline in Sub-Saharan Africa. 2001. <http://www.unep.org/transport/pcf/pd/DataDakarDecl.pdf>

Following the Dakar meeting, four sub-regional workshops were held in June 2002 at the UNEP headquarters in Nairobi to work on eliminating barriers to lead phase out and move implementation forward in Sub-Saharan Africa.

At the same time, preparations were underway for the World Summit on Sustainable Development (WSSD) which was to take place in Johannesburg, South Africa in August and September that year.<sup>50</sup> At the time, attention was increasing around the option of pursuing voluntary public-private partnerships to achieve international progress toward identified goals. Some saw this approach as a viable alternative to the approach of solving problems through binding international agreements, which can entail long-term negotiations to reach an agreement ultimately leading to varying degrees of success or failure. In the lead up to the 2002 WSSD, the US government was a prominent proponent for pursuing the launch of voluntary partnerships at the WSSD.<sup>51</sup> This approach also had its critics, as discussed below.

In discussion with many of those that had been working to eliminate lead from fuel, the US government, IPIECA, UNEP, NGOs such as the Natural Resources Defense Council (NRDC), major petroleum producers, and several other parties developed a plan to launch a global voluntary partnership at the WSSD to support clean fuels and vehicles, including the worldwide elimination of lead from fuel. At the WSSD, the US EPA Administrator at the time, Christine Todd Whitman, along with UNEP Executive Director Klaus Töpfer and other environment ministers joined private sector and NGO leaders to announce the Partnership for Clean Fuels and Vehicles. PCFV was one of over 200 voluntary partnerships (also known as “Type II Outcomes”) launched at the WSSD. Type II Outcomes represented public-private partnerships intended to support the implementation of Agenda 21<sup>52</sup> without requiring formal diplomatic agreement. To many, the rise of the voluntary partnership approach was the most memorable outcome of the Summit.

*“This [WSSD] Summit will be remembered not for the treaties, commitments, or eloquent declarations it produced, but for the first stirrings of a new way of governing the global commons, the beginnings of a shift from the stiff formal waltz of traditional diplomacy to the jazzier dance of improvisational solution oriented partnerships that may include non-government organizations, willing governments and other stakeholders.”*  
— Jonathan Lash, President, World Resources Institute, September 2002

The PCFV partners held their first meeting in November 2002 to establish the governance structure and plan future activities. Over the next year-plus, partners held discussions to determine how PCFV would be organized, the roles of partners, the goals and mission statement, and other governance rules. The

---

<sup>50</sup> Around the same time, in December 2002, the third edition of World-Wide Fuel Charter (WWFC) included a key change for all gasoline fuel specification categories, calling for the elimination of lead in fuel worldwide to avoid potential health risks and damage to catalyts. Automakers and engine manufacturers around the world expressed support for efforts to end the use of lead in gasoline. See: Manufacturers. “Case for Banning.”

<sup>51</sup> Jens Martens. “Multistakeholder Partnerships – Future Models of Multilateralism?” Friedrich-Ebert-Stiftung. January 2007; Jonathan Freedland “Greens don't need the US.” The Guardian, 16 August 2002.  
<http://www.guardian.co.uk/politics/2002/aug/16/environment.usa>

<sup>52</sup> The 2002 WSSD was held 10 years after the 1992 UN Conference on the Environment and Development in Rio de Janeiro, Brazil which resulted in Agenda 21, a declaration outlining a global program of action on sustainable development.

partners agreed on a mission statement and asked UNEP to set up a Clearing House (see PCFV Governance and Funding sections, below, and also Appendix E, PCFV Governance Rules) for the Partnership at UNEP's Nairobi Headquarters. The Clearing House began work in February 2003.<sup>53</sup> The following chapter, PCFV Overview, provides more information about the Partnership's design and operations.

## THE CURRENT CONTEXT FOR UNDERSTANDING THE PAST TEN YEARS OF PCFV

The 2002 WSSD is viewed as a catalyst for a global shift to voluntary partnership approaches for sustainable development.<sup>54</sup> The voluntary partnerships coming out of the 2002 WSSD also have had their share of skeptics and critics, including many developing countries, who, as articulated by former United Nations Secretary General Boutros Boutros Ghali in 2003, "looked with a degree of skepticism 'jaundiced eye' at these developments."<sup>55,56</sup> As articulated in 2003 by Thandika Mkandawire, Director of the United Nations Research Institute for Social Development, "These new relationships have attracted considerable attention and controversy."<sup>57</sup>

It is clear from past reports and interviews conducted for this evaluation that PCFV is viewed to be one of the most effective and successful voluntary partnerships not only emerging from the 2002 WSSD, but also in the context of the hundreds of partnerships in this arena. It is in this vein that those who know or have heard of PCFV – and the Lead Campaign in particular – are interested in learning more about PCFV and understanding whether there are lessons from PCFV's design and implementation that could inform other voluntary partnerships and enhance the effectiveness of this approach.

The timing of this evaluation coincides with preparations for the 2012 WSSD, also known as Rio + 20, and corresponding reflections on what has (and has not) been accomplished in the past two decades since the first WSSD in 1992. Interest in the effectiveness of voluntary partnership approaches is high, and there are many, widely varying, opinions about whether partnerships are, or can be, as effective as or more effective than other approaches to address international issues.

---

<sup>53</sup> United Nations Environment Programme. "Partnership for Clean Fuels and Vehicles."

<sup>54</sup> See for example, the following excerpt from Vollmer, et. al 2009 "...But it was not until the 2002 World Summit on Sustainable Development that multi-stakeholder partnerships for sustainable development became a key focus of the international community. In particular, governments and the NGO community sought to engage the private sector more directly and more concretely at this summit." Derek Vollmer, K Kathleen M McAllister, and Jacqueline Coté. "Clean Water and Sanitation for All: Global Water Challenge." The National Academies International Chamber of Commerce, G Geneva published in Derek Vollmer and Rapporteur, Science and Technology for Sustainability Program; National Research Council, National Academies Press. 2009.

<sup>55</sup> See, for example, Ann Zammit. "Development at Risk: Rethinking UN-Business Partnerships." The South Centre and the United Nations Research Institute for Social Development. December 2003.

<sup>56</sup> Ann Zammit. "Development at Risk: Rethinking UN-Business Partnerships." The South Centre and the United Nations Research Institute for Social Development. December 2003., xiii.

<sup>57</sup> Ibid., xi.

## CHAPTER 4. PCFV OVERVIEW

---

PCFV is a voluntary global initiative working to promote and support better air quality through the introduction of cleaner fuels and vehicles in developing and transitional countries. PCFV has three campaigns: (1) the Lead Campaign, aimed at eliminating lead in gasoline; (2) the Sulfur Campaign, aimed at reducing sulfur levels in diesel and gasoline; and (3) the Clean Vehicles Campaign, aimed at promoting the adoption of cleaner vehicle technologies. From its establishment, PCFV has involved partners from multiple sectors, and today, PCFV has more than 100 partners, including governments, civil society organizations, private industry, and academic institutions (See Appendix F for a complete list of partners).<sup>58</sup>

*“We came to it fairly organically – not so much set on a partnership as thinking about what we could do to transfer what we knew from the developed world to apply it to the developing context.”*  
— NGO Partner Interviewee

The Partnership focuses its work in developing and transitional countries, divided into five regions: Sub-Saharan Africa; Asia and the Pacific; Central/Eastern Europe and Central Asia; Middle East, North Africa and West Asia; and Latin America and the Caribbean. Through 2009, the Partnership supported lead activities in 77 countries (through regional, sub-regional, and national work). See Appendix G for detailed information on PCFV Lead Campaign activities in these countries, the regions, and sub-regions.

As articulated in the Partnership’s Mission Statement, the Partnership’s mission is to:

- Help developing countries to develop action plans to complete the global elimination of leaded gasoline and start to phase down sulfur in diesel and gasoline fuels, concurrent with adopting cleaner vehicle requirements;
- Support the development and adoption of cleaner fuel standards and cleaner vehicle requirements by providing a platform for exchange of experiences and successful practices in developed and developing countries as well as technical assistance;
- Develop public outreach materials, educational programmes, and awareness campaigns; adapt economic and planning tools for clean fuels and vehicles analyses in local settings; and support the development of enforcement and compliance programmes, with an initial focus on fuel adulteration; and
- Foster key partnerships between government, industry, NGOs, and other interested parties within a country and between countries to facilitate the implementation of cleaner fuel and vehicle commitments.<sup>59</sup>

---

<sup>58</sup> UNEP. *Outcome and Influence Evaluation of the UNEP Partnership for Clean Fuels and Vehicles (PCFV)*. 2010. <http://www.unep.org/transport/pcfV/PDF/leadphaseoutreport.pdf>.

<sup>59</sup> UNEP. “Governance Rules.” 2003, <http://www.unep.org/transport/pcfV/PDF/GovcRules.pdf>.

## GOVERNANCE

The Partnership's governance structure includes membership requirements, an Advisory Group, a centralized Clearing House, expectations around Partnership meetings and decisions, and use of Chatham House Rules. Each of these is briefly explained here, and the complete Governance Rules are provided in Appendix E.

### MEMBERSHIP

The Partnership is open to any government, international organization, industry organization, NGO, or academic institution that supports the Mission Statement of the Partnership. Organizations may join as full partners, and individuals with relevant expertise may join as associate partners. Associate partners have all the same rights and responsibilities as partners except for voting privileges. Membership applications are subject to Advisory Group review; objections by the Advisory Group to membership applications are forwarded to the Partnership (no such objections have occurred to date). The same rules of procedure are necessary to suspend membership. No fees are required and each partner has equal representation. Once parties join (i.e., their application for membership has been accepted by the Advisory Group) there are no formal requirements for particular actions from partners except for those partners who choose to participate in the Advisory Group. In part due to this membership flexibility, the role of PCFV's partners has varied from partner to partner, region to region, and year to year.

### ADVISORY GROUP

The Advisory Group, consisting of individuals that represent the Partnership's diverse membership, directs much of PCFV's strategic position. The Advisory Group prepares the Partnership's annual budget and work plan and the annual financial and progress reports, reviews and approves new memberships, serves as public spokesperson for the Partnership, establishes agendas for the Partnership's annual meetings, and advises the Clearing House when needed.<sup>60</sup>

### PARTNERSHIP MEETINGS

PCFV holds annual Global Partnership Meetings to inform members of current and past PCFV work; approve the budget, work plan, and financial and progress reports; share information and experiences between partners; and continue the momentum of the PCFV's work.<sup>61</sup> Partners are not required to attend the annual meetings.

### CLEARING HOUSE ROLE AND RESPONSIBILITIES

As described in the Partnership's Governance Rules, UNEP serves as the Clearing House for PCFV. The Clearing House is responsible for day-to-day coordination of the Partnership's activities, communication

---

<sup>60</sup> UNEP. "Governance Rules." 2003, <http://www.unep.org/transport/pcfV/PDF/GovcRules.pdf>.

<sup>61</sup> Ibid..

and outreach, management of the PCFV website, coordination of logistics for Partnership events such as the annual workshops, information gathering, and other supporting tasks.<sup>62</sup> The UNEP Clearing House also manages PCFV funds. PCFV donors (funders) typically provide funds to the Clearing House which then, with guidance from the partners, redistributes them in the form of contracts for implementation, workshop expenses and participant travel, and other costs associated with implementing the Partnership. The Clearing House acts essentially as the financial “consolidator,” accepting resources from partners and then either using them for Clearing House support or dispersing them out to countries or other entities, often leveraging several donors at once. UNEP provides in-kind financial support for Clearing House staff and office costs.

TABLE 2. SUMMARY OF PCFV LEAD CAMPAIGN NATIONAL AND REGIONAL ACTIVITIES, 2002-2009

Activity	Total
Lead Small Scale Funding Agreements/Memoranda of Understanding (2004-2009)	32
National lead activities (2002-2009)	39
Countries supported for national activities	30
Countries supported in regional and sub-regional lead activities (2002-2009)	67
Total number of countries supported in lead activities (whether at national, sub regional & regional level)	77

Source: PCFV Clearing House

The Clearing House also takes the lead in the implementation of the work program as approved by the Partners through initiating national projects and then often being joined by Partners. As of 2009, the Clearing House had undertaken regional and national activities in 77 countries (see Table 2 and Appendix G, which provides more details on these activities.) On a tactical level these activities included the following:

- Developing public awareness raising materials and supporting various campaigns to inform consumers about the health and environmental impacts associated with lead emissions;
- Providing technical assistance on issues such as the use of additives, appropriate octane levels, and impacts on vehicle fleets;
- Publishing documents to provide guidance on technical issues;
- Administering the PCFV website which serves as a global clearing house of information related to the Partnership’s campaigns;
- Distributing partner funding in the form of contracts for on-the-ground work (generally, donors provide funding to UNEP who awards and administers the contracts);
- Identifying and working with leaders (individuals and organizations) on local, regional, and national scales to implement actions in support of the Campaign goals;
- Producing locally relevant communication and outreach materials;
- Organizing annual partner workshops to discuss progress and impediments toward the goals of the three campaigns;
- Organizing regional and local workshops to disseminate information and raise awareness;

<sup>62</sup> Ibid., 7.

- Recruiting in-country advocates and implementers; and
- Coordinating and helping to staff the ad-hoc working groups.

This list of activities does not, however, convey the breadth and depth of UNEP’s Clearing House role, which has grown to include serving as a source of extensive technical expertise and core strategic leadership.

Table 3 provides a more strategic “lens” on how the Lead Campaign works, in this case in the form of a summary from 2009 which details the Campaign’s strategy for promoting the elimination of lead in the 13 countries that still used leaded fuel at that time. Exhibit 7 in Chapter 6 provides an additional perspective on the Campaign’s implementation, in this case from the perspective of the work that PCFV did to support lead phase out in Kenya. Appendix G details a complete list of PCFV Lead Campaign regional and national activities through 2009.

## CHATHAM HOUSE RULES

Partners are required to adhere to Chatham House Rules. This means that participants are free to use the information or opinions disclosed to them during Partnership meetings and working group meetings, subject to two conditions: (1) neither the identity nor the affiliation of the speakers, nor that of any other participant at that meeting may be revealed; and (2) it may not be divulged that the information was received at that meeting.

## AD-HOC WORKING GROUPS AND OTHER AD-HOC EFFORTS

The Partnership establishes ad-hoc working groups when doing so will support progress toward the mission. Previous or current working groups include the Valve Seat Recession Working Group, Octane Working Group, Vehicles Working Group, and Sulfur Working Group. Other ad-hoc efforts have included co-developing a Toolkit for Clean Fleet Strategy Development<sup>63</sup> with PCFV partner TNT<sup>64</sup>; as previously mentioned, writing reports to address specific issues of concern (e.g., *Recommended Practices for the Decommissioning, Dismantling and Disposal of Lead alkyl Compound*)<sup>65</sup>; producing educational videos; and, more recently, developing a Clean Fuels and Vehicles Database.<sup>66</sup>

---

<sup>63</sup> Available: <http://www.unep.org/tnt-unesp/toolkit/>

<sup>64</sup> This global transport company was formerly known as Thomas Nationwide Transport. See [www.tnt.com](http://www.tnt.com) for more information.

<sup>65</sup> This publication and other PCFV publications are available at: <http://hqweb.unep.org/transport/pcfV/publications/publications.asp>

<sup>66</sup> PCFV’s videos and clean fuels database are available at: <http://hqweb.unep.org/transport/pcfV/resources/resources.asp>.

TABLE 3. GLOBAL LEADED GASOLINE PHASE-OUT – DRAFT 2009 PCFV STRATEGY FOR REMAINING LEADED COUNTRIES\*

STRATEAGY & PLANNED INITIATIVES	
1	<ul style="list-style-type: none"> <li>• Using refineries organization to fast-track the unleaded options.</li> <li>• Continue engaging both nationally and at a sub-regional level. [X] are slotted to participate in the upcoming regional and sub-regional meeting early 2010.</li> <li>• Funding available for [X] refinery upgrade and government commitment has been made.</li> </ul>
2	<ul style="list-style-type: none"> <li>• [X] invited to the regional meeting.</li> <li>• Pursuing an agreement with [X] for a national level activity that will address the issue more holistically as part of a transport Emission Reduction Strategy and hence garner more government attention.</li> </ul>
3	<ul style="list-style-type: none"> <li>• Continue dialogue with the [X] Ministry of Environment contact.</li> <li>• Continue seeking contacts within the relevant Ministries.</li> <li>• Invite [X] country to regional meetings.</li> <li>• Consider engaging partners to strengthen case for action.</li> <li>• Seek local partner(s) to drive and coordinate national clean fuels and vehicle objectives.</li> </ul>
4	<ul style="list-style-type: none"> <li>• [X] scheduled to host the regional meeting as well as attend the sub-regional workshop.</li> <li>• Finalize the national sensitization program.</li> </ul>
5	<ul style="list-style-type: none"> <li>• Propose funding for policy development and refineries option assessment including cost of sending an expert to look at options and advise on ‘perceived’ bottlenecks.</li> <li>• Support national workshop at [X] ministerial policy level to track delivery of commitment</li> <li>• Send and facilitate an expert to review temporary solutions prior to refinery modernization.</li> </ul>
6	<ul style="list-style-type: none"> <li>• Identify a Partner to engage and support [X] national government directly.</li> <li>• Consider possibility of partnering with a high level UN agency active in the area e.g. [X].</li> <li>• Hold workshop when the security situation improves.</li> </ul>
7	<ul style="list-style-type: none"> <li>• Commission a fuel quality study.</li> <li>• Sign strategic agreement with [X] Regional office for issue to be handled under their protocol.</li> </ul>
8	<ul style="list-style-type: none"> <li>• Propose to fund a transport study that would perhaps be more useful to government.</li> <li>• Include fuel quality component to study.</li> <li>• Work closely with [X] Regional Office and “piggy back” on their air quality programs and forums such as government forums on air quality, etc.</li> </ul>
9	<ul style="list-style-type: none"> <li>• Support the legislation for the banning of lead in [X] as it has been established that the actual fuel on the ground in the country is unleaded.</li> </ul>
10	<ul style="list-style-type: none"> <li>• Establish strategic partnership to dialogue and provide facilitation.</li> </ul>
11	<ul style="list-style-type: none"> <li>• [X] country will be included in the sub-regional cooperation and coordination framework and mechanism for cleaner fuels and vehicles in region.</li> <li>• A letter asking ministers to reconsider their import arrangements will be sent in February.</li> </ul>
12	<ul style="list-style-type: none"> <li>• Support ongoing national working group in [X] and to launch national awareness campaign to publicize end 2009 phase-out</li> <li>• [X] on track to phase out lead in Dec '09 /Jan 2010.</li> </ul>
13	<ul style="list-style-type: none"> <li>• Include in the sub-regional cooperation and coordination framework and mechanism for cleaner fuels and vehicles in [X] region.</li> <li>• Follow up letters from [X] sent to Ministers of Environment, Energy and Health following discussions.</li> </ul>

Note: Identifiable information has been removed.

Source: PCFV Clearing House

## FUNDING

Where possible, partners voluntarily provide funds. The Partnership's cumulative funding since 2002 has totaled approximately US \$11.4 million, of which the Lead Campaign's costs have been roughly US \$6 million.<sup>67</sup> Partners' contributions have also included in-kind support such as staff time and travel which are not included in the PCFV funding totals, but have played an important role in the outcomes achieved by the Partnership. UNEP, the US government, and the European Union have been the Partnership's biggest financial contributors to date. To provide funds to UNEP, "donor partners" established their own funding mechanisms that allowed them to track and guide funding in cooperation with UNEP to meet the needs of the Partnership while aligning actions with the priorities of their governments. Exhibit 4 lists all of PCFV's contributors since 2002.

PCFV partners, as well as others involved in lead phase out, have also invested both time and money on PCFV implementation at the regional, national, and local levels.

Several conditions that supported the Lead Campaign's effectiveness were in place prior to its launch in 2002. These existing conditions enabled the Campaign to make progress soon after its launch. Notably, in addition to the Partnership funding described above, substantial investments (on the order of billions of USD) had been made decades earlier by the automobile industry to develop automobiles that could effectively use catalytic converters, which necessitated the use of unleaded gasoline in such vehicles. These investments were made largely in response to mandates to reduce air pollution from vehicles, not specifically to eliminate lead. Substantial investments were also made over the decades to understand and communicate the link between lead and public health. These existing conditions, referred to in this evaluation as "preceding developments," are discussed in greater detail in Chapter 5.

### EXHIBIT 4. PCFV CONTRIBUTORS

(Listed in order of size of cumulative financial contribution since 2002)

- > US Government (US EPA & US Agency for International Development)
- > UNEP
- > European Union
- > GEF (funding has not gone to the Lead Campaign)
- > Government of The Netherlands
- > FIA Foundation
- > TNT (formerly known as Thomas Nationwide Transport)
- > ExxonMobil
- > International Petroleum Industry Environmental Conservation Association (IPIECA)
- > Government of Canada
- > Asian Clean Fuels Association (ACFA)
- > Afton Chemicals
- > American Petroleum Institute

Includes contribution received by PCFV by May 2011. (Does not include pledges and projects under development) Source: UNEP

More information on many of these donors can be found at: <http://www.unep.org/transport/pcfV/Donors/donors.asp>

<sup>67</sup> Includes contributions received by PCFV by November 2011, including UNEP in-kind support and contributions to PCFV for its work on the Global Fuel Economy Initiative. Source: UNEP PCFV Clearing House.

# CHAPTER 5. FINDINGS ON PCFV LEAD CAMPAIGN STARTUP AND DESIGN

---

The evaluators sought to understand what can be learned from the startup and design of PCFV and the Lead Campaign, and whether this early phase led to the Lead Campaign's effectiveness later on. The evaluation team found that the following factors supported both a strong start and successful implementation of the Campaign: (1) preceding developments; (2) a timely opportunity with support from senior leaders; (3) a clear, measurable, and ambitious-yet-achievable goal; and (4) strong partnership design and design process that fosters ownership and trust.

## 1. PRECEDING DEVELOPMENTS

Several conditions that ultimately supported the Lead Campaign's effectiveness were in place prior to the conception and development of PCFV. These included strong evidence of public health impacts of lead in gasoline, decades of experience showing the feasibility and affordability of making the change to unleaded fuel in developed countries, a scenario where most stakeholders had much to gain and little to lose from the change, commitment to facilitate change by a group of experts representing core stakeholder groups, and existing momentum for change in the developing world as evidenced by the commitment to phase out lead made by Sub-Saharan African nations in 2001. A brief history of the events leading up to the launch of PCFV in 2002 is provided in Chapter 3.

### **STRONG EVIDENCE OF PUBLIC HEALTH IMPACTS, RAPID REDUCTIONS IN BLOOD LEAD LEVELS POST PHASE OUT**

Prior to the launch of the Partnership strong evidence existed of the link of lead exposure to dramatic public health impacts, particularly amongst children, as well as evidence showing drops in blood lead levels after removing lead in fuel in the US and a few other countries (see examples in Figure 1 on page p. 13 and figure 2). Over the course of the years following PCFV's launch, UNEP collected additional pre-lead phase out data in additional countries, supporting the evidence base for other regions. Several developing country interviewees described how, prior to the involvement of PCFV, they were not aware of how lead exposure from fuel was affecting their populations. Some had heard anecdotal stories and a few had examples of refinery employees falling ill with chronic illnesses – with

*"There was a universal agreement between policy makers, the vehicle industry, and fuels industry that lead was a bad guy. Lead had outlived its usefulness. There had been a debate for some years about how banning of lead was a constraint for trade; by the year 2000 all those fights were over. There was a consensus that lead was toxic and you can get it out of fuels relatively inexpensively. There were a lot of people especially, but not only, in Africa who were being poisoned unnecessarily. You had all the stakeholders agreeing on that...It wasn't vague or elusive; couldn't be covered by generalities."*

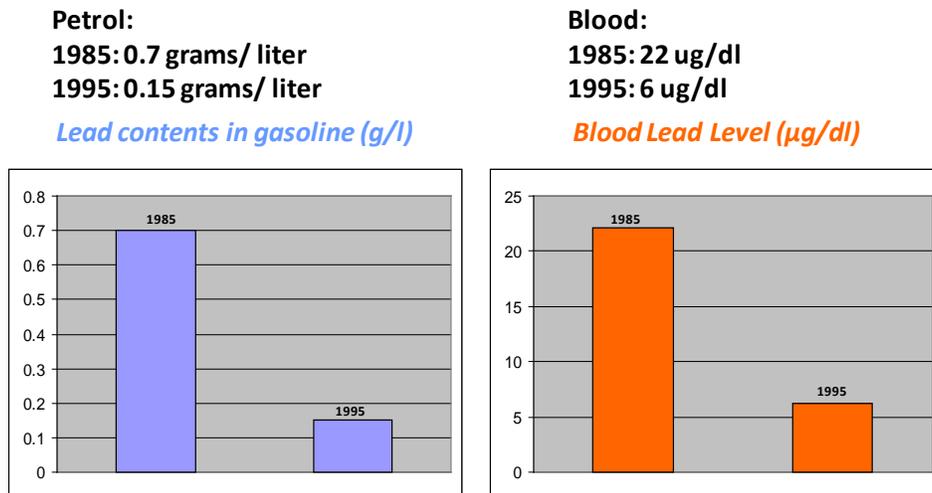
*— Industry Partner Interviewee*

lead as a suspected culprit – but they had not seen the “hard” evidence.

The Partnership was, in many instances, providing the first evidence to many developing countries of the relationship between leaded fuel, blood lead levels, and troubling public health impacts, particularly to children. Workshops conveyed evidence from the earliest studies, conducted in the US, on these connections as well as from subsequent studies from other countries, such as a 2002 study on health benefits after the implementation of the unleaded gas policy in Thailand that showed blood lead levels in traffic police officers decreased dramatically from 28.14 micrograms per deciliter in 1993 to 5.58 micrograms per deciliter in 2000.<sup>68</sup> The study also calculated the monetary value of health benefits resulting from reductions in IQ loss on lifetime learning in children, and in hypertension, heart disease, stroke, and premature mortality in adults. Benefits were calculated to be US \$280 million, while the costs of the phase out were US \$8 million.<sup>69</sup>

Conveying this information to decision makers in those countries still using leaded fuel proved a powerful driver for change. Both government and industry partners interviewed explained that they knew as soon as they saw the public health evidence that they had to make the change happen in their countries; doing nothing in light of this information was not an option. They then needed the capacity and resources to make it happen; in the absence of these, any support that PCFV could provide (in a constructive, non-threatening way) was welcomed.

FIGURE 2. BLOOD LEAD LEVELS AND LEAD IN FUEL IN HUNGARY, 1985 (PRE-PHASE OUT) AND 1995 (POST PHASE-OUT)



Source: PCFV Clearing House, Summary of Blood Lead Levels Pre and Post<sup>70</sup>

<sup>68</sup> Chulalongkorn University and Pollution Control Department (PCD). The Study on “Unleaded Gasoline Policy: Health Benefits for School Children and Traffic Policemen in Bangkok Metropolitan Administration”. 2002. in Asian Development Bank and Clean Air Initiative for Asian Cities Center. “Country synthesis report on urban air quality management: Thailand.” December 2006.

<sup>69</sup> Asian Development Bank and Clean Air Initiative for Asian Cities Center. “Country synthesis report on urban air quality management: Thailand.” December 2006.

<sup>70</sup> UNEP Summary of Blood Lead Levels Pre and Post; Magda Lovei. *Phasing Out Lead from Gasoline in Central and Eastern Europe: Health Issues, Feasibility, and Policies*. World Bank. June 1997

## DECADES OF EXPERIENCE DEMONSTRATING FEASIBILITY AND AFFORDABILITY OF PHASE OUT

At initial workshops and meetings, the UNEP PCFV Clearing House, often with assistance from other partners, provided information to new partners on the technical feasibility and affordability of switching to unleaded fuel. Long-term costs to consumers varied depending on a variety of factors, but were generally low – less than \$0.03 per liter of gasoline (see Exhibit 5). The public and automobile

### EXHIBIT 5. THE COST OF LEAD PHASE OUT

Petroleum refineries bear most of the cost of lead elimination. Modern, conversion refineries can substitute lead at a considerably lower cost than less advanced skimming refineries, due to a wider choice of technical alternatives available in modern refineries to increase gasoline octane without lead. Complex refineries with conversion capacity tend to have lower lead removal costs than do technically less-advanced refineries with limited process options. Refinery modernization, therefore, generally facilitates the phase out of lead. Studies conducted in the 1990s indicated that the cost of lead removal is generally in the range of US \$0.01-\$0.03/liter of gasoline depending on the factors outlined above. Today, estimated costs of eliminating leaded gasoline range widely from less than US \$0.001 per liter to \$0.02 per liter, noting that associated refinery upgrade cost often pays for itself in a short period through increases in productivity and efficiency after the lead additive is no longer used.

The cost of refinery adjustment is also influenced by several other factors, including:

- > the initial lead concentration in gasoline;
- > limits on other gasoline properties (e.g., volatility, aromatics, and benzene);
- > the processing capabilities of the refinery;
- > planned refinery modernization or modification to meet evolving product demands;
- > octane requirements of the vehicle fleet; and
- > the price of octane-enhancing gasoline additives.

Each refinery has a unique technical structure and set of alternatives to replace lead, and the costs of required investments and technical measures necessary to support the phase out of lead are case-by-case.

In all cases, the cost of lead phase out within a country is greatly outweighed by the benefits.

Sources: "Removal of Lead from Gasoline." Pollution Prevention and Abatement Handbook. World Bank Group. July 1998, 91-95.; "Removal of Lead from Gasoline: Technical Considerations." Pollution Prevention and Abatement Handbook. World Bank Group. July 1998, 240-244.; Magda Lovei, "Phasing Out Lead From Gasoline: Worldwide Experiences and Policy Implications." World Bank Technical Paper No. 397. World Bank, 1998. ; D. Hirshfield and J. Kolb. "Phasing out Lead from Gasoline: Feasibility and Costs." Implementing the Environmental Action Programme for Central and Eastern Europe. World Bank, Environment Department, Washington, D.C. 1995.

manufacturers did not incur costs unless they chose to outfit their vehicles with catalytic converters; however, PCFV repeatedly had to work to dispel the misconception that leaded fuel would harm older vehicle fleets through valve seat recession. Information about the feasibility of eliminating lead from fuel, coupled with successful phase out examples from other developing countries including China, India, Vietnam, Thailand, and El Salvador,<sup>71</sup> helped to convince many countries that they could make this change happen. (See Exhibit 6 for an explanation on how lead phase out works).

<sup>71</sup> MECA. "Case for Banning Lead in Gasoline." January 2003."

## EXHIBIT 6. HOW DOES LEAD PHASE OUT WORK?

Once countries determine that they want to phase out lead, the following are important considerations:

- > Does the country import leaded fuel, refine leaded fuel, or both?
- > In what timeline does the country want to achieve the phase out of lead?

For countries whose only source of leaded fuel is by import:

The process for eliminating leaded fuel in a country who imports it is relatively simple. The country can switch to unleaded fuel relatively quickly by choosing to stop importing leaded fuel and instead obtain only unleaded fuel. Some countries were able to complete this process in only a few weeks, enabled by the lower price and greater availability of unleaded fuel on the market (which became increasingly available as more countries went unleaded). Before the unleaded fuel is added into the storage and distribution systems of the importing country, they must “flush” the infrastructure of the leaded fuel to ensure that only unleaded fuel is dispensed. Once this has been completed, the country can begin to provide its population with unleaded fuel.

For countries who refine leaded fuel:

Many refining countries have successfully completed the transition to unleaded fuels, though the makeup of the refinery or refineries can determine the speed and process with which the country completes this process. Some refineries are able to complete this process quickly by “importing cleaner feedstock, adjusting octane standards, or making minor modification of refinery equipment.” There are also cases where transitioning refineries can take longer due to necessary upgrades to equipment.

Petroleum refineries can be categorized into two groups: skimming refineries and conversion refineries. Skimming refineries are relatively simple, comprising crude distillation, treating, upgrading, and blending. Conversion refineries are relatively complex, comprising crude distillation, treating, upgrading, conversion, and blending. The level of effort to transition a refinery can depend on the type of refinery. There is a wider choice of technical alternatives available in modern, complex refineries to increase gasoline octane without lead. These factors can influence the technical implications, cost, and timeline for eliminating lead from fuel.

There are immediate, medium-term, and long-term strategies for eliminating lead in countries that refine fuel:

Immediate: Lead additions ceased: existing lead levels drop rapidly over several months until unleaded conversion is achieved.

Medium-term: Segregated distribution system is arranged from existing system or new parallel system constructed. Phase out takes place over several (less than 5) years.

Long-term: Segregated distribution system is arranged from existing system or new parallel system is constructed. Unleaded gasoline is introduced at selected sites and is gradually introduced countrywide as newer catalyst-equipped vehicles are introduced. Phase out takes place over 5 to 10 years.

Each of these strategies has pros and cons and can be greatly influenced based on if the country imports or refines fuel (and if it refines fuel, what type of refineries it has).

Sources: IPIECA, *Getting the Lead Out: Downstream strategies and resources for phasing out leaded gasoline*. Fuels and Vehicles Working Group Report Series: Volume II Available: <http://www.unep.org/transport/pcfiv/PDF/Pub-IPIECA-LeadOut.pdf>; “Removal of Lead from Gasoline.” Pollution Prevention and Abatement Handbook. World Bank Group. July 1998, 91-95.; “Removal of Lead from Gasoline: Technical Considerations.” Pollution Prevention and Abatement Handbook. World Bank Group. July 1998, 240-244.; Magda Lovei, “Phasing Out Lead From Gasoline: Worldwide Experiences and Policy Implications.” World Bank Technical Paper No. 397. World Bank, 1998.; D. Hirshfield and J. Kolb. “Phasing out Lead from Gasoline: Feasibility and Costs.” Implementing the Environmental Action Programme for Central and Eastern Europe. World Bank, Environment Department, Washington, D.C. 1995.

## A WIN-WIN SCENARIO WITH FEW “LOSERS”

Eliminating lead was a “win-win” scenario for nearly all stakeholders, offering clear benefits and no significant financial costs to refineries, government agencies, NGOs, gasoline station owners, or the general public. There is currently one remaining manufacturer of the TEL additive, United-Kingdom-based Innospec<sup>72</sup> (formerly Octel), which has not involved itself in PCFV.

### COMMITMENT TO FACILITATE CHANGE BY EXPERTS REPRESENTING CORE STAKEHOLDER GROUPS

As discussed in the introductory chapter, by 2002, a group of motivated and committed experts from business (including ExxonMobil), government (including the US government), international organizations (including the United Nations and the World Bank), and international NGOs (including NRDC and IPIECA) discussed how they could work together to collectively facilitate lead phase out in the developing world. This group had a powerful combination of expertise, motivation, sectoral and organizational composition, and global reach.

### PRIOR MOMENTUM

Prior to PCFV’s formal launch in 2002, the effort to phase out lead in Sub-Saharan Africa was already off to a strong start. As discussed in the Introduction, the ad-hoc group of experts described above convened a meeting in June 2001 in Dakar, Senegal. The subject of the meeting, attended by over 100 delegates from Sub-Saharan Africa, was eliminating lead in this part of the world. The outcome of this meeting, a commitment to phase out lead in Africa by 2005 (a.k.a. the Dakar Declaration),<sup>73</sup> was a major milestone in the growing global campaign. Within months following the Dakar Declaration, the US EPA, World Bank, IPIECA, and UNEP sponsored five sub-regional meetings, which were convened to move from the intent of phase out to the actual work needed to make phase out happen.

*“There was a growing frustration with the inability to create international agreement of nations that could be implemented and enforced on meaningful environmental issues. We were increasingly feeling like we needed a different model for how to make progress in international issues, and that waiting for the entire global community of nations to agree on something was not effective, and even if they did agree, it did not mean that it would be implemented on the ground.*

*We would work on this discrete issue in countries where the host country would actually want to solve the problem, and we would help them to solve it.*

*The partnership model made sense because it brings together a group of like minded institutions and people that want to solve the discrete problem... If you agree with the goals of the partnership, you can be a partner.”*

*— NGO Partner Interviewee*

<sup>72</sup> See: <http://www.innospecinc.com/octane-additives.html>

<sup>73</sup> “Declaration of Dakar.”

## 2. A TIMELY OPPORTUNITY WITH SUPPORT FROM SENIOR LEADERSHIP

The 2002 World Summit on Sustainable Development (WSSD) in Johannesburg provided a timely opportunity to launch a formal initiative to eliminate lead worldwide. As discussed in the Introduction, over 200 voluntary partnerships were launched at the WSSD as a supplementary means of supporting the implementation of Agenda 21<sup>74</sup> (though this approach was also criticized by some as a way for governments to avoid taking responsibility for action). Most of the ad-hoc groups that had informally joined forces the prior year decided to pursue a voluntary partnership using the WSSD as the “launching pad” with public support from high-level political leadership, including US EPA’s Administrator.<sup>75</sup>

The new partnership would aim to globally eliminate lead in gasoline and phase down sulfur in diesel and gasoline, while concurrently adopting cleaner vehicle technologies. UNEP, with the support of its Executive Director Klaus Töpfer, volunteered to serve as a neutral PCFV Clearing House to provide information, coordination, and secretariat support. Rob de Jong, Head of Urban Environment in UNEP, was asked to start building the Clearing House and coordinate PCFV from UNEP.

## 3. CLEAR, MEASURABLE, AND AMBITIOUS-YET-ACHIEVABLE GOAL

The Lead Campaign’s clear goal of eliminating lead from fuel helped to frame the Partnership’s intent from the beginning and setting target dates for achieving this goal allowed for progress tracking. In 2005, when it became clear that Sub-Saharan African countries would meet their commitment to phase out lead by the end of that year, the partners chose a strategy of targeting 2008 for global phase out of leaded fuel to spur rapid progress.<sup>76,77</sup> The 2008 target date was ambitious. It sent a message that rapid phase out was desirable and feasible, with the intent of driving faster phase out than a longer term target date may have produced, even if this meant that the partners understood that some countries would not meet this date. (Interviewees also reflected on this type of strategic decision around identifying goals and target dates in relation to the Sulfur Campaign.)

Progress on the Lead Campaign was also easily measurable as countries were classified as leaded, dual (leaded and unleaded), or unleaded, supporting easy tracking. Simple and easy-to-visualize tracking had a strong co-benefit of applying peer pressure to countries that had not yet made the change when they would see neighboring countries making more rapid progress in the status maps that the Clearing House presented at meetings, produced in publications, and posted on the PCFV website. Several interviewees described how the global and regional maps of countries that had eliminated lead (see example maps from Sub-Saharan Africa in Figure 3 and globally in Figure 4) had the effect of providing an incentive for those countries to take action so as not to fall behind their peers or be the last in their region to

---

<sup>74</sup> Agenda 21 is the global action plan for sustainable development agreed at the UN Conference on Environment and Development held in Rio de Janeiro, Brazil in 1992.

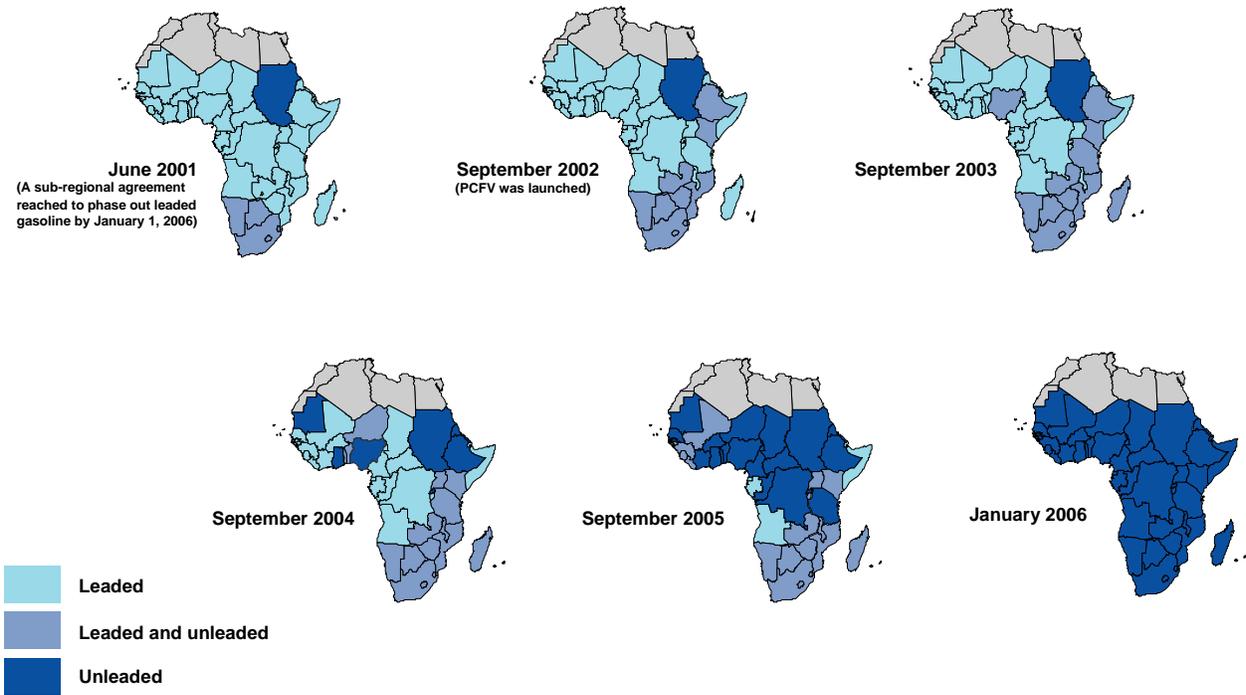
<sup>75</sup> Following the Dakar meeting in 2001, the World Bank remained engaged in efforts to eliminate fuel in parallel to PCFV, including sponsoring assistance to Ethiopia, Mauritania, Mali, and Tanzania to develop lead phase out action plans. Source: Bultynck and Reliquet, 2003.

<sup>76</sup> IPIECA. “Partnerships in the Oil and Gas Industry: The Partnership for Clean Fuels and Vehicles.” 2006.

<sup>77</sup> United Nations Environment Programme. *Outcome and Influence Evaluation of the UNEP Partnership for Clean Fuels and Vehicles (PCFV)*. 2010, 7-8. <http://www.unep.org/transport/pcfV/PDF/leadphaseoutreport.pdf>.

eliminate lead. Country-by-country status matrices discussed at Partnership meetings had a similar effect.

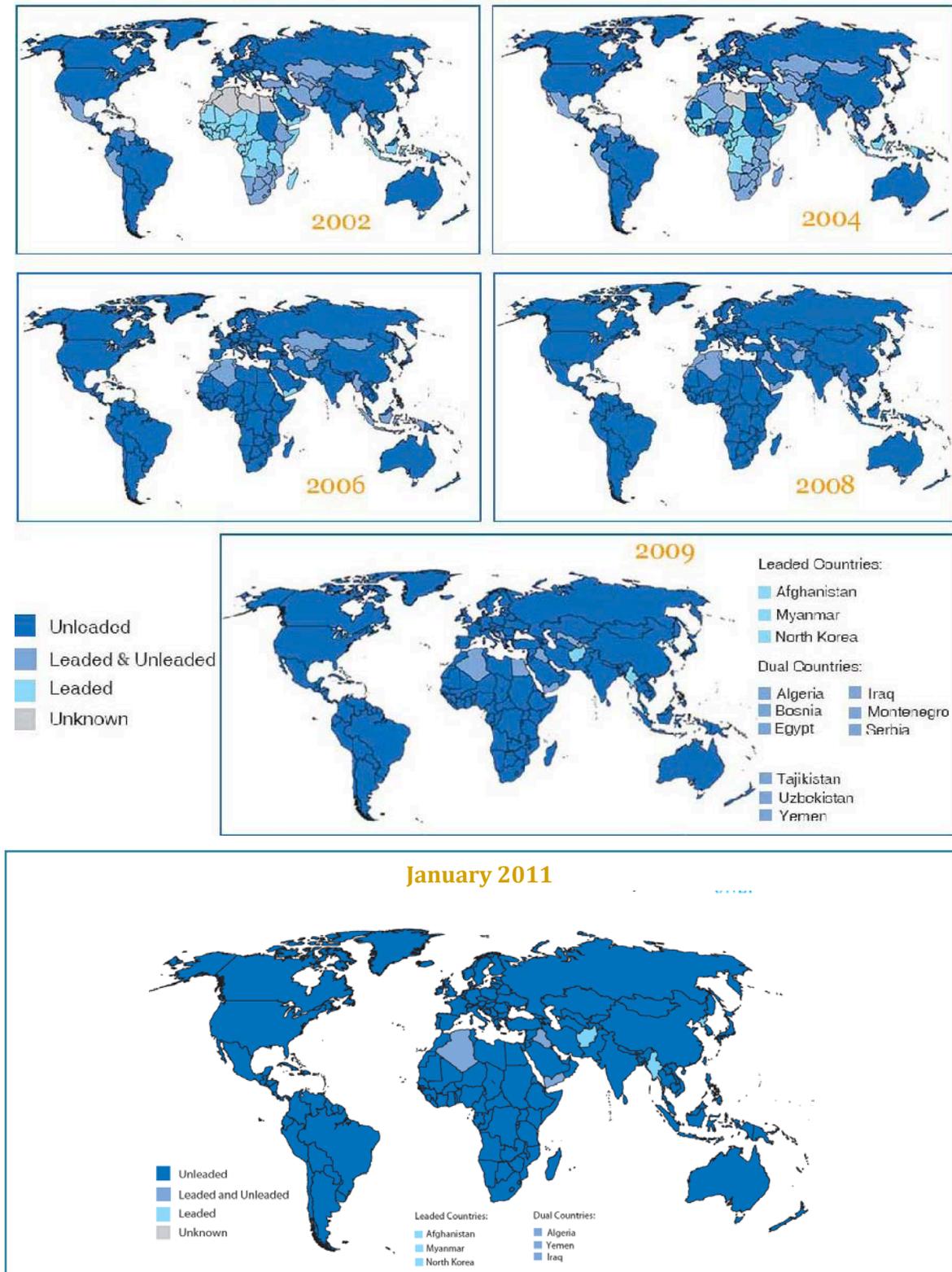
FIGURE 3: MAP OF PROGRESS OF LEAD PHASE OUT IN SUB-SAHARAN AFRICA



Source: PCFV Clearing House

Note: These maps only show lead phase out in Sub-Saharan Africa; northern Africa is part of a different PCFV region.

FIGURE 4: GLOBAL LEAD PHASE OUT PROGRESS BETWEEN 2002 AND 2011



Source: PCFV Clearing House. Note: The Lead Campaign has not been active in all developing or transitional countries. Some countries and regions (e.g., Latin America) had phased out lead from fuel prior to or independent of PCFV..

## 4. STRONG PARTNERSHIP DESIGN AND DESIGN PROCESS THAT FOSTERS OWNERSHIP AND TRUST

PCFV's basic design features are fairly standard, consisting of a mission statement, goals and objectives, basic requirements for participation, an advisory body, a secretariat function, and working groups as needed (see Chapter 4 PCFV Overview for additional explanation).<sup>78</sup> It is the details of these features, such as a consensus-based decision process, use of the Chatham House Rules at meetings, and establishment of a neutral "honest broker" Clearing House, as well as the investment in building agreement on these features that bolstered partnership rapport and sense of joint ownership, mutual trust, and respect amongst the partners. Strong relationships were built during the design phase, and since that time the partners have rarely needed to call upon the formal governance rules because of the strength of the rapport established during the first few years. Prior reports (EU 2009 and UNEP 2008) also have identified the PCFV's governance structure as engendering a sense of ownership and security among the partners.<sup>79</sup>

Open membership also likely had the result of attracting partners who may have been interested in joining simply to stay informed about Partnership decisions and activities, though over time the strength and success of the Partnership may have in fact built trust and united all partners, including some perhaps unconventional or initially skeptical ones, to engage actively toward a compelling common goal.

*"The existence of formal partner selection procedures and related partnership governance and management rules helps to provide public assurance even if they may rarely need to be used in practice. Investing time for this at the early stages helps to avoid potential conflict that could emerge later in their absence."*

*— UNEP Review of Global Multi-stakeholder Partnerships (2008)*

Notably, certain features of the design, such as not requiring a financial contribution or not putting limits on the number of members, had caused concern amongst some partners that members would not be truly committed to the Campaign's goals or that, given the consensus decision process, too many members from a particular sector could sway decision making toward a particular agenda; however according to interviewees these potential issues have not materialized. Similarly, concern that too many members could be unmanageable have not played out, which one interviewee speculated was because some members have not remained active after their initial involvement, keeping the number of *engaged* members to a manageable amount.

<sup>78</sup> Other partnerships and international stakeholder initiatives that are similarly structured include the UNEP Global Mercury Partnership, the Global Alliance for Clean Cookstoves, the Stop TB Partnership, and the Forest Stewardship Council.

<sup>79</sup> In a 2009 report entitled "Cleaner Transport for Better Urban Air Quality and Reduced Global Emissions," the European Union described the governance structure of PCFV as ensuring ownership of actions and results by local stakeholders, in part due to all PCFV partners jointly making decisions. A 2008 UNEP review of global multi-stakeholder partnerships also found that the mere existence of governance and management rules has provided a sense of security amongst the partners even if there has not been occasion to call upon or enforce these rules in practices. (UNEP Sources: European Union. *Monitoring Report: Cleaner Transport for Better Urban Air Quality and Reduced Global Emissions*. 2009; United Nations Environment Programme Global Mercury Partnership. *Review of Global Multi-Stakeholder Partnerships*. 2008. <http://www.chem.unep.ch/mercury/UGMP/INF%207.pdf>.)

Finally, the Partnership decided to not include official verification of unleaded status or a “penalty” for false claims of phase out on the premise that doing so would counter the partners’ trust-base and likely discourage partnership participation from the outset. Instead, partner governments provide the Clearing House with a formal letter stating they are unleaded when this has occurred, and the Partnership seeks independent sources of information as additional confirmation that a country is lead-free. Industry partners have provided PCFV access to data from a commercially available database, which has supported claims of current status. The Clearing House has also conducted some limited sampling and testing of blood lead levels that have further substantiated lead-free statements; however, these data do not constitute a *comprehensive* representative indication of fuel lead levels in any given country.<sup>80,81,82</sup> Informal peer pressure has also motivated countries to complete phase out on the ground and maintain a respectable position in the Partnership.

---

<sup>80</sup> John Walsh. “UN PCFV Fuel Sampling & Testing Program: April 2010 Update.” UNEP PCFV 8<sup>th</sup> Global Partnership Meeting. PowerPoint. [http://www.unep.org/transport/PCFV/PDF/8GPM\\_MichaelwalshFuelSampling.pdf](http://www.unep.org/transport/PCFV/PDF/8GPM_MichaelwalshFuelSampling.pdf)

<sup>81</sup> These countries included: Hungary, Kenya, Ghana, and Indonesia. See: United Nations Environment Programme. “Summary of BLL Pre & Post Leaded Gasoline Phase Out.” PowerPoint.; United Nations Environment Programme. “Benefits of Lead Phase-out.”

<sup>82</sup> Unknown Author. “UN PCFV – Fuel Samples & Lead Data: Draft Proposal.”

# CHAPTER 6. FINDINGS ON LEAD CAMPAIGN IMPLEMENTATION

Similar to the Lead Campaign’s startup and design, implementation of the Lead Campaign had a combination of features which likely contributed to the Campaign’s effectiveness. These features, and lessons thereof, are divided into four topic areas:

1. Multi-faceted implementation strategy covers key issues and engages key stakeholders;
2. Partners bring expertise and commitment through complementary roles;
3. Modest yet focused PCFV resource investments build awareness and capacity; and
4. Partners address challenges and learn through experience

## 1. MULTI-FACETED IMPLEMENTATION STRATEGY COVERS KEY ISSUES AND ENGAGES KEY STAKEHOLDERS

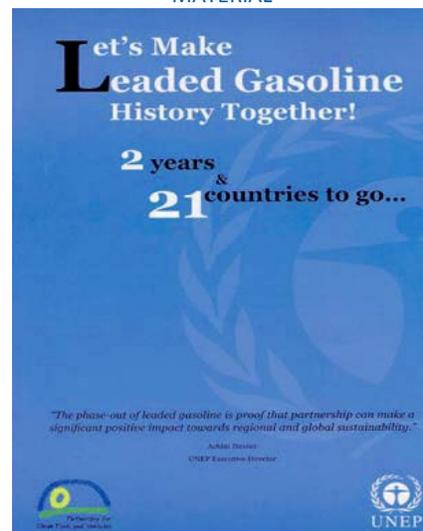
The Partnership’s implementation strategy provides insight into how a voluntary partnership can facilitate widespread change that benefits both public and private interests. The strategy has involved a combination of multi-faceted awareness, education, and technical capacity building efforts with government, industry, and civil society; deference to national partners’ leadership; and behind-the-scenes support and advocacy. The UNEP 2010 evaluation included a graphic that depicts a high-level theory of change for the Lead Campaign, which is included below as Figure 7 to provide a visual explanation of how the Partnership operated at the national level (noting that the UNEP report focused on the role of UNEP within the Partnership). This theory of change depicts a logical progression from Partnership activities to phase out, and may be helpful for gaining a conceptual understanding of the Partnership’s national level implementation approach. It does not capture how the Partnership worked more broadly across regions and globally. The diagram includes components such as passing national

FIGURE 5: EXAMPLE PCFV OUTREACH MATERIAL



Source: United Nations Environment Programme. Target 2008: Global Elimination of Leaded Petrol: A Report of the Partnership for Clean Fuels and Vehicles (PCFV).

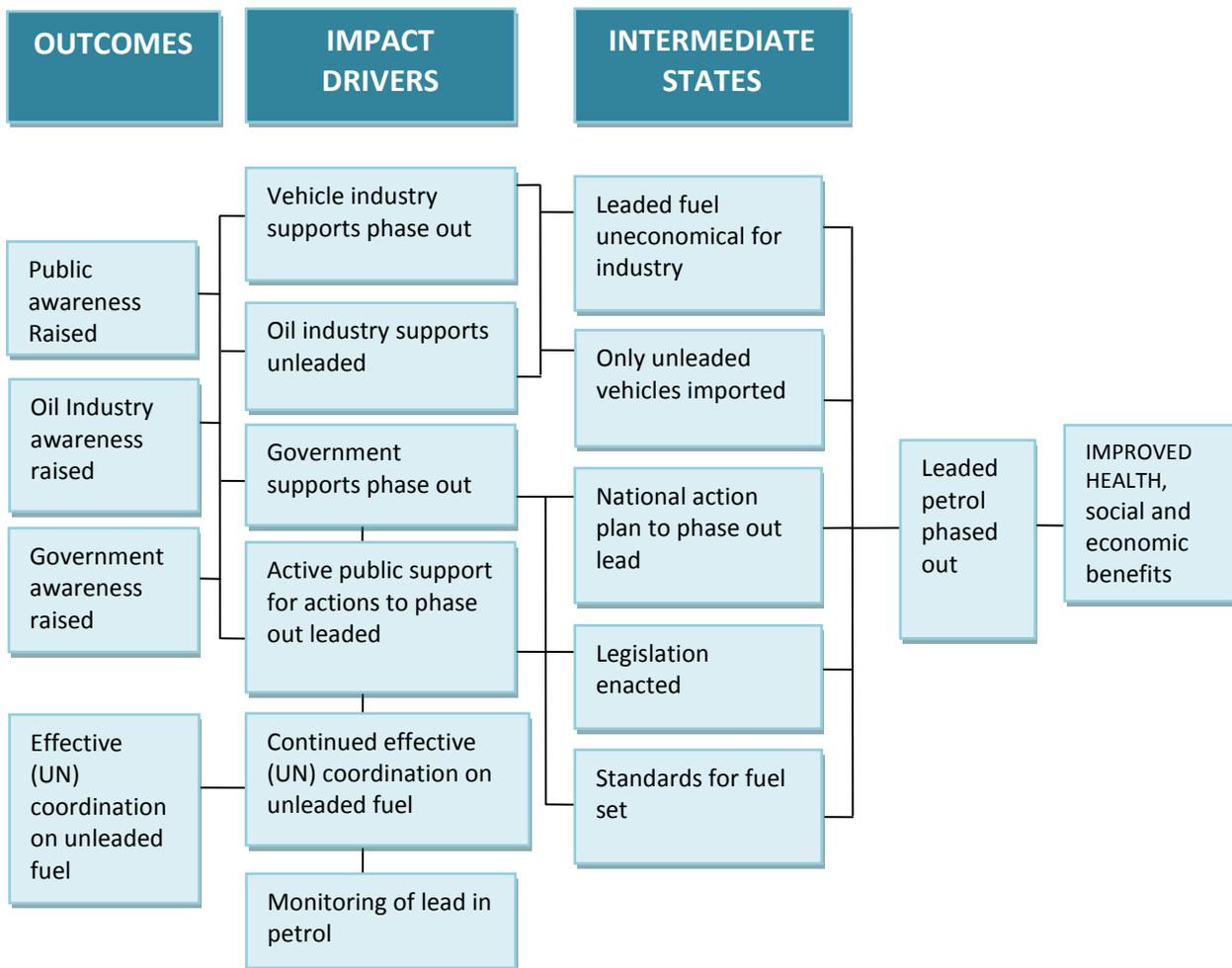
FIGURE 6: EXAMPLE PCFV OUTREACH MATERIAL



Source: United Nations Environment Programme. Target 2008: Global Elimination of Leaded Petrol: A Report of The Partnership For Clean Fuels And Vehicles (PCFV).

legislation, requiring the importation of automobiles designed to run on unleaded fuel, and fuel monitoring that may not have occurred in each country. Further, as noted by some interviewees who were most familiar with PCFV's history and development, Partnership activities and phase out implementation often occurred in a more evolutionary manner and not in the same way or order in each country, therefore this theory of change depicts a more linear and premeditated process than typically occurred in practice. This diagram is nonetheless included in order to help provide a visual description of how the Lead Campaign was intended to work.

FIGURE 7: PCFV THEORY OF CHANGE (UNEP 2010):  
HOW THE PARTNERSHIP WAS IMPLEMENTED ON THE NATIONAL LEVEL



Building on the findings from the 2010 UNEP evaluation,<sup>83</sup> this current evaluation has identified the following key aspects of the Lead Campaign’s implementation strategy:

*Raise Awareness in a Neutral, Educational Manner at the Regional Level*

The Partnership invited key stakeholders from many countries to regional workshops in a low pressure manner, assuming no further commitment or formal joining of the Partnership. The workshops involved explaining the evidence connecting leaded fuel to public health impacts, including the neurodevelopmental effects of lead exposure to unborn children and small children, and the fact that the most significant source of exposure came from the lead additives in gasoline. For some stakeholders, the workshops served as *the* critical “eye opener” about the public health impacts from lead exposure and feasibility of eliminating lead from fuel, and this new information was powerful enough to quickly lead to lead phase out commitments, particularly when coupled with the other information provided at the workshops as described below. For a detailed list of Lead Campaign workshops and other national and regional activities through 2009, see Appendix G.

*“We work at many levels: We often work at the ministerial level to achieve high-level mandate for these issues, but implement at the local level. So, for example in Africa, we got agreement from all the African ministers, had national level workshops with all stakeholders to develop action plans, and then initiated on-the-ground activities: public outreach, training for gas station attendants, blood lead testing, etc.”*  
— Metcalfe, et al., 2008.

Some country stakeholders are reported to have requested additional, region-specific or country-specific evidence of blood lead levels, saying that this additional information would make a stronger case for their own country to commit to phase out. In other words, showing the evidence on blood lead level drops in the US and perhaps one or two other countries did not create the strongest possible case. As the Campaign progressed from year to year, the Partnership was able to collect pre- and post- phase out blood lead level data in several countries, and then share this information at Partnership meetings and workshops, creating an even more compelling case that the use of leaded fuel was highly correlated with blood lead levels.

*Demonstrate Feasibility, Show Trends, and Utilize Peer Pressure*

The Partnership used early successes to demonstrate results to other (often neighboring) countries that had yet to commit to phase out or had yet to implement phase out after committing to do so. As the years went by, the Partnership would report out on how more countries had completed the phase out process. (See Figure 6 above as an example of this). This demonstration of trends supported not only a sense of understanding that phase out was feasible, but also added powerful peer pressure cited by a few interviewees as a reason why they took

*“We try to have early successes to build the interest of the partners.”*  
— Metcalfe, et al., 2008

<sup>83</sup> Information collected for this evaluation concurs with the description of the Campaign’s implementation strategy from the UNEP 2010 report; however this report describes the key aspects of the implementation strategy somewhat differently.

action on eliminating lead when they did because, for example, they did not want to be embarrassed by not making the change when their peers had. In one case, an interviewee described how his country did not want to be the last in the region to go unleaded, and that this motivated quicker phase out implementation.

### *Develop National Action Plans, Provide Both Top-Down and Bottom Up Advocacy and Support at the National Level, and Initiate Implementation Projects*

Although there has been ad-hoc variation in the implementation approach from country to country, the Partnership has generally approached country implementation in three ways: national action planning involving all sectors (e.g., national and local governments, civil society, industry) to build consensus between all that play a role, targeted top-down leadership, and bottom-up advocacy and support. At the country level, the Partnership identified senior political advocates and helped these advocates to provide leadership amongst the critical decision makers. At the same time, the Partnership would support civil society through public education and outreach efforts to rally “bottom up” support and contracts tailored to the needs of each country (see Kenya example in Exhibit 7). If needed, the Partnership could also provide technical assistance to refineries or other parties that lacked the capacity or expertise needed to implement phase out effectively. Appendix G details Lead Campaign national and regional activities through 2009 by country, region, and year. As of 2009, the Lead Campaign had supported 77 countries in lead-related activities (whether at the national, sub-regional, or regional level).<sup>84</sup>

### *Provide Small, Nimble Contracts*

The Clearing House intentionally kept contract funds to developing and transitional countries small (often \$35,000 or less) to encourage rapid implementation and avoid the additional paperwork that larger contracts often involve.<sup>85</sup> The Partnership’s available funds have also been modest to begin with. The Clearing House also developed its own contract-making process within UNEP, which helped contract management and delivery to be nimble and relatively rapid-paced.

### *Support the Partners on their Own Terms*

The Partnership focused on enabling and empowering national partners to voluntarily initiate and implement the phase out on their own terms by listening to and respecting each country’s interests and process. The Partnership trusted in the voluntary process and the ability of country partners to work through political challenges or implementation delays themselves. This approach may have taken longer than, for example, elevating disagreements or using political pressure from senior leaders such as the UNEP Executive Director to intervene, which has happened on rare occasion, but it provided for stronger voluntary action and ownership. This is not to say that the Clearing House or Partnership more broadly did not exercise behind-the-scenes advocacy, as they did take that approach; however they

---

<sup>84</sup> United Nations Environment Programme. “PCFV Lead Campaign National and Regional Activities.” 2002-2009.

<sup>85</sup> Rob de Jong personal communication, May 2011; UNEP. *Outcome and Influence Evaluation of the UNEP Partnership for Clean Fuels and Vehicles (PCFV)*. 2010, 33.

chose to minimize senior interventions that would undermine partnership relationships and the spirit of mutual respect.

### *Keep Momentum and Pressure at the Global Level*

On the global level, the Partnership worked to keep the scope of the Campaign focused solely on the goal of eliminating lead from fuel (see also, discussion on challenges below), fostered relationships and built momentum through annual in-person partnership meetings, undertook ad-hoc efforts and development of reports on particular topics, and provided ongoing information on Partnership activities and progress through the Clearing House’s website, newsletter, and written brochures.

#### EXHIBIT 7. PCFV ACTIVITIES PROMOTING LEAD PHASE OUT IN KENYA

Beginning in 2004, PCFV, through funds provided by the US EPA, worked with Kenya. Partnership support of national-level activities in Kenya focused on three areas:

- › Environmental Training of Petrol attendants in Kenya: Organized with the Petroleum Institute of East Africa, PCFV provided training to sessions to 346 attendants in Kenya’s four largest cities.
- › Public Awareness Campaign: The Clearing House facilitated a public awareness campaign focused on the benefits of using unleaded fuel on radio, television, and newspapers. This campaign was coordinated with the National Environment Management Authority and a multi-stakeholder task team.
- › Testing of Blood Lead Levels in Nairobi: The Clearing House conducted testing of blood lead levels in Nairobi, Kenya and its surroundings and compared the results with levels in rural areas. The study demonstrated elevated blood lead levels above the WHO action level of 10 micrograms per deciliter in 25% of those sampled, with most in Nairobi.

Sources: United Nations Environment Programme. “PCFV Lead Campaign National and Regional Activities.” 2002-2009.; Todd, David and Hazel Todd. *Outcome and Influence Evaluation of the UNEP Partnership for Clean Fuels and Vehicles (PCFV)*. 2010. Available at: <http://www.unep.org/transport/pcfV/PDF/leadphaseoutreport.pdf>.

## 2. PARTNERS BRING EXPERTISE AND COMMITMENT THROUGH COMPLEMENTARY ROLES

To truly gain insight from PCFV and the Lead Campaign in particular, it is important to understand the distinct roles and contributions of the individual and organizational partners.

*“This partnership has benefited from having great people there from the beginning... The structure was good but the people were better.”*  
— US EPA Interviewee

UNEP has clearly played a fundamental and critical role.<sup>86</sup> As part of the United Nations, UNEP provides political credibility and offers political connections at high levels. The UNEP staff team has served in its Clearing House capacity as an “honest broker,” (e.g., neutral entity to facilitate dialogue), coordinator, information provider, and funds consolidator and manager. The Clearing House staff team has paid close attention to keeping the Clearing House’s position neutral, and feedback provided during

*“Beyond funding EPA has been a very good partner; very helpful in terms of helping with publications, translations, regional contacts, brainstorming, attending workshops, etc. They have added credibility.”*  
— UNEP PCFV Interviewee

interviews strongly suggests that they have succeeded in this task. At the same time, UNEP has been an active PCFV partner and strategic advocate in that capacity. All accounts indicate that UNEP has effectively balanced its potentially delicate dual roles. Many interviewees highlighted the commitment, skill, expertise, and dedication of the UNEP Clearing House team, noting in particular Rob de Jong’s leadership, tenacity, and strategic insight.

Although interviewees offered some suggestions for changes in UNEP’s approach to managing the Partnership, the suggestions were modest and some had either already been acted upon or would involve expanding the scope of the Partnership or the Lead Campaign to, for instance, address alternative octane-enhancing additives or the decommissioning of former TEL facilities. (The evaluation team compiled and shared all suggestions received during the interviews with the UNEP Clearing House and US EPA<sup>87</sup>.)

A core group of partners (including IPIECA, MECA, United Nations Department of Economic and Social Affairs, NRDC, Mike Walsh, ExxonMobil, and Environmental and Energy Technology and Policy Institute) has contributed a substantial amount of time and leadership since the Partnership’s formation. These core partners, along with UNEP and US EPA, have, as previously described, brought a strong combination of technical and policy expertise, sectoral and organizational representation, global reach, and commitment.

As an integral partner in the PCFV, the US EPA has reflected the Lead Campaign’s objectives in various internal goals of the US EPA, including in the organization’s 2006-2011 and 2011-2015 Strategic Plans, as well as its current international priorities to combat climate change by limiting air pollutants and to improve air quality.<sup>88,89</sup> US EPA has been one of the Partnership’s largest and most consistent financial contributors, but beyond its financial support, US EPA has also provided international credibility as a well respected environmental agency, staff assistance, and technical support. Interviewees consistently

---

<sup>86</sup> The evaluators concur with the UNEP Evaluation finding that UNEP has served in three important capacities: as a high level advocate to governments; as a channel to resources within the Partnership; and as a facilitator and supporter of activities at various levels, particularly at the country level (see also Exhibit 2)—and we expand on Todd & Todd’s findings with additional information and interpretation of UNEP’s role and its importance.

<sup>87</sup> The evaluators did not include information on who shared the suggestions in order to support interviewee confidentiality.

<sup>88</sup> In the *FY2006-2011 EPA Strategic Plan*, PCFV is referenced as one of the activities that will support *Goal 4: Healthy Communities and Ecosystems*. One of the strategic targets for *Objective 4.1.1: Reduce Chemical Risks* is “By 2011, through work with international partners, eliminate the use of lead in gasoline in the remaining 35 countries that still use lead as an additive, affecting more than 700 million people.” Additionally, US EPA has continued to recognize the importance of international partnerships, as demonstrated in one of the cross-cutting fundamental strategies *Strengthening State, Tribal, and International Partnerships* in the *FY2011-2015 EPA Strategic Plan*.

<sup>89</sup> <http://www.epa.gov/international/topsix.html>

praised US EPA for commitment (beyond funding) to the Partnership, exemplified by a comment by one UNEP team member that US EPA is “the ideal partner.”

Some interviewees offered some modest suggestions for adjustment of US EPA’s activities or emphasis (beyond funding), and the evaluators have shared these suggestions with US EPA. A few partners interviewed were not aware of US EPA’s role in the Partnership other than that US EPA was listed as a partner or had provided financial support for the PCFV to UNEP. Some US EPA staff view the fact that the Partnership was perceived as an international effort rather than a US-led effort as a strength of the Partnership and US EPA’s role in it.

The Partnership could not have functioned or been influential without its regional and national partners, who have served as the on-the-ground advocates, leaders, and implementers that have made the real phase out commitments and then followed through with action. (See a complete list of PCFV partners in Appendix F.) Even in the absence of the Partnership, these were the individuals that would have been in the position to take action to eliminate lead from fuel, and it is they that are ultimately responsible for the changes made in their countries.

### 3. MODEST YET FOCUSED PCFV RESOURCE INVESTMENTS BUILD AWARENESS AND CAPACITY

On the whole, the costs of eliminating lead both from the perspective of Partnership management and from the perspective of on-the-ground implementation, is inexpensive – and the return on investment from economic and public benefit perspectives are significant.

As described in the PCFV Funding section, the Partnership’s cumulative funding for all three campaigns since 2002 totaled approximately US \$11.4 million as of November 2011, and the Lead Campaign’s budget comprised approximately \$6 million of this total.<sup>90</sup> Not all of PCFV’s indirect costs are included in this number, however, as many partners and in-country parties invested in travel, meeting space, technical support and other types of Partnership-involvement costs. It should be noted that this total does not include the industry and private sector costs associated with eliminating lead from gasoline, such as the infrastructure changes needed to convert refineries (see Exhibits 5 and 6).

*“We couldn’t afford to do this work. The US EPA provided training and lead monitoring before and after [the lead phase out]. But for that help we as a country would not have done anything. It was a big, big help and we are very grateful.”*  
— Industry Partner Interviewee

As described in Exhibit 5, the cost of lead phase out has varied based on multiple factors including the refinery upgrades needed, the initial lead concentrations, and octane requirements. The total cost to the consumer has generally been \$0.01-0.02 per liter and in some cases less. The larger “investments”

<sup>90</sup> Includes contribution received by PCFV by November 2011. (Does not include pledges and projects under development.) Source: PCFV Clearing House

by industry or government-run refineries have been around harmonization, decision making, and standard setting. Notably, a few partners described concern early in the Lead Campaign that eliminating lead from fuel would be prohibitively expensive; however, phase out subsequently occurred at a faster pace and lower cost than they had predicted.<sup>91</sup> There is widespread agreement that eliminating lead is on the whole inexpensive when compared to other sector-wide changes of this nature such as reducing sulfur levels in fuel which often requires much higher capital investments in refinery upgrades when compared to the elimination of lead.

## 4. PARTNERS ADDRESS CHALLENGES AND LEARN THROUGH EXPERIENCE

The partners have encountered several challenges over the years, which, while slowing down decisions or actions in some cases, and resulting in some debates on strategy and scope, do not appear to have hindered the momentum of the Partnership. The partners have been able to navigate challenges and keep making progress, even if this has meant making tough decisions involving tradeoffs.

Challenges have included:

- The voluntary nature of the work requiring extra time and patience (notably the voluntary nature of the work is also identified as a core Partnership strength);
- Unwillingness of key parties in some countries to believe that switching to unleaded fuel will not harm vehicles;
- The time it takes to reach complete agreement amongst the partners slowing down the process (but also strengthening the Partnership);
- Lack of regionally-relevant examples that are convincing to all key country partners;
- Lack of sufficient financial resources and institutional capacity to make the change;
- Pressures to increase the Campaign's scope and take on related issues such as the risks associated with alternative (substitute) fuel additives; and
- Political upheaval.

The partners have faced challenges, and have responded where possible. In response to the largest obstacle in most countries – persistent concerns that eliminating lead would harm vehicle fleets (e.g., by increasing wear on valve seats in older vehicles) – the Partnership established an ad-hoc Valve Seat Recession Working Group, which developed a report and summary report on (the myths of) valve seat recession.<sup>92</sup> In another case, in response to a need to safely dismantle, decontaminate, and dispose of the lead alkyl compound at distribution and storage facilities, the Partnership developed a report entitled, *Recommended Practices for the Decommissioning, Dismantling and Disposal of Lead Alkyl Compound Facilities and Equipment*.<sup>93</sup> In this case, the Partnership decided to address this issue

---

<sup>91</sup> Based on interviews conducted for this evaluation.

<sup>92</sup> The valve seat recession brochure is available here: <http://www.unep.org/transport/pcf/PDF/VSR-Brochure.pdf> and the longer report is available here: <http://www.unep.org/transport/pcf/pdf/VSR-FinalDraft.pdf>

<sup>93</sup> The full and summary reports on decommissioning, dismantling, and disposal are available here: <http://www.unep.org/transport/pcf/publications/publications.asp>

through a report but not to increase the scope of the Lead Campaign by taking on responsibility for actual decommissioning, dismantling, and disposal.<sup>94</sup> Debates within the partnership have arisen around other scope-related issues, such as whether PCFV should address the substitute additives<sup>95</sup> which are known or believed to have public health impacts, though many experts believe they are not as profound as those from lead exposure. (See discussion on alternative octane enhancing additives in Chapter 3.)

The Partnership also worked to identify strong regional partner organizations that could help to develop and implement regional strategies. This was easier in some regions, where potential partners were easier to find, than in other regions. For example, the Regional Environmental Center for Central and Eastern Europe was a strong regional partner that played an instrumental role in engaging with countries in the region to participate with PCFV and phase out lead. Still, some country interviewees from other regions described how many workshops included presentations based on experiences in the US and/or Europe, and that these experiences were not viewed as being as context-appropriate or convincing as would be examples from their own region, or at least from countries with similar political or economic contexts.<sup>96</sup>

Other challenges have been more difficult for the Partnership to address themselves as they are driven and controlled by factors outside of the Partnership's control. Illegal sales of TEL have been a challenge.<sup>97</sup> In at least three of the remaining six "leaded" countries, there is extreme political upheaval. The Partnership has had to cancel workshops or in some instances could not get into the country. All six countries have met with PCFV, conveyed interest in phasing out lead, and expressed openness to receiving Partnership support. The Partnership has a strategy for each of the six countries, and as of October 2011, it appears that all six will phase out lead entirely by 2013 if not sooner.

#### **HINDSIGHT: WHAT PARTNERS WOULD DO DIFFERENTLY TODAY**

During the interviews, the evaluators asked the partners what they would do differently if they were to design the Lead Campaign over again today. Ideas offered in response to this question included:

- Identifying regional partners/advocates and examples earlier on (discussed previously);
- Trying to recruit more private sector partner involvement;
- Requiring some kind of active involvement by each partner;
- Focusing on TEL facility and equipment decommissioning;<sup>98</sup>
- Offering additional technical assistance;
- Building in an "exit strategy" from the beginning (i.e., knowing when to consider the focused goals and role of the Partnership complete); and

---

<sup>94</sup> One interviewee-partner expressed that the PCFV should take this on to consider its work on eliminating leaded fuel complete.

<sup>95</sup> These include MMT, MTBE, and ETBE.

<sup>96</sup> PCFV leadership acknowledges that it would have been ideal to establish regional leadership earlier on in the Partnership though also notes that it was unclear at the time who these regional partners would have been, and that once possible partners were identified, the Partnership engaged them. Source: Rob de Jong, email message to author, July 29, 2011.

<sup>97</sup> See: <http://www.guardian.co.uk/business/2010/jun/30/octel-petrol-iraq-lead> and <http://www.sec.gov/news/press/2011/2011-21.htm>

<sup>98</sup> This would have required an increase in the scope of the Lead Campaign.

- Working on vehicle standards<sup>99</sup> at the same time as working to eliminate lead (and reduce sulfur levels).<sup>100</sup>

The evaluation team does not “judge” the merit of these individual suggestions, and has passed them on as well as all other suggestions provided during the interviews to both US EPA and the Clearing House (after removing all attributions or information that could tie the opinions shared during the interviews to the person who provided them). Instead, the evaluators reflect on three overarching messages that came through the interviews in response to this question.

First, even those who offered suggestions for changes did not suggest fundamental changes to the Campaign’s design or implementation. Their suggestions were around the margins of design and implementation, and their overarching comments reflected support, generally strong support, for the Lead Campaign overall. Second, a majority of interviewees could not think of how they would change the Campaign when asked this question. This alone is an important finding. Finally, those who have been deeply involved from the beginning said that, even if they would do things differently today (including making some of the changes in the list above), they think that the Campaign’s learning by doing has been invaluable, strengthening the Partnership overall.

*“I can’t think of anything [I would suggest be done differently] because we didn’t deliberately do it in the first place... Things kept growing in a helpful way.”  
— US EPA Interviewee*

The challenges to lead phase out that remain today (and the Partnership’s efforts to achieve this goal globally) are centered on the last several countries that have yet to phase out lead completely; however, as already noted, all six of these countries are expected to complete phase out no later than 2013. Providing further confidence that Campaign’s goal is near is fact that Innospec, the only remaining manufacturer of TEL, said in its 2010 annual report that it “expects that it will cease all sales of TEL for us in automotive gasoline” in 2012, mainly due to the declining market for purchase of TEL.<sup>101</sup>

---

<sup>99</sup> For example, working to ensure that all vehicles sold be fitted with catalytic converters to realize a more complete suite of benefits from the elimination of lead.

<sup>100</sup> The evaluators passed on the suggestions offered by interviewees to both UNEP and US EPA, noting that these suggestions fell outside of the scope of this evaluation and that the evaluators did not try to determine the appropriateness or feasibility of any of the suggestions offered during the interviews.

<sup>101</sup> Innospec Inc. “United States Securities and Exchange Commission Form 10-K: Annual Report Pursuant to Section 13 OR 15(d) of the Securities Exchange Act of 1934.” December 2010, 20.

[http://www.innospecinc.com/assets/\\_files/documents/apr\\_11/cm\\_\\_1301911642\\_Form\\_10-K\\_2011.pdf](http://www.innospecinc.com/assets/_files/documents/apr_11/cm__1301911642_Form_10-K_2011.pdf)

# CHAPTER 7. RELEVANCE OF FINDINGS ON LEAD CAMPAIGN TO OTHER VOLUNTARY PARTNERSHIPS

---

This chapter synthesizes the key findings that can be drawn from the design and implementation of PCFV and the Lead Campaign and explores how these findings may be applicable to other partnerships, topics, and contexts. This chapter then considers emerging principles surrounding voluntary, multi-stakeholder partnership design based on a literature scan<sup>102</sup> and reflects on the design and implementation of PCFV and the Lead Campaign in relation to these principles.

The evaluators find that the Lead Campaign’s design features are consistent with the emerging principles, noting that PCFV and the Lead Campaign evolved over time and as such learned by doing rather than starting with a partnership design template. The process of learning and adaptation coupled with the exceptional suite of people involved have contributed as much to the Lead Campaign’s strengths as has the design itself. The evaluators also note that several preceding developments assisted, if not “empowered,” the Lead Campaign from the beginning, helping to facilitate rapid implementation. **After reviewing all of the information collected for this evaluation, including literature on the broader field of voluntary multi-stakeholder best practices, the evaluators believe that the potent combination of preceding developments, sound design, strong implementation strategy, and exceptional people have made the Lead Campaign an extraordinary example in the realm of voluntary partnerships.**

*“Without question it was the personalities involved [that supported the Lead Campaign’s influence]...  
...One of those happy circumstances; history, commitment, and a sense of humor.”  
— US EPA Interviewee*

This chapter explores these findings through three topic areas:

1. Core Lead Campaign strengths could also serve other partnerships;
2. When a voluntary partnership model might be suitable in other contexts; and
3. Emerging partnership design principles that are consistent with PCFV.

## 1. CORE LEAD CAMPAIGN STRENGTHS COULD ALSO SERVE OTHER PARTNERSHIPS

Several core strengths have supported the Lead Campaign’s effectiveness. These strengths, which have been described in greater detail in Chapters 5 and 6, would also serve other international partnership efforts. They include:

---

<sup>102</sup> As discussed in Chapter 2, Methods, the evaluation team conducted a limited literature review; however, despite the modest effort put into this review, we found several common themes in the literature that we reviewed, providing some indication that a broader review would also result in the identification of similar themes.

- Preceding developments that support a strong start and can help to quickly build momentum (Chapter 5);
- Strong design and design process that engendered joint ownership and trust (Chapter 5);
- Strategic, multi-level, multi-angle implementation supported through a neutral secretariat (Chapter 6); and
- Exceptional people and enduring relationships (Chapter 6).

## 2. WHEN A VOLUNTARY PARTNERSHIP MODEL MIGHT BE SUITABLE IN OTHER CONTEXTS

Determining what approach to take when attempting to catalyze or cause international policy (and environmental) change is a strategic decision. The two most oft-cited approaches are: 1) binding, formal agreements between governments and 2) voluntary intergovernmental or public-private partnerships. Other approaches include grassroots advocacy from civil society intended to apply public pressure for policy change, providing targeted technical assistance through philanthropy or NGOs to governments to support policy change, and efforts from within the private sector to promote change. Experts continue to discuss and debate the pros and cons of each approach, and many favor one approach over another.

Issue-specific considerations, such as identifying the parties that would be needed to solve a particular problem, can guide whether to pursue a “PCFV-like” approach in other situations. If governments alone can efficiently and effectively solve a problem, for example, then a multi-stakeholder approach may not make sense. Still, it appears that there are general conditions, which if applicable, can signify when a

### EXHIBIT 8. QUESTIONS TO CONSIDER WHEN WEIGHING WHETHER TO PURSUE A VOLUNTARY PARTNERSHIP

- › Is there a clear need or problem that requires involvement of multiple parties and perspectives to be successfully addressed, and a defined role that a partnership could perform to address the need or problem?
- › Is there a set of individuals and organizations with the right expertise, authority, credibility, and influence that are willing to commit to starting and productively participating in a partnership?
- › Would key stakeholders individually and collectively gain by participating through aligning agendas and combining resources to magnify the rewards and spread the risks?
- › Has demonstrable progress on the issue in question already occurred (or could it occur relatively quickly), and could a partnership accelerate progress beyond what would occur otherwise?
- › Is there commonly accepted evidence behind the need for action to address the challenge?
- › Is there powerful, organized opposition to the objectives of the partnership that could prevent a partnership from succeeding?
- › Are there sufficient resources for partnership launch? Can reasonable certainty be provided that funding requirements can be met for the duration of the partnership?

voluntary, multi-stakeholder approach could offer a strong opportunity to leverage change. These conditions, listed in Exhibit 8 as questions, are likely to be present in or applicable to many situations. In some instances only a few conditions may be in place, while others would need to be established through the efforts of the partnership itself. A strategic analysis is needed to determine if a voluntary partnership is the most productive approach.

### 3. EMERGING PARTNERSHIP DESIGN PRINCIPLES THAT ARE CONSISTENT WITH PCFV

Through the analysis completed on the Lead Campaign for this evaluation and review of literature on voluntary partnerships done in this regard, the evaluators identified an emerging set of principles intended to strengthen the design of voluntary multi-stakeholder partnerships. Once a decision is made to pursue a voluntary partnership approach, considering these principles in light of issue-specific factors can inform design, implementation, and ultimately lead to increasing the chance of greater results through a resulting effective partnership. Doing so can also help to maximize a partnership's potential to influence change and avoid perceived or real risks associated with a voluntary approach, including concerns over uncertainty, lack of partner trust, misunderstandings about process and intent, and a fear of a lack of progress due to its voluntary nature. Exhibit 9 summarizes the evaluation team's findings on these emerging principles.

Whether intentionally or by happenstance, or more likely some combination of both, PCFV and the Lead Campaign do essentially embody these emerging partnership principles. In other words, the PCFV Lead Campaign is based on solid principles which have resulted in a particularly well-designed and well-implemented voluntary partnership.

Pursuing a voluntary partnership approach, even when the conditions are particularly well suited to that approach and the partnership is well designed and implemented, does not guarantee success. It is the opinion of the evaluators that the considerations and principles identified through this evaluation can nonetheless increase the chances that governments, non-governmental organizations, civil society, and business interests can effectively work together for the common good.

#### *PCFV – Beyond the Lead Campaign*

As discussed in Chapters 1 and 3 of this report, PCFV has three campaigns including the Lead Campaign. The Sulfur Campaign and Clean Vehicles Campaign are more recent and more complex than the Lead Campaign.

*"The PCFV model is transferable but you have to be willing to do the hard work of getting the basic structure right. Identifying a mission, specific goals, the playing field among partners, who makes decisions... We took the time to do this... If [other partnerships] don't have a clear way for all partners to engage with each other, it's hard for it to work."  
— NGO Partner Interviewee*

## EXHIBIT 9. EMERGING VOLUNTARY PARTNERSHIP DESIGN PRINCIPLES

- › **Develop clear goals:** Develop clear, specific (and preferably measurable) goals that define the objective of the partnership and focus attention and action on mutually beneficial results over a sustained period.
- › **Build a strong core membership:** Carefully choose initial core membership to include stakeholders with a strong interest in the outcome, who can bring required expertise to establish early credibility and contribute to early demonstrable progress that can attract additional partners over time.
- › **Thoughtfully design the partnership and utilize this process to engender buy-in and trust:** Take the time needed to carefully design the partnership, including roles and responsibilities, governance rules, membership criteria, partnership duration and exit strategy, decision making process, financial responsibilities, and monitoring and reporting. During the design phase, build critical buy-in and establish trust among the partners.
- › **Make clear the power and authority of each partner:** As part of the governance rules, clearly identify partner status if it is deemed necessary to differentiate among partners for legitimate reasons such as safeguarding against unfair advantage of any partner or partner group.
- › **Maximize voluntary and comprehensive participation:** Determine what motivates key stakeholders to participate and design accordingly, emphasizing the comprehensive and inclusive nature of the partnership.
- › **Ensure neutral management:** Consider establishing a secretariat or similar function housed in an organization or institution that is seen as “position neutral” to facilitate the work of the partnership in an efficient and trustworthy manner and manage resources in a way that optimally leverages funding.
- › **Secure commitments for funding sufficient to launch the partnership, while also identifying long-term funding opportunities:** Ensure a relatively stable source of funding for the partnership to successfully launch with, at a minimum, strong indications of future support for longer-term funding commensurate with the partnership’s scope and duration. Securing long-term funding is an acknowledged challenge, and in some cases depends on demonstrating results early on to garner or justify additional support over time.
- › **Build in the ability to adapt and course correct:** Accept that adaptability in strategy and implementation will likely be required to maximize effectiveness; learn from experience and adapt to changes in the external landscape.
- › **Empower sustained change in the field:** Utilize the partnership to build capacity and empower those who will routinely implement the change on the ground after the partnership ends its work.
- › **Guarantee transparency and accountability:** Build in transparency, reporting, and accountability around decision making, implementation, and progress. Third-party monitoring and evaluation can be a helpful tool in this regard.

In the case of lowering the level of sulfur in fuel, for example, it took a protracted negotiation process for the Partnership to agree on the global goal of 50ppm. This goal-setting challenge was not quite as onerous in the case of the Lead Campaign. Another challenge with desulfurization is the high cost of implementation in terms of required capital investment,<sup>103</sup> even though the human health and environmental benefits of removing sulfur significantly outweigh the costs on the order of 10 to 1.<sup>104</sup> The capital costs required are higher when compared to eliminating lead in large part because sulfur is naturally occurring in fuel and therefore needs to be removed (whereas lead is an additive). Still, despite these challenges, the Sulfur Campaign, which PCFV formally launched four years after the Lead Campaign, is gaining momentum. A strong indicator of progress made is that, as of late 2011, all but one African country has formally adopted the policy target of 50 parts per million fuel sulfur standard at the Ministerial level, though implementation of the fuel sulfur reductions will take time and will often occur in a phased approach.

In the case of accelerating the manufacturing and distribution of “clean vehicles” (the Clean Vehicles Campaign), the situation is also complex, requiring consideration of such issues as vehicle standards and manufacturing locations (country by country; manufacturer by manufacturer), used vehicle trade (the vast majority of vehicles in most developing countries are second-hand imports from other countries), vehicle licensing and inspection, and other external factors. The Partnership only recently has turned its attention to this Campaign, and it is still working to develop a specific goal.

The Lead Campaign was relatively fortunate in that it was easier to envision, start, pursue, and track. Even so, the evaluators believe that the combination of campaign design, strategy, and people has made the Lead Campaign an outstanding and exceptional success. A testimony to this finding is that, as part of this evaluation, several interviewees described how their countries would still be using leaded fuel today if the Partnership had not introduced them to the facts about what lead was doing to their populations – particularly their children – and demonstrated how it was technically and financially feasible to make a change that previously seemed impossible, or at least extremely difficult, to make.

Other interviewees described how PCFV helped them to make the transition more quickly and easily, even if they would have made the change eventually. The individuals involved at all levels, including those who have led and staffed the Campaign for the past nine years, and those who have promoted and implemented the changes on the ground, clearly deserve particular credit for the Campaign’s success.

Focusing on the Lead Campaign first has created a strong foundation upon which the Partnership can now focus its attention on sulfur reductions and clean vehicles, utilizing the networks, relationships, and trust built over the past nine years. Although the two more recently initiated Campaigns are more

---

<sup>103</sup> A 2003 Asian Development Bank study estimated capital costs in Asian countries to range from \$374M to \$450M depending on the refinery’s existing treatment capabilities and quality of the incoming crude oil to reach the 50ppm level. The Asian Development Bank, “Cost of Diesel Fuel Desulphurization for Different Refinery Structures Typical of the Asian Refining Industry,” 10 January 2003.

<<http://www.unep.org/transport/pcfV/PDF/PubADBSulphurReport.pdf>>

<sup>104</sup> Katherine O. Blumberg, Michael P. Walsh, and Charlotte Pera. “Low-Sulfur Gasoline & Diesel: The Key to Lower Vehicle Emissions,” 3.

<<http://www.unep.org/transport/pcfV/PDF/PubLowSulfurPaper.pdf>>

complex, the evaluators believe they have and will continue to benefit from PCFV's strengths as described throughout this report.

## CHAPTER 8. CONCLUSIONS

---

The Partnership for Clean Fuels and Vehicles formed when a group of committed individuals recognized an avoidable threat to public health and the environment and a timely opportunity to address it. In the face of solid evidence regarding the impacts of high blood lead levels, particularly on children, and decades of experience demonstrating how other countries had eliminated lead from fuel, a group of credible experts and decision makers from different sectors seized the opportunity to work together as partners in the developing world to make global lead phase out in fuels a reality.

The partners established effective relationships and networks to support change from within each region and country, using an approach that worked best for each country's unique set of circumstances. The partners deployed a strong, multifaceted implementation strategy that benefited from partners' various strengths. They learned from experience, and over the years honed the Lead Campaign's strategy and tactics to maximize its influence. The UNEP Clearing House played a critical central coordination role, including management of the Campaign's modest budget and serving as an "honest broker," while also participating as one of PCFV's partners.

This evaluation found that developments that preceded the formation of PCFV, including existing momentum for phase out and data showing it was technically and financially feasible to do so, enabled a strong basis for the launch for the Lead Campaign. At the same time, this report describes how the Campaign's specific design and implementation characteristics, as well as the individuals involved, have significantly bolstered the Campaign's existing strengths. The Campaign's design and implementation features (a clear and measurable goal, equality amongst partners, and balanced representation within the Advisory Group, among others) are reflected in an emerging set of voluntary partnership design principles. In this vein, the Lead Campaign and PCFV more generally offer a learning opportunity.

This evaluation was not designed to assess the role of the PCFV in facilitating lead phase out; however, the role of PCFV in the phase out of lead in Sub-Saharan African was studied previously and PCFV was found to have, at a minimum, sped up the phase out by several years. Anecdotal stories shared during the interviews for this evaluation also suggest that, in some cases, country partners would still be using leaded fuel if it were not for the Partnership, while, in other cases, the Partnership has been one of several factors leading to the phase out of lead. Many interviewees who are familiar both with the Lead Campaign and with other voluntary, multi-stakeholder partnerships believe that PCFV – and the Lead Campaign in particular – is one of the most effective partnerships of its kind.

Nevertheless, the work of the Partnership is far from over. Six countries are still using leaded fuel, though signals indicate that these final countries will phase out lead entirely by 2013 if not sooner. Even with a strong partnership to promote progress, the Sulfur and Clean Vehicles Campaigns pose additional challenges and require extensive commitments to and investments in longer-term change to be successful. The PCFV partners are contemplating strategies for moving forward on all three campaigns. One consideration is to report on progress at the 2012 Rio +20 Summit and subsequently reinvigorate and update the Partnership if needed.

## APPENDIX A. BIBLIOGRAPHY

---

- Signifies sources related to voluntary partnerships that informed the findings in Chapter 7.
- Signifies sources related to previous evaluations, reports, or studies of PCFV.

Adams, Laurie, Natasha Besch-Turner, Daniel Carroll, Jeffrey Harris, Jeffrey S. Hart, Olga Stein, and Thane Thompson. "Evaluation Report: Partnership Programs May Expand EPA's Influence." United States Environmental Protection Agency Office of Inspector General. Report No. 2007-P-00003. November 2006. •

Annest J., K. Mahaffey, D. Cox, and J. Roberts. "Blood lead levels for persons 6 month–74 years of age: United States 1976–80." *Advance Data from Vital Health Stat*, No. 79. DHHS Pub. No. (PHS) 82-1250. Public Health Service, Hyattsville, Md. 1982.

Armstrong, Jane and Jane Metcalfe. *Clean Fuels and Vehicles Partnership Factsheet*. 2002.

Asian Development Bank and Clean Air Initiative for Asian Cities Center. "Country Synthesis Report on Urban Air Quality Management: Thailand." December 2006.

Asian Development Bank. "Cost of Diesel Fuel Desulphurization for Different Refinery Structures Typical of the Asian Refining Industry." January 2003.  
<http://www.unep.org/transport/pcfV/PDF/PubADBSulphurReport.pdf>

Biermann, Frank, et. al. "Rio +20 Policy Brief #3: Transforming Governance and Institutions for a Planet under Pressure: Revitalizing the Institutional Framework for Global Sustainability: Key Insights from Social Science Research." The Earth System Governance Project. •

Blumberg, Katherine O., Michael P. Walsh, and Charlotte Pera. "Low-Sulfur Gasoline & Diesel: The Key to Lower Vehicle Emissions." <http://www.unep.org/transport/pcfV/PDF/PubLowSulfurPaper.pdf>.

Bultynck, Patrick and Chantal Reliquet. "Phase-Out of Leaded Gasoline in Oil Importing Countries of Sub-Saharan Africa: The Case of Ethiopia: Action Plan." World Bank Clean Air Initiative in Sub-Saharan African Cities & Energy Sector Management Assistance Programme. December 2003.

Bultynck, Patrick and Chantal Reliquet. "1998-2002 Progress Report: Working Paper Number 10." World Bank Clean Air Initiative in Sub-Saharan African Cities. January 2003. [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2004/04/19/000012009\\_20040419142042/Rendered/PDF/284500PAPER0SSA0Clean0air0no1010.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2004/04/19/000012009_20040419142042/Rendered/PDF/284500PAPER0SSA0Clean0air0no1010.pdf)

California Air Resources Board. "Key Events in the History of Air Quality in California." <http://www.arb.ca.gov/html/brochure/history.htm>

California Air Resources Board, Stationary Source Division. "Proposed Identification of Inorganic Lead as a Toxic Air Contaminant, Part B, Health Assessment." Technical Support Document. March 1997.

Chemical Heritage Foundation. "Eugene Houdry." <http://www.chemheritage.org/discover/chemistry-in-history/themes/petrochemistry-and-synthetic-polymers/petrochemistry/houdry.aspx>

Chulalongkorn University and Pollution Control Department (PCD). "Unleaded Gasoline Policy: Health Benefits for School Children and Traffic Policemen in Bangkok Metropolitan Administration." 2002.

Clean Air Act Advisory Committee Partnership and Community-Based Programs Work Group. "Strategic Use and Implementation of EPA OAR Voluntary, Partnership, and Community-Based Programs: A Report of the Clean Air Act Advisory Committee." October 2010. •

Clean Air Initiative for Asian Cities and Asian Development Bank. "Final Consultants' Report: A Road Map for Cleaner Fuels and Vehicles in Asia." 2008.

Clifford, Jerry and Margo Oge. *Letter from OITA to "Colleagues"*. 2002.

The Division for Sustainable Development. "Background Paper No. 1: Partnerships for Sustainable Development – Update." United Nations Department of Economic and Social Affairs. Commission on Sustainable Development Thirteenth Session. April 2005. [http://www.un.org/esa/sustdev/csd/csd13/documents/bgground\\_1.pdf](http://www.un.org/esa/sustdev/csd/csd13/documents/bgground_1.pdf). •

European Union. *Monitoring Report: Cleaner Transport for Better Urban Air Quality and Reduced Global Emissions*. 2009. •, ••

Freedland, Jonathan. "Greens don't need the US." *The Guardian*. August 16, 2002. <http://www.guardian.co.uk/politics/2002/aug/16/environment.usa>

Goldsmith, Stephen and William D. Eggers. *Governing by Network: The New Shape of the Public Sector*. The Brookings Institution. 2004. •

Hirshfield, D. and J. Kolb. "Phasing out Lead from Gasoline: Feasibility and Costs." *Implementing the Environmental Action Programme for Central and Eastern Europe*. World Bank, Environment Department, Washington, D.C. 1995.

Innospec Inc. "United States Securities and Exchange Commission Form 10-K: Annual Report Pursuant to Section 13 OR 15(d) of the Securities Exchange Act of 1934." December 2010. [http://www.innospecinc.com/assets/\\_files/documents/apr\\_11/cm\\_\\_1301911642\\_Form\\_10-K\\_2011.pdf](http://www.innospecinc.com/assets/_files/documents/apr_11/cm__1301911642_Form_10-K_2011.pdf)

International Council on Clean Transportation. "Briefings: Fuel Additives: MMT." September 2010. <http://www.theicct.org/2010/09/fuel-additives-mmt/>

International Finance Corporation. *Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets*. World Bank Group. May 2007.

[http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/p\\_StakeholderEngagement\\_Full/\\$FILE/IFC\\_StakeholderEngagement.pdf](http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/p_StakeholderEngagement_Full/$FILE/IFC_StakeholderEngagement.pdf). •

International Fuel Quality Center. *Special Report: Global: Status of Gasoline Lead Phase-Out*. 2009.

IPIECA. *Getting the Lead Out: Downstream Strategies and Resources for Phasing Out Leaded Gasoline*. Fuels and Vehicles Working Group Report Series: Volume II. <http://www.unep.org/transport/pcfv/PDF/Pub-IPIECA-LeadOut.pdf>

IPIECA. *Partnerships in the Oil and Gas Industry*. 2006. <http://www.ipieca.org/sites/default/files/publications/partnerships.pdf>

IPIECA. *Partnerships in the Oil and Gas Industry: The Partnership for Clean Fuels and Vehicles*. 2006. ••

Kitman, Jamie Lincoln. "The Secret History of Lead." *The Nation*. March 2000. <http://www.thenation.com/article/secret-history-lead>

Koekkoek, Brenda. "Partnerships & Strategic Engagement." UNEP Mercury Programme. February 2009. PowerPoint Presentation. •

Komite Penghapusan Bensin Bertimbel. *Memorandum of Understanding between Komite Penghapusan Bensin Bertimbel (Joint Committee for Leaded Gasoline Phase-out) or KPBB and UNEP Division of Policy Development and Law*. 2005.

La Viña, Antonio, Anne Marie DeRose, Arthur Getz Escudero, Jesse Ribot, Gretchen Hoff, Patrick Bond, and Sandra Moniaga. *Making Participation Work: Lessons from Civil Society Engagement in the WSSD*. World Resources Institute. October 2003. <http://www.wri.org/publication/making-participation-work>. •

Lovei, Magda. *Phasing Out Lead from Gasoline in Central and Eastern Europe: Health Issues, Feasibility, and Policies*. World Bank. June 1997. [http://books.google.pt/books?id=AS-\\_RxVq95kC&printsec=frontcover&hl=en#v=onepage&q&f=false](http://books.google.pt/books?id=AS-_RxVq95kC&printsec=frontcover&hl=en#v=onepage&q&f=false)

Lovei, Magda. *Phasing Out Lead From Gasoline: Worldwide Experiences and Policy Implications*. World Bank Technical Paper No. 397. 1998.

Malena, Carmen. "Strategic Partnership: Challenges and Best Practices in the Management and Governance of Multi-Stakeholder Partnerships Involving UN and Civil Society Actors." Prepared for the Multi-Stakeholder Workshop on Partnerships and UN-Civil Society Relations. February 2004. •

Manufacturers of Emission Controls Association (MECA). "The Case for Banning Lead in Gasoline." January 2003.

Martens, Jens. "Multistakeholder Partnerships – Future Models of Multilateralism?" Friedrich-Ebert-Stiftung. January 2007. •

Metcalfe, Jane. "Better air quality through cleaner fuels and vehicles—the Partnership for Clean Fuels and Vehicles (PCFV)." 2007. PowerPoint Presentation.

Metcalfe, Jane, Rob de Jong, Richard Kassel, and Rob Cox. *The Partnership for Clean Fuels and Vehicles: A Global Success Story*. 2008.

Morrison, David. "Understanding Public-Private Partnerships." United Nations Foundation. •

Partnership for Clean Fuels and Vehicles Sulphur Working Group. "Recommended Practices for the Decommissioning, Dismantling, and Disposal of Lead Alkyl Compound Facilities and Equipment." February 2007. <http://www.unep.org/transport/pcfV/PDF/TELReport.pdf>

Partnership for Clean Fuels and Vehicles Valve Seat Recession Working Group. "Eliminating Lead from Gasoline: Report on Valve Seat Recession." May 2004. <http://www.unep.org/transport/pcfV/pdf/VSR-FinalDraft.pdf>

Pattberg, P. et al, "Assessing the Role and Relevance of the Renewable Energy and Energy Efficiency Partnership (REEEP) in Global Sustainability Governance." Institute for Environmental Studies, VU University Amsterdam. •

Patton, Michael Quinn. "Utilization-Focused Evaluation Checklist." 2002. [http://web.idrc.ca/uploads/user-S/10905198311Utilization\\_Focused\\_Evaluation.pdf](http://web.idrc.ca/uploads/user-S/10905198311Utilization_Focused_Evaluation.pdf)

Regional Environmental Center for Central and Eastern Europe and UNEP-based Partnership for Clean Fuels and Vehicles through the Ad Hoc Working Group of Senior Officials. Presented at Sixth Ministerial Conference "Environment for Europe". *Public-Private Partnership for Reduced Air Pollution from Vehicles through No-Lead and Low-Sulphur Fuels*. 2007. <http://www.unece.org/fileadmin/DAM/env/documents/2007/ece/ece.belgrade.conf.2007.24.e.pdf>. ••

Safrudin, Ahmad. *To Escort Applied Policy on Leaded Gasoline Phase-out: A Final Report to UNEP*. Komite Penghapusan Bensin Bertimbel (KPBB).

Sieghart, Dr. Lia Carol and Mr. Helal Al Reiasi. *Project Closure Report: Support to the Development of a National Strategy and the Implementation of a Commitment Building Programme to Phase Out Leaded Gasoline in Yemen*. Republic of Yemen Environmental Protection Authority.

South Coast Air Quality Management District. "The Southland's War on Smog: Fifty Years of Progress Toward Clean Air." May 1997. [http://www.aqmd.gov/news1/Archives/History/marchcov.html#The Arrival of Air Pollution](http://www.aqmd.gov/news1/Archives/History/marchcov.html#The%20Arrival%20of%20Air%20Pollution)

Soubbotina, Tatyana P. and Katherine A. Sheram. *Beyond Economic Growth: Meeting the Challenges of Global Development*. World Bank Development Education Program. 2000. <http://www.worldbank.org/depweb/beyond/global/chapter10.html>

Timberg, Craig. "Era of Leaded Gas Comes to an End in Most of Africa." Washington Post. January 2006.

- The Alliance to End Childhood Lead Poisoning. "Don't Repeat the Lead Gasoline Experiment." 2002. [www.globalleadnet.org](http://www.globalleadnet.org)
- Tsai, Peter L. and Thomas H. Hatfield. "Global Benefits From the Phaseout of Leaded Fuel." *Journal of Environmental Health*. 74: 8-14. 2011. ●●
- Tsai, Peter L. and Thomas H. Hatfield. *The Global Benefits of Phasing Out Leaded Fuel*. California State University, Northridge. 2010. ●●
- UN News Service. "UN Environmental Chief Calls for New Partnerships to Clear African Urban Smog." UN News Centre. 26 July 2006.
- United Nations Department of Public Information and Department of Economic and Social Affairs. "Partnerships for Sustainable Development." August 2003. ●
- United Nations Economic and Social Council. "Partnerships for Sustainable Development: Report of the Secretary-General." Commission on Sustainable Development: Sixteenth Session. May 2008. <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N08/229/62/PDF/N0822962.pdf?OpenElement>. ●
- United Nations Environment Programme (UNEP). "Benefits of Lead Phase-out."
- UNEP. Clearing-House for the Partnership for Clean Fuels and Vehicles. *Summary of the Eighth Meeting of the Global Partnership for Clean Fuels and Vehicles*. 2010. <http://www.unep.org/transport/PCFV/PDF/8GPMReportFF.pdf>.
- UNEP. "Declaration of Dakar." Regional Conference on the Phasing-Out of Leaded Gasoline in Sub-Saharan Africa. 2001. <http://www.unep.org/pcfV/pdf/DataDakarDecl.pdf>.
- UNEP. *Global Lead Campaign "Last Push" Strategy- DRAFT*.
- UNEP Global Mercury Partnership. *Review of Global Multi-Stakeholder Partnerships*. 2008. <http://www.chem.unep.ch/mercury/UGMP/INF%207.pdf>. ●, ●●
- UNEP. "Governance Rules." <http://www.unep.org/transport/pcfV/PDF/GovcRules.pdf>. 2003.
- UNEP. "Leaded-petrol Phase Out in Sub-Saharan Africa." 2004. Press Release.
- UNEP. *Lead Phase-Out: The Story... so far: 2002-2008*. Partnership for Clean Fuels and Vehicles. 2009. .flv file.
- UNEP. "Narrative Submission." Belgium Award Submission.
- UNEP. *Outcome and Influence Evaluation of the UNEP Partnership for Clean Fuels and Vehicles (PCFV)*. Conducted by Todd, David and Hazel Todd of International Development, Environment and Disasters. 2010. <http://www.unep.org/transport/pcfV/PDF/leadphaseoutreport.pdf>. ●●

UNEP. *Outcome and Influence Evaluation of the UNEP Partnership for Clean Fuels and Vehicles (PCFV)*. conducted by Todd, David and Hazel Todd of International Development, Environment and Disasters. 2010.  
[http://www.unep.org/Transport/PCFV/PDF/leadEvaluation\\_summaryreport.pdf](http://www.unep.org/Transport/PCFV/PDF/leadEvaluation_summaryreport.pdf). ●●

UNEP. "Partnership for Clean Fuels and Vehicles." 2002.

UNEP. "PCFV Lead Campaign National and Regional Activities." 2002-2009.

UNEP. "Performance Indicators for PCFV C-H on Budget Item." 2008.

UNEP Regional Office for Latin America and the Caribbean. *Final Report of the Sixteenth Meeting of the Forum of Ministers of the Environment of Latin America and the Caribbean: Santo Domingo, Dominican Republic: 27<sup>th</sup> January to 1<sup>st</sup> February 2008*.

UNEP. "Summary of BLL Pre & Post Leaded Gasoline Phase Out." PowerPoint.

UNEP. *Target 2008: Global Elimination of Leaded Petrol: A Report of the Partnership for Clean Fuels and Vehicles (PCFV)*. <http://www.unep.org/transport/pcfV/PDF/LeadReport-Brochure.pdf>

United Nations General Assembly Resolution 60/215 "Toward Global Partnerships." March 2006.  
<http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N05/500/50/PDF/N0550050.pdf?OpenElement>

United States Environmental Protection Agency (US EPA). *2006-2011 EPA Strategic Plan: Charting Our Course*. September 2006.

Unknown Author. "Benefits of Lead Phase-out."

Unknown Author. "Industry: Special Study on Support to the Partnership for Clean Fuels and Vehicles (PCFV) Global Campaign to Phase Out Leaded Gasoline World Wide."  
[http://www.unep.org/eou/Portals/52/Reports/I\\_Lead\\_PhaseOut\\_ExecSummary.html](http://www.unep.org/eou/Portals/52/Reports/I_Lead_PhaseOut_ExecSummary.html). ●●

Unknown Author. "Mobile Source Air Pollution." 2008. PowerPoint.

Unknown Author. "A Study on the Global Benefits of Lead Phase-Out."

US Agency for International Development. "HIV/AIDS: Frequently Asked Questions."  
[http://www.usaid.gov/our\\_work/global\\_health/aids/News/aidsfaq.html#deaths](http://www.usaid.gov/our_work/global_health/aids/News/aidsfaq.html#deaths)

US EPA. *FY 2011-2015 EPA Strategic Plan: Achieving Our Vision*. September 2010.

US EPA. "As Prepared for Administrator Johnson, Eco-Cities of the Mediterranean Forum 2008, Ishtar, Dead Sea, Jordan." 2008. Speech.  
<http://yosemite.epa.gov/opa/admpress.nsf/8d49f7ad4bbcf4ef852573590040b7f6/a3e130497d4a4745852574e900589ff5!OpenDocument>.

- US EPA. "EPA's International Priorities." Updated April 2011.  
<http://www.epa.gov/international/topsix.html>
- US EPA. "US EPA Mobile Source Emissions - Past, Present, and Future: Milestones."  
<http://www.epa.gov/otaq/invntory/overview/solutions/milestones.htm>
- US EPA National Center for Environmental Innovation.  
"Guidelines for Evaluating an EPA Partnership Program (Interim)." March 2009. •
- US EPA National Center for Environmental Innovation.  
"Guidelines for Designing EPA Partnership Programs." December 2007. •
- US EPA and US Agency for International Development. "Implementer's Guide to Phasing Out Lead in Gasoline." Hager Bailey Services. March 1999.  
<http://nepis.epa.gov/EPA/html/DLwait.htm?url=/Adobe/PDF/400004HW.PDF>
- Vollmer, Derek, K Kathleen M McAllister, and Jacqueline Coté. "Clean Water and Sanitation for All: Global Water Challenge." The National Academies International Chamber of Commerce, G Geneva published in Derek Vollmer and Rapporteur, Science and Technology for Sustainability Program; National Research Council, National Academies Press. 2009. •
- Walsh, John. "UN PCFV – Fuel Samples & Lead Data: Draft Proposal." PowerPoint. 2008.
- Walsh, John. "UN PCFV Fuel Sampling & Testing Program: April 2010 Update." UNEP PCFV 8<sup>th</sup> Global Partnership Meeting. PowerPoint.  
[http://www.unep.org/transport/PCFV/PDF/8GPM\\_MichaelwalshFuelSampling.pdf](http://www.unep.org/transport/PCFV/PDF/8GPM_MichaelwalshFuelSampling.pdf)
- Walsh, Michael P.. "The Global Experience With Lead in Gasoline and the Lessons We Should Apply to the Use of MMT." American Journal of Industrial Medicine. 50: 853–860. 2007.
- World Bank Group. *Removal of Lead from Gasoline*. Pollution Prevention and Abatement Handbook. . July 1998.
- World Bank Group. *Removal of Lead from Gasoline: Technical Considerations*. Pollution Prevention and Abatement Handbook. World Bank Group. July 1998.
- World Health Organization. "Malaria." Fact Sheet.  
<http://www.who.int/mediacentre/factsheets/fs094/en/>
- World Health Organization. "Tobacco." Fact Sheet.  
<http://www.who.int/mediacentre/factsheets/fs339/en/index.html#>
- World Health Organization. "Tuberculosis." Fact Sheet.  
<http://www.who.int/mediacentre/factsheets/fs104/en/>
- Zammit, Ann. "Development at Risk: Rethinking UN-Business Partnerships." The South Centre and UN Research Institute for Social Development. 2003. •

## APPENDIX B. THE GLOBAL BENEFITS OF PHASING OUT LEADED FUEL: EXECUTIVE SUMMARY

---

*Peter L. Tsai and Thomas H. Hatfield. The Global Benefits of Phasing Out Leaded Fuel. California State University, Northridge. 2010.*

This report reviews the literature on the benefits of phasing out leaded fuel. Health impacts are reviewed along with methodologies for assessing economic benefits. The U.S. is the most closely studied nation in the literature, but various regions are included in this review. Associated studies on lead from sources other than leaded fuel are also included. Because unleaded gasoline allowed the introduction of the catalytic converter, these associated benefits are reviewed as well.

We evaluate various methods for extrapolating from US benefits to global benefits. We argue that extrapolation based on the ratio of US GDP to world GDP is the most accurate method at this time.

The various estimates of global benefits range from \$1- \$6 trillion/year. Based on a selection of components from the most accurate studies in the literature along with extrapolation based on GDP, our best estimate of global benefits is \$2.44 trillion/year, or 4% of global GDP, with a range of \$1.74 – 2.83 trillion/year. We discuss the limitations of these estimates and provide a basis for refining the estimates as new data become available.

These benefits may also be expressed as a percentage of GDP ( $\% = \text{Benefits}/\text{GDP}$ ), and the resulting percentage may be used to disaggregate the benefits for developed versus developing nations. In nations with similar economies, benefits may be calculated using a common %GDP multiplied by a nation's GDP. In other words, the phasing out of leaded fuel plays a fundamental role in a nation's GDP. We also apply this approach to estimate the economic benefits from the subsequent use of catalytic converters.

GDP is a valuable measure of the global benefits from phasing out leaded fuel, but it is by no means the only measure. We consider the effects as they are distributed among populations, which highlight the impacts in developing countries. Each year, the phase-out of leaded fuel is expected to prevent over 125,000 childhood deaths and over a million adult deaths. Another key benefit is to prevent the loss of over 300,000 IQ points every year. This in turn prevents a variety of effects, including lead-linked crime, taxes forgone, and ADHD. Population densities around the world provide a vivid picture of how these benefits are distributed.

We also consider additional effects on our estimates, including some of the unknown effects from lead exposure, increased urbanization worldwide, and the growing impacts expected in emerging information economies. We consider how outrage factors can change willingness to pay and thereby alter our assessed values as more people become more aware of the effects from lead. Indeed, we argue that the phase-out of lead is fundamentally a human rights issue, as intellectual development is a profoundly human activity. Finally, we consider the basic limitations associated with all estimates of GDP.

We suggest approaches to refining these estimates, including a breakdown of GDP sectors in education, tax revenue, and healthcare. We also consider why these refinements ultimately may not be needed for the decision to phase out leaded gasoline. The payoff of phasing out leaded gasoline has already been well justified over a variety of assumptions and scenarios. Nevertheless, the ability to estimate benefits remains important in justifying the expenditures in nations, regions, and ultimately in global efforts by the United Nations Environment Programme's Partnership for Clean Fuels and Vehicles (UNEP-PCFV).

# APPENDIX C. OUTCOME AND INFLUENCE EVALUATION OF THE UNEP PARTNERSHIP FOR CLEAN FUELS AND VEHICLES (PCFV): EXECUTIVE SUMMARY

---

UNEP. *Outcome and Influence Evaluation of the UNEP Partnership for Clean Fuels and Vehicles (PCFV)*. 2010. <http://www.unep.org/transport/pcfV/PDF/leadphaseoutreport.pdf>.

## EXECUTIVE SUMMARY

- A. This report presents the findings of an evaluation of the contribution of the UNEP Partnership for Clean Fuels and Vehicles to the phase out of leaded petrol in Sub Saharan Africa.
- B. 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 organisations, industry and non-governmental organisations (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.
- C. There was one main objective of the initial support provided by the Partnership in Sub Saharan Africa (SSA), namely 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.
- D. 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.
- E. By the deadline of the end of 2005, the target of helping Sub Saharan Africa to be totally free of leaded petrol was attained.
- F. 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 MT190,690 by 2015 and to MT 304,770 by 2020. We cannot precisely predict how long it would have taken to achieve the phase out without the contributions of 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 and 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.

- G. 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.
- H. 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.
- I. As a member of 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 organisation in promoting regional (and even global) environmental management initiatives was invaluable in ensuring that the process occurred in a cost effective manner.
- J. 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 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 financial and other support to organisations 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.
- K. 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 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.
- L. Evaluation of the role of 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-focussed on its objectives
  - Comprehensive composition of the Partnership

- Ability to support multi-level processes
- Approach tailored to available finance
- High quality management and staff.

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

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

### *Lesson 1*

N. 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.

### *Lesson 2*

O. 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, which might work within a voluntary system.

### *Lesson 3*

P. 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
- Focused 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 timebased deadlines have been passed
- Early consideration of possible sanctions against non-compliance, which might be viable and effective within a voluntary programme of change.

# APPENDIX D. EXAMPLE INTERVIEW GUIDE

---

## **Partnership for Clean Fuels and Vehicles Evaluation Guide for Interviews with the Non Governmental Organizations May 2011**

### **Background and Approach**

The U.S. Environmental Protection Agency (US EPA) has contracted with Industrial Economics, Inc. and Ross & Associates Environmental Consulting, Ltd. to conduct a third-party evaluation to examine the Partnership for Clean Fuels and Vehicles (Partnership) Lead Campaign and learn lessons that might be transferable to other existing or future international partnerships focusing on international environmental, health, and technological outcomes.

This evaluation is focused on learning from the design and implementation of the Partnership's Lead Campaign. It will not focus on the Partnership's Low Sulphur Campaign or the Clean Vehicles Campaign, or on evaluating the Lead Campaign's effectiveness in achieving environmental and health outcomes, which have been the subject of other evaluations and reports. The evaluation is intended to complement rather than repeat previous evaluations of the Partnership. The results of this evaluation are intended primarily to inform US EPA's engagement in existing or future international partnerships; however, others will likely be able to gain insights from the findings and recommendations as well.

Please note that information shared during the interviews will be confidential. In presenting findings from interviews, the evaluation team may attribute findings to groups of interviewees, but will not attribute findings or quotes to individuals without first obtaining permission from the respective interviewees.

The following interview questions are intended to serve as a guide for our conversation and are provided in advance to spur your thinking and responses. Where possible, please be prepared to provide specific examples. Your responses are important, and we thank you for participating in the interview. If you have any questions or would like to provide any additional feedback or information, please contact:

Anna Williams

Ross & Associates Environmental Consulting, Ltd.

anna.williams@ross-assoc.com

+1 (206) 792-4032 (Seattle, Washington, USA—Pacific Daylight Time/UTC-7)

## Questions

### Topic I: Partnership Startup and Design

*Interviewees who are not familiar with the Partnership's history may skip to the later questions.*

1. To the extent that you are familiar with the Partnership's early history, please share your thoughts on why the Partnership formed.
  - a. Was there anything particularly instrumental to the Partnership's formation (e.g., political or economic conditions; timing; individuals)?
  - b. Do you think that the conditions that led to the Partnership's formation were unusual or unique? Are they replicated today in the context of other new or existing international partnerships?
2. What, if any, was your organization's role in the Partnership's formation?
3. To what extent do you think that the Partnership's voluntary, public-private structure or UNEP's role as convener and clearinghouse has influenced the Partnership's effectiveness?
  - a. Is there anything else about the Partnership's structure (e.g., governance, roles) that you think has influenced the Partnership's effectiveness?
4. Is there anything else about the Partnership's design and startup that you would like to share?

### Topic II: Partnership Implementation

5. Why did your organization join the Partnership?
  - a. What were the perceived benefits of participating?
  - b. Where there any risks or down sides to participating?
6. What role has your organization played in the Lead Campaign?
7. What roles have other partners, including UNEP and US EPA, played in Lead Campaign?
8. What roles have funding and other resource investments (by your organization or others) played in implementation of the Lead Campaign?
9. What do you think would be different (in terms of the phase out of leaded fuel) if the Partnership/Lead Campaign did not exist?

10. Is there anything not already mentioned about the Partnership's design and implementation that has significantly influenced implementation or accomplishment of the Lead Campaign's goals?

**Topic III: Partnership Learning and Improvement**

11. What obstacles did the Partnership encounter and how has the Partnership worked to address these obstacles to ensure effective implementation of the Lead Campaign?
12. If this Partnership were created today, knowing what you do now from the past several years of implementation, would you recommend changes to the Partnership's design or processes?
  - a. Is there anything else that you would you recommend be done differently?
13. Are there any other insights about the Partnership's learning and improvement that you would like to share?

**Topic IV: Partnership Key Lessons and Insights**

14. What are the most important (2-3) lessons from the Lead Campaign's implementation to date that are informing your organization's work on this partnership and other partnerships?
  - a. To what extent do you think these lessons apply generally to other partnerships?

**Topic V: Other**

15. We have already invited key people to participate in the interviews for this evaluation; however, we are interested in your ideas on the most important people to speak with to gain the deepest insights into the Partnership's design and implementation. With this in mind, are there particular individuals who you think could offer particularly important or unique perspectives for this evaluation?
16. Do you have any other feedback or reflections on the design or implementation of the Partnership that you would like to share?

# APPENDIX E. PCFV GOVERNANCE RULES

---

UNEP. "Governance Rules." <http://www.unep.org/transport/pcfV/PDF/GovcRules.pdf>. 2003.

## **1.0 The Partnership**

- 1.1 These are the rules that govern the Partnership for Clean Fuels and Vehicles, as adopted by the Partners during the Annual Partnership Meeting held on 11 and 12 December 2003 in The Hague, The Netherlands.
- 1.2 The Partnership was launched at the World Summit on Sustainable Development in Johannesburg in September 2002 by governments, international organisations, industry, and non-governmental organisations (NGOs).
- 1.3 The Partnership's goals are presented in the Mission Statement (Annex 1).

## **2.0 Membership**

- 2.1 The Partnership is open to any government, international organisation, industry organisation, non-governmental organisation or academic institution that supports the Mission Statement of the Partnership. Organizations may join as full Partners, and individuals with relevant expertise may join as Associate Partners. Associate Partners have all the same rights and responsibilities as Partners except for voting privileges.
- 2.2 Membership is subject to Advisory Group review; objections by the Advisory Group to membership applications will be forwarded to the Partnership. The same rules of procedure are necessary to suspend membership.

## **3.0 Advisory Group**

- 3.1 The Advisory Group is a representative group of all Partners established to facilitate Partnership activities.
- 3.2 The Advisory Group will be comprised of voluntary members.
- 3.3 Advisory Group members will select a Moderator.
- 3.4 The Advisory Group should strive to equally represent the diverse groups within the Partnership.
- 3.5 The duties of the Advisory Group are outlined in Annex 3.

## **4.0 Partnership Meetings**

- 4.1 Partners will meet at least on an annual basis and at such other times as deemed necessary. Meetings may be in person, by conference call or by any other means allowing decisions by a quorum. Associate Partners may attend these meetings.
- 4.2 Only Partners may vote on Partnership matters.
- 4.3 Any Partner or the Clearing-House may invite non-Partners to Partnership meetings for specific purposes and for limited discussion items. Such non-Partners will have an observer status and must agree to Chatham House rules before being allowed to attend the meeting (see Annex 4).
- 4.4 The Advisory Group will submit Financial and Progress Reports to the Partners on or before the Annual Partnership Meeting.

- 4.5 The Advisory Group will propose an Annual Budget and Workplan to the Partners for approval at the Annual Partnership Meeting.
- 4.6 The Partnership should strive for consensus in decisions, which will pass if there are no substantial objections.
- 4.7 Partners, Associate Partners and observers will be expected to cover the costs of their participation, unless the Advisory Group approves otherwise.

## **5.0 Partnership Working Groups**

- 5.1 From time to time, the Partnership may establish Working Groups to implement its mission.
- 5.2 Only Partners and Associate Partners may participate in such Working Groups, although Working Groups may consult experts from time to time. Such experts may participate in meetings only after agreeing to follow Chatham House rules (Annex 4).
- 5.3 Working Groups may elect their own Chairs.
- 5.4 Working Groups should strive for consensus in decisions, which will pass if there are no substantial objections.
- 5.5 Working Groups must try to schedule their meetings to maximise the opportunities for group member participation.
- 5.6 Working Group documents: Following completion of documents by the Working Groups, the documents shall be circulated to the entire Partnership for 30 days for review. If significant comments are received and/or major problems noted, the Working Group and its Chair will address these concerns. If deemed necessary by the Working Group, there may be a second distribution of the document to the entire Partnership. The Chair of the Working Group should highlight changes in the document so modifications are clear.
- 5.7 Working Group members may not release Working Group documents to non-Partners until the process outlined in 5.6 is completed.
- 5.8 Once approved, Working Group documents shall contain a disclaimer stating that the Working Group document does not necessarily reflect the views of all Partners.
- 5.9 Working Groups shall report their activities to the Partnership at the Annual Partnership Meeting.

## **6.0 Rules**

- 6.1 In all activities under the Partnership, including Working Groups, Advisory Group Meetings and Partnership Meetings, Chatham House rules (see Annex 4) will apply.

## **7.0 Changing Partnership Governance Rules**

- 7.1 Any Partner may propose changes to previously approved Partnership governance rules, policies, documents and the Clearing-House mandate and duties. Partners proposing such changes must have an opportunity to explain the proposed change at a Partnership meeting.
- 7.2 The Partnership may agree to a proposed change under the following voting rules:
  - 7.2.1 Proposed changes regarding matters indicated under 7.1 will be forwarded by email to the Clearing House, who will then forward it to the entire Partnership for voting. All Partners must submit their votes within 30 days of the request, and a decision will carry if supported by three-quarters of all Partners within the 30-day period.

## **8.0 The Clearing-House**

- 8.1 The mandate and duties of the Clearing-House are presented in Annex 2.
- 8.2 The Clearing-House will help the Advisory Group and Partnership Working Groups prepare for and implement any Partnership meetings.
- 8.3 The Clearing-House will help the Advisory Group prepare Annual Financial and Progress Reports and a proposed Annual Work Plan and Budget for Partnership consideration at the Annual Partnership Meeting.
- 8.4 The Clearing-House may represent the Partnership.
- 8.5 The Clearing-House is located at UNEP Headquarters in Nairobi, Kenya. P.O Box 30552 Nairobi, KENYA Tel: +254-20-624-184 Fax: +254-20-624-324

## **9.0 Conflict Resolution**

- 9.1 In the event of a conflict that arises between Partners, which is not covered under the Governance Rules, the following process shall be followed:
  - 9.1.1 Partners with grievances shall submit their respective grievances to the Advisory Group.
  - 9.1.2 The Advisory Group will discuss the situation with each party, then come to a decision regarding the conflict.

## **10.0 Legal Liability**

- 10.1 Neither the Partnership nor any of the Partners can be held liable for any direct, incidental, consequential, indirect, or punitive damages arising out of any activity, policy, and or other action undertaken by any party, including Partners, that pertain to the Partnership and its functioning.

## **11.0 Public Communications**

- 11.1 Any Partner, Associate Partner or Advisory Group member who speaks publicly about the Partnership and who is not a designated spokesperson must make it known that he or she is representing only his or her own views and not that of the full Partnership.
- 11.2 The Clearing-House will help the Partnership communicate with the public, including with the media, consistent with its mandates and duties.

## **ANNEX I – Partnership Mission Statement**

- a. Help developing countries to develop action plans to complete the global elimination of leaded gasoline and start to phase down sulphur in diesel and gasoline fuels, concurrent with adopting cleaner vehicle requirements;
- b. Support the development and adoption of cleaner fuel standards and cleaner vehicle requirements by providing a platform for exchange of experiences and successful practices in developed and developing countries as well as technical assistance;
- c. Develop public outreach materials, educational programmes, and awareness campaigns; adapt economic and planning tools for clean fuels and vehicles analyses in local settings; and support the development of enforcement and compliance programmes, with an initial focus on fuel adulteration; and

- d. Foster key partnerships between government, industry, NGOs, and other interested parties within a country and between countries to facilitate the implementation of cleaner fuel and vehicle commitments.

## **ANNEX 2 – CLEARING-HOUSE MANDATE**

The Partners assigned the following tasks to the Clearing-House:

- share and disseminate information to the Partners on relevant issues;
- operate and maintain a website to provide easy access to information, Partner activities, and resources;
- provide logistics for Partnership activities and events: workshops, technical assistance activities, etc;
- provide administrative help to Partners;
- maintain contacts in developing countries;
- help to gather appropriate information for countries;
- liaise with the other existing groups working on related activities;
- help to bring in new partners or participants in Partnership activities;
- develop and disseminate public outreach materials about the Partnership, along with technical materials for the developing countries;
- help to bring developing country NGOs, universities, and governments into the Partnership or its activities; and
- support Partners, at their request, in addressing the tasks above.

## **ANNEX 3 – DUTIES OF ADVISORY GROUP**

Duties of the Advisory Group include:

- Preparing the proposed Annual Budget and Workplan and the Annual Financial and Progress Report for approval by the Partnership
- Reviewing and approving new memberships and forwarding to the Partnership those requests that require further consideration.
- Deciding, after consultation with the Partners, the date and location of Partner meetings
- Establishing agendas for Partnership Meetings
- Assist with resolving conflicts as required
- Reviewing the Newsletter, as forwarded by the Clearing-House
- Serving as the public spokesperson for the Partnership
- Designating additional spokespersons for specific issues, projects or regional activities, as needed
- Advise the Clearing-House as required

#### **ANNEX 4 – CHATHAM HOUSE RULES**

Participants are free to use the information or opinions disclosed to them during Partnership meetings and Working Group meetings, subject to two conditions:

- a. Neither the identity nor the affiliation of the speakers, nor that of any other participant at that meeting may be revealed.
- b. It may not be divulged that the information was received at that meeting.

## APPENDIX F. LIST OF PCFV PARTNERS

---

Provided by UNEP PCFV Clearing House. 2011.

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. Egerton University
28. El Salvador Daily News
29. Energy and Environment Saving Ventures
30. Engine Manufacturers Association
31. Environment Australia
32. Environment Canada
33. Environmental and Energy Technology and Policy Institute
34. Environmental Defense
35. Environmental Liaison Centre International (ELCI)
36. European Commission
37. European Fuel Oxygenates Association
38. FIA Foundation

39. Fleet Forum
40. Forum For Environment
41. Ghana Environmental Protection Agency
42. Global Environment and Technology Foundation
43. Indonesian Ministry of Environment
44. Institute of Environmental Studies (IES) Albania
45. Institute of Petroleum Studies
46. International Energy Agency (IEA)
47. International Fuel Quality Center
48. International Petroleum Industry Environment Conservation Association (IPIECA)
49. Israel Ministry of Environmental Protection
50. Italy Ministry of Environment and Territory
51. Jane Armstrong, Associate Partner
52. Japan Automobile Manufacturers Association
53. Japan Petroleum Energy Center (JPEC)
54. Kenya Auto Bazaar Association
55. Kjaer Group A/S
56. Komite Penghapusan Bensin Bertimbel (KPBB)
57. Korean Ministry of Environment (MoE)
58. Kukulkan Foundation
59. Lagos Metropolitan Area Transport Authority (LAMATA)
60. Lao PDR, Ministry of Public Works and Transport
61. Lawyers' Environmental Action Team (LEAT)
62. Lubrizol Corporation
63. Manufacturers of Emission Control Association (MECA)
64. Mexican Center for Environmental Law, A.C. (CEMDA)
65. Mexico - Instituto Nacional de Ecologia (INE)
66. Mexico Office for Environment and Natural Resources (SEMARNAT)
67. Michael Walsh, Associate Partner
68. Ministry of Environmental Protection (MEP, China)
69. Mongolia, Ministry of Nature, Environment and Tourism
70. Mozambique Ministry for Coordination of Environmental Affairs
71. National Association of Automobile Manufacturers of South Africa (NAAMSA)
72. National Automotive Council (Nigeria Ministry of Industry)
73. National Environment Management Authority (NEMA) - Kenya
74. Natural Resources Defense Council (NRDC)
75. Navistar Inc.
76. Netherlands Ministry of Housing, Spatial Planning & Environment (VROM)
77. Nigeria Federal Ministry of Environment
78. Observatoire du Sahara et du Sahel / The Sahara and Sahel Observatory (OSS)
79. Organisation Internationale des Constructeurs d'Automobiles (OICA)
80. Pan American Health Organization (PAHO)
81. Petrobras

82. Petroleum Corporation of Jamaica
83. Petroleum Institute of East Africa (PIEA)
84. Pontifical Catholic University of Rio de Janeiro
85. Regional Environment Centre for Central and Eastern Europe (RECCEE)
86. Regional Environmental Centre for the Caucasus (REC Caucasus)
87. Rupesh Kumar Sah, Associate Partner
88. Salzburg AG Utilities UAE FZE
89. Scientific and Research Institute of Motor Transport (NIIAT)
90. Serbian Chamber of Commerce
91. Society of Indian Automobile Manufacturers (SIAM)
92. Somali Ministry of Environment and Disaster Management
93. South Africa Dept. of Minerals & Energy
94. South African Petroleum Industry Association (SAPIA)
95. South Asia Co-operative Environment Programme (SACEP)
96. Southern Centre for Energy and Environment
97. Standards Organization of Nigeria (SON)
98. Thailand Ministry of Natural Resources and Environment (MoNRE)
99. The Clean Air Initiative for Asian Cities Center (CAI-Asia)
100. The Clean Air Institute/Clean Air Initiative for Latin American Cities
101. The Climate and carbon Market Department of the Environment Secretary of Rio de Janeiro State
102. The LEAD Group
103. The LEVON Group
104. TNT
105. Tracerco, U.K.
106. Trust For Lead Poisoning Prevention
107. U.S. Agency for International Development
108. U.S. Department of Energy
109. U.S. Environmental Protection Agency
110. United Nations Dept for Economic & Social Affairs (UNDESA)
111. United Nations Environment Programme (UNEP)
112. United Nations Industrial Development Organization (UNIDO)
113. United Nations World Food Programme (WFP)
114. Universidad Nacional de Colombia
115. Vanilla-Jatropha Development Foundation (VJDF)
116. VBD Automotive Technologies
117. World Resources Institute (WRI)
118. Yemen Environment Protection Authority

## APPENDIX G. PCFV LEAD CAMPAIGN NATIONAL AND REGIONAL ACTIVITIES THROUGH 2009

United Nations Environment Programme. "PCFV Lead Campaign National and Regional Activities." 2002-2009.

### PCFV LEAD CAMPAIGN NATIONAL AND REGIONAL ACTIVITIES<sup>105</sup>

#### Summary

Activity	Total
Lead SSFAs <sup>106</sup> /MOUs <sup>107</sup> (2004-2009)	32
National lead activities (2002-2009)	39
Countries supported for national activities	30
Countries supported in regional and sub-regional lead activities (2002-2009)	67
Total number of countries supported in lead activities (whether at national, sub regional & regional level)	77

#### Lead SSFAs/MOUs (2004-2009)

	Country	Region	Activity	Year
1.	Burundi	Africa	Lead phase out workshop	2004
2.	Benin	Africa	Lead phase out workshop	2004
3.	Kenya	Africa	Training on unleaded gasoline for petrol attendants	2004
4.	Rwanda	Africa	Public awareness campaign	2004
5.	CEE (coordinated by REC)	CEE <sup>108</sup>	Activities on vehicles and fuels in the region including lead	2005
6.	Djibouti	Africa	lead phase out workshop	2005
7.	Gambia	Africa	Lead phase out workshop and public awareness campaign	2005
8.	Ghana	Africa	Air quality monitoring project	2005
9.	Indonesia	AP <sup>109</sup>	Public awareness on unleaded fuels	2005
10.	Kenya	Africa	Workshop and public awareness on unleaded fuels	2005
11.	Tanzania	Africa	Public awareness campaign (LEAT)	2005
12.	Togo	Africa	Lead phase out workshop	2005
13.	Uganda	Africa	Lead phase out workshop/ public awareness	2005
14.	Yemen	MENAWA <sup>110</sup>	Lead assessment and lead exposure studies	2005
15.	Ghana	Africa	air quality monitoring project	2006

<sup>105</sup> United Nations Environment Programme. "PCFV Lead Campaign National and Regional Activities." 2002-2009.

<sup>106</sup> Small Scale Funding Agreements

<sup>107</sup> Memorandum of Understanding

<sup>108</sup> Central and Eastern Europe

<sup>109</sup> Asia and the Pacific

<sup>110</sup> Middle East, North Africa, and West Asia

16.	Ghana	Africa	Blood lead testing	2006
17.	Malawi	Africa	Public awareness	2006
18.	Malawi	Africa	Support to task team preparing draft standards	2006
19.	Mozambique	Africa	Public awareness on unleaded fuels	2006
20.	Tanzania	Africa	Air quality monitoring project	2006
21.	Zambia	Africa	Public awareness on unleaded fuels	2006
22.	Indonesia	AP	BLL (capacity building support)	2007
23.	Afghanistan		Lead testing	2007
24.	Eastern Europe, Caucasus and central Asia (REC Caucasus)	CEE	Workshop on clean fuel and vehicles including lead phase out	2007
25.	Jordan	MENAWA	Public awareness on unleaded fuels and capacity building	2007
26.	Serbia and Macedonia (REC HQ)	CEE	BLL and lead phase out activities	2007
27.	Morocco	MENAWA	Lead phase out workshop and public awareness campaign	2008
28.	Bosnia and Herzegovina (REC CEE)	CEE	Capacity building	2008
29.	Montenegro (REC)	CEE	Lead phase out campaign and develop vehicle and fuel standards	2009
30.	South East Europe (Bosnia, Herzegovina, Macedonia, Montenegro, Serbia) (REC HQ)	CEE	Cleaner fuels and vehicles activities including lead phase out	2009
31.	Tajikistan	AP	National workshop on lead phase out	2009
32.	Tunisia (with participation of Algeria and Morocco)	Africa	Sub-regional workshop on lead phase out	2009
	<b>Total MOUs/ SSFAs (32)</b>			

#### National lead activities (2002-2009)

	Country	Region	Year	Activity
1.	Nigeria	Africa	2001	Lead phase out workshop
2.	DR Congo	Africa	2002	Lead phase out workshop
3.	Ethiopia	Africa	2003	Lead phase out workshop
4.	Mauritania	Africa	2003	Lead phase out workshop
5.	Tanzania	Africa	2003	Lead phase out workshop
6.	Benin	Africa	2004	Lead phase out workshop
7.	Burundi	Africa	2004	Lead phase out workshop
8.	Kenya	Africa	2004	Training on unleaded gasoline for petrol attendants
9.	Rwanda	Africa	2004	Public awareness campaign
10.	Djibouti	Africa	2005	Lead phase out workshop
11.	Gambia	Africa	2005	Lead phase out workshop and public awareness campaign
12.	Ghana	Africa	2005	Air quality monitoring project
13.	Indonesia	AP	2005	Public awareness on unleaded fuels
14.	Kenya	Africa	2005	Workshop and public awareness on unleaded fuels
15.	Tanzania	Africa	2005	Public awareness campaign (LEAT)
16.	Togo	Africa	2005	Lead phase out workshop
17.	Uganda	Africa	2005	Lead phase out workshop/ public awareness

	Country	Region	Year	Activity
18.	Yemen	MENAWA	2005	Lead assessment and lead exposure studies
19.	Ghana	Africa	2006	air quality monitoring project
20.	Ghana	Africa	2006	Blood lead testing
21.	Malawi	Africa	2006	Public awareness
22.	Malawi	Africa	2006	Support to task team preparing draft standards
23.	Mozambique	Africa	2006	Public awareness on unleaded fuels
24.	Serbia	CEE	2006	Capacity building
25.	Tanzania	Africa	2006	Air quality monitoring project
26.	Zambia	Africa	2006	Public awareness on unleaded fuels
27.	Afghanistan		2007	Lead testing
28.	Indonesia	AP	2007	BLL (capacity building support)
29.	Jordan	MENAWA	2007	Public awareness on unleaded fuels and capacity building
30.	Macedonia	CEE	2007	BLL and lead phase out activities
31.	Serbia	CEE	2007	BLL and lead phase out activities
32.	Bosnia	CEE	2008	Capacity building
33.	Herzegovina	CEE	2008	Capacity building
34.	Jordan	MENAWA	2008	Capacity building
35.	Laos	AP	2008	Capacity building
36.	Mongolia	AP	2008	Capacity building
37.	Morocco	MENAWA	2008	Lead phase out workshop and public awareness campaign
38.	Montenegro	CEE	2009	Lead phase out campaign and develop vehicle and fuel standards
39.	Tajikistan	AP	2009	National workshop on lead phase out
<b>Total (39 national activities 2002-2009)</b>				

#### Countries supported in regional and sub-regional lead activities (2002-2009)

	Country	Region	Activity	Date
1.	Mali	Africa	Technical Experts Group Meeting on the Phase Out of Leaded Gasoline in Sub-Saharan African Countries	27-29 March 2003 Bamako, Mali
2.	Benin	"	"	"
3.	Ethiopia	"	"	"
4.	Gabon	"	"	"
5.	Kenya	"	"	"
6.	Mauritania	"	"	"
7.	Senegal	"	"	"
8.	South Africa	"	"	"
9.	Tanzania	"	"	"
10.	Togo	"	"	"
11.	South Africa	Africa	SADC Sub-regional Workshop for the Phase-Out of Leaded Gasoline	6-7 October 2003, South Africa
12.	Angola	"	"	"
13.	Cameroon	"	"	"
14.	DR Congo	"	"	"
15.	Ghana	"	"	"
16.	Lesotho	"	"	"
17.	Madagascar	"	"	"

	Country	Region	Activity	Date
18.	Malawi	"	"	"
19.	Mauritius	"	"	"
20.	Mozambique	"	"	"
21.	Tanzania	"	"	"
22.	Zambia	"	"	"
23.	Zimbabwe	"	"	"
24.	Cameroon	Africa	Confrence sous-regionale sur l'elimination du plomb dans l'essence en Afrique de l'Ouest et Centrale	16-17 March 2004 Douala, Cameroon
25.	Angola	"	"	"
26.	Central Africa Republic	"	"	"
27.	Congo Brazaville	"	"	"
28.	DR Congo	"	"	"
29.	Gabon	"	"	"
30.	Tunisia	Africa	Sub-regional Workshop for North African states on the phase-out of leaded gasoline	14 -16 August 2008, Tunis, Tunisia
31.	Algeria	"	"	"
32.	Morocco	"	"	"
33.	Egypt	MENAWA	Policy Development Meeting for the Middle East and North Africa	June 2006, Cairo, Egypt
34.	Bahrain	"	"	"
35.	Iran	"	"	"
36.	Jordan	"	"	"
37.	Lebanon	"	"	"
38.	Libya	"	"	"
39.	Morocco	"	"	"
40.	Saudi Arabia	"	"	"
41.	South Africa	"	"	"
42.	Syria	"	"	"
43.	Tunisia	"	"	"
44.	Yemen	"	"	"
45.	Bahrain	MENAWA	Gulf Cooperation Council (GCC) Policy Development meeting on Clean Fuels and Vehicles	12-13 March 2008, Manama, Bahrain
46.	Egypt	"	"	"
47.	Jordan	"	"	"
48.	Kuwait	"	"	"
49.	Lebanon	"	"	"
50.	Libya	"	"	"
51.	Morocco	"	"	"
52.	Oman	"	"	"
53.	Palestine	"	"	"
54.	Saudi Arabia	"	"	"
55.	Syria	"	"	"
56.	Tunisia	"	"	"
57.	Yemen	"	"	"
58.	UAE	"	"	"

	Country	Region	Activity	Date
59.	Georgia	CEE	Conference on Cleaner Fuels and Vehicles for Eastern Europe, Caucasus and Central Asia (EECCA)	24-25 January, 2008, Tbilisi, Georgia
60.	Armenia	"	"	"
61.	Azerbaijan	"	"	"
62.	Hungary	"	"	"
63.	Kazakhstan	"	"	"
64.	Kyrgyzstan	"	"	"
65.	Macedonia	"	"	"
66.	Moldova	"	"	"
67.	Russia	"	"	"
68.	Turkmenistan	"	"	"
69.	Uzbekistan	"	"	"
70.	Macedonia	CEE	Sub Regional Meeting on Lead Phase-Out in Southeast Europe	12-13 February 2009, Ohrid, FYR Macedonia
71.	Bosnia	"	"	"
72.	Herzegovina	"	"	"
73.	Serbia	"	"	"
74.	Montenegro	"	"	"
75.	Hungary		Central and Eastern Europe & Turkey Workshop on Clean Fuels & Vehicles,	27-28 October, 2005 Szentendre Hungary
76.	Albania	"	"	"
77.	Bosnia	"	"	"
78.	Herzegovina	"	"	"
79.	Czech republic	"	"	"
80.	Estonia	"	"	"
81.	Bulgaria	"	"	"
82.	Latvia	"	"	"
83.	Lithuania	"	"	"
84.	Macedonia	"	"	"
85.	Romania	"	"	"
86.	Serbia	"	"	"
87.	Montenegro	"	"	"
88.	Slovakia	"	"	"
89.	Slovenia	"	"	"
90.	Turkey	"	"	"
91.	Bosnia	CEE	South East Europe Cleaner fuels and vehicles activities including lead phase out coordinated by REC HQ	2009
92.	Herzegovina	"	"	"
93.	Macedonia	"	"	"
94.	Montenegro	"	"	"
95.	Serbia	"	"	"
96.	Tunisia	Africa	Sub-regional workshop on lead phase out	14-16 August 2008
97.	Algeria	"	"	"
98.	Morocco	"	"	"
99.	Lebanon		Clean Fuels and Vehicles in Western Asia,	15-17 March 2004

	Country	Region	Activity	Date
			Beirut Lebanon 2004 regional workshop	
100.	Algeria	"	"	"
101.	Bahrain	"	"	"
102.	Egypt	"	"	"
103.	Iraq	"	"	"
104.	Jordan	"	"	"
105.	Kuwait	"	"	"
106.	Morocco	"	"	"
107.	Oman	"	"	"
108.	Palestine	"	"	"
109.	Saudi Arabia	"	"	"
110.	Syria	"	"	"
111.	Tunisia	"	"	"
112.	Kenya	Africa	Sub-regional Workshop on the Phasing out of Leaded Gasoline in East Africa	June 2002
113.	Senegal	Africa	Dakar sub-regional workshop	March 2002
114.	Benin	Africa	Sub regional workshop	2002
115.	Mali	Africa	SSA Refining Experts Meeting	2003
116.	South Africa	Africa	SSA Phase II of UNEP's Leaded Petrol Phase-out Programme Launch	2003
117.	Kenya	Africa	Sub-Saharan Africa Conference ("Dakar +2")	2004
118.	Italy	CEE	Central and Eastern Europe Partnership event	2004
119.	Serbia	CEE	Cleaner Fuels and Vehicles at the Environment for Europe Ministerial Conference Belgrade participants list not available	10-12 October, 2007
120.	Eastern Europe, Caucasus and central Asia (REC Caucasus)	CEE	Sub-regional workshop on clean fuel and vehicles including lead phase out	2007
121.	CEE (coordinated by REC)	CEE	Activities on vehicles and fuels in the region including lead	2005
<b>Total (67 countries supported 2002-2009) 22 sub-regional activities</b>				