



**CLIMATE &
CLEAN AIR
COALITION**

TO REDUCE SHORT-LIVED
CLIMATE POLLUTANTS

Reducing Black Carbon Emissions from Heavy-duty Diesel Vehicles and Engines

RESULTS TO DATE AND STRATEGY FOR CONTINUED SUCCESS

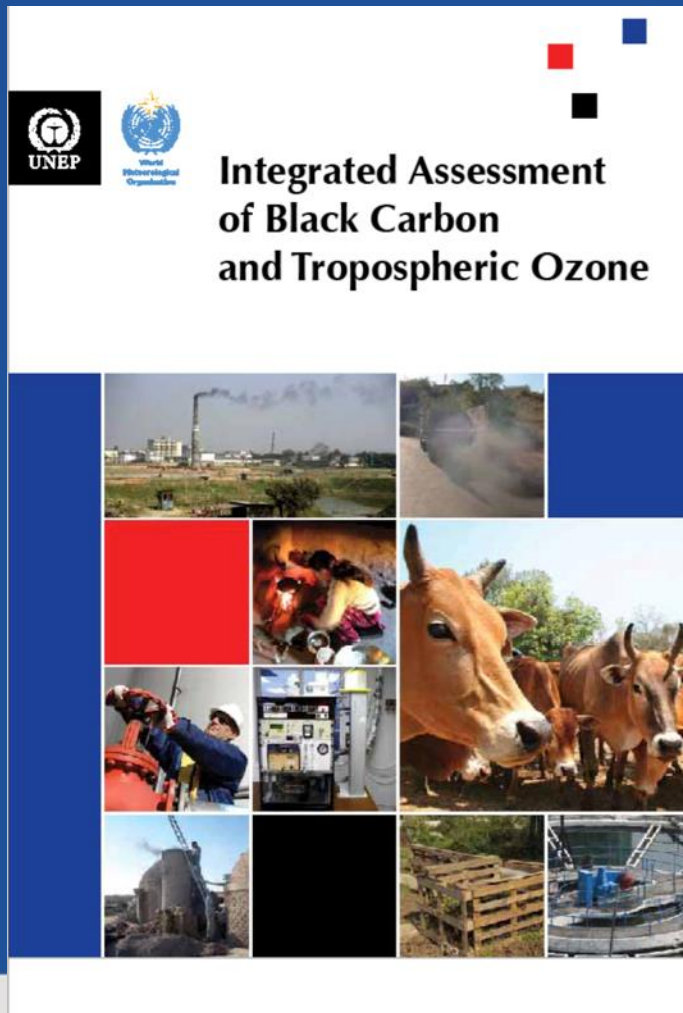
Topics

- Initiative overview
- Project highlights
 - A global action plan for Green Freight
 - Global clean ports
 - Progress towards marine BC control
 - Commitments to soot-free bus fleets
 - East Africa desulfurizes its fuels
- Spotlight: Global Sulfur Strategy

<http://ccacoalition.org/en/content/global-sulfur-strategy>



Overview: Why focus on diesel vehicles and engines



Diesel BC measures among 16 win-win strategies to address SLCs

Diesel BC measures among 16 total measures to reduce radiative forcing from short-lived substances

1. Diesel particulate filters as part of a Euro 6/VI package for road and off-road diesel vehicles
2. Elimination of high-emitting vehicles in on-road and off-road transport

Shindell, D., Ramanathan, V., Raes, F., Cifuentes, L., & Kim Oanh, N. T. (2011). *Integrated assessment of black carbon and tropospheric ozone* (pp. 1–285). Nairobi: UNEP and WMO. Retrieved from <http://www.unep.org/dewa/Assessments/Ecosystems/ClimateChange/tabid/7002/Default.aspx>



Overview: Why focus on diesel vehicles and engines

Diesel engines are a key target for health reasons



“The scientific evidence was compelling and the Working Group’s conclusion was unanimous: diesel engine exhaust causes lung cancer in humans.”

-Dr. Christopher Portier

International Agency for Research on Cancer

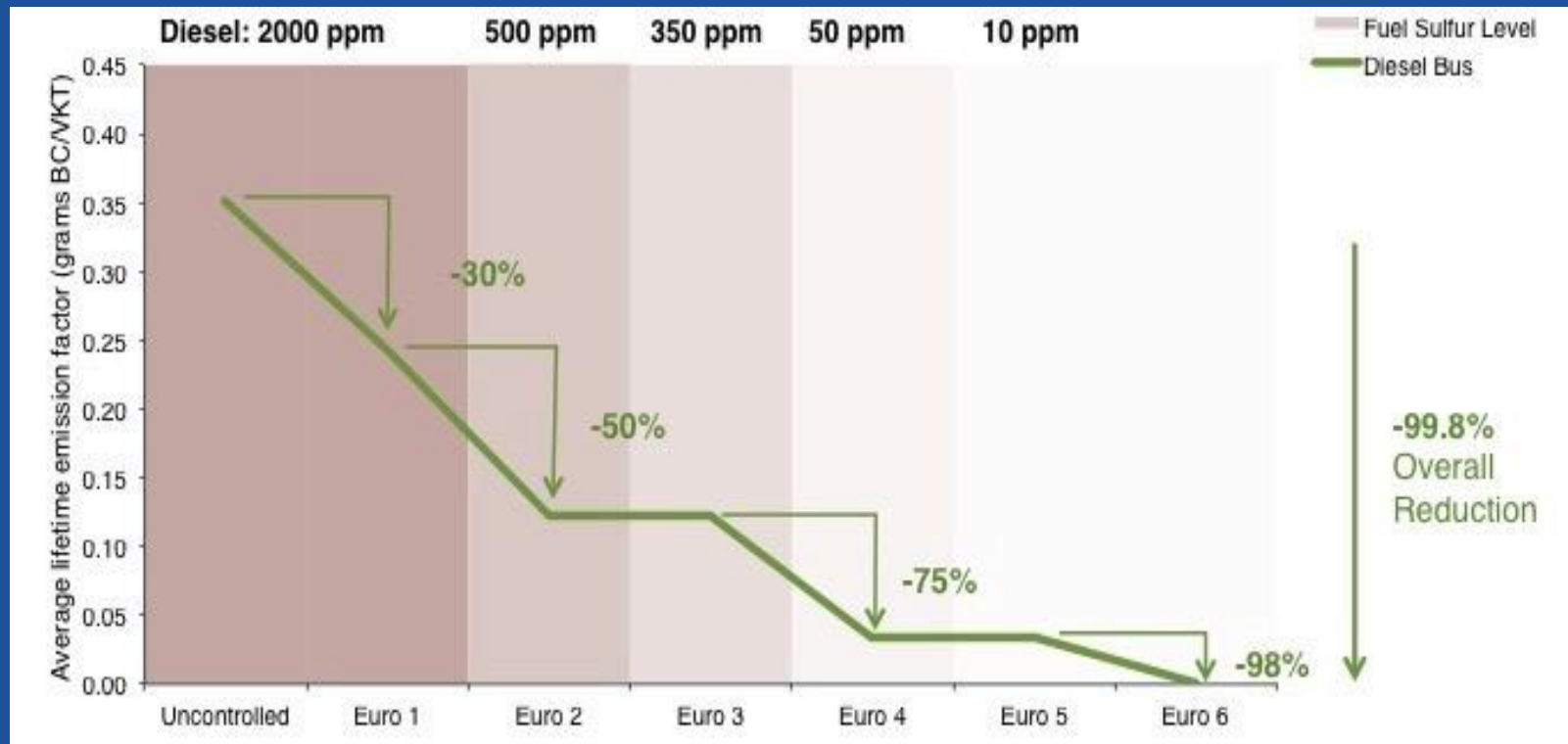


International Agency for Research on Cancer. (2012, June 12). IARC: Diesel Engine Exhaust Carcinogenic. JNCI Journal of the National Cancer Institute. Lyon, France: World Health Organization. doi:10.1093/jnci/djs034



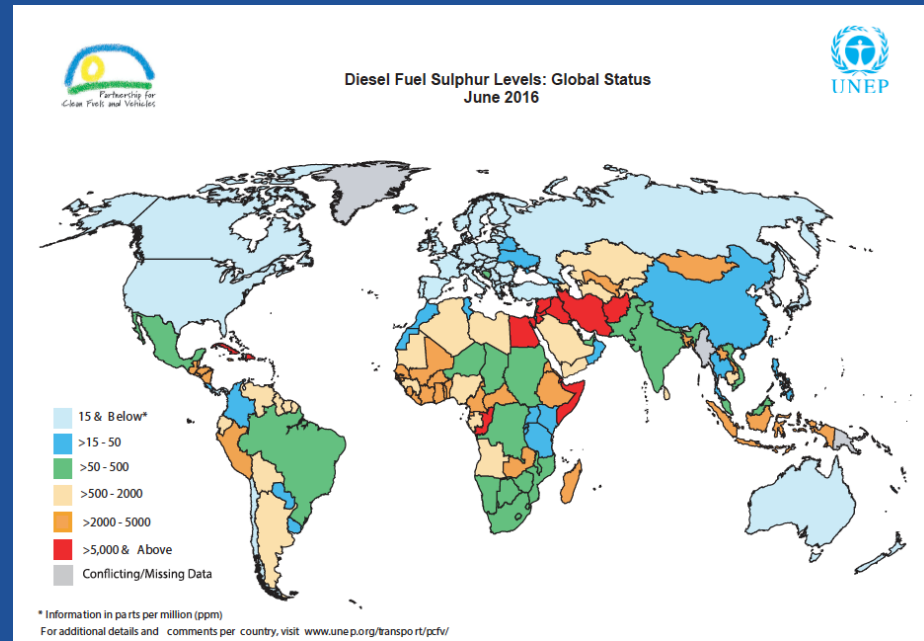
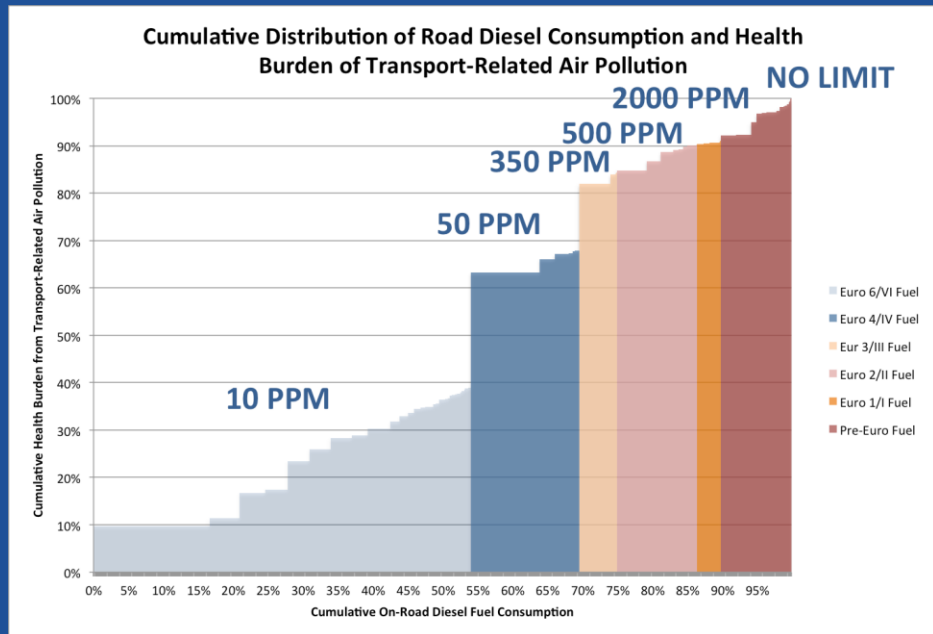
Overview: Why focus on diesel vehicles and engines

Stages of Black Carbon Emissions Control Based on European Regulatory Approach to heavy-duty diesel engines



Overview: Why focus on diesel vehicles and engines

Deployment of low sulfur fuels needs to be accelerated



Overview: Why focus on diesel vehicles and engines

More stringent standards for diesel fuel and vehicles would reduce cumulative emissions of diesel BC by an estimated 7.1 million metric tons through the year 2050, or by over 85% throughout developing regions by 2050.

	2020		2030		2050	
	Black Carbon Reduction	Net climate benefit	Black Carbon Reduction	Net climate benefit	Black Carbon Reduction	Net climate benefit
Accelerated desulfurization scenario	.02 (.04)	16 (30)	.17 (1.0)	130 (780)	.41 (7.1)	320 (5,500)

Annual (and cumulative) reductions in black carbon emissions (millions of metric tons) and net climate benefit (millions of metric tons CO₂-equivalent, based on GWP-100) through low sulfur diesel and emission standards



Overview: What the Diesel Initiative does

Diesel Initiative

Reduce Black Carbon emissions from diesel engines and vehicles

Low sulfur fuel standards

Support adoption of low sulfur diesel fuel standards

National emission standards

Support adoption of advanced emissions standards

Focus areas

Targeted efforts in key high emissions sectors

Implement

Global Sulfur Strategy



Ports & marine



Green Freight



Urban buses



In-use fleets

LEAD PARTNERS: Canada, Switzerland, United States, ICCT and UNEP

IMPLEMENTERS: UNEP and ICCT

Initiative homepage: <http://ccacoalition.org/en/initiatives/diesel>



Overview: Where we work

- **Targeted national and regional support on clean fuel and vehicle standards**
Mexico, China, Indonesia, East Africa, Western and Southern Africa, and Latin America
- **Global efforts**
Global Sulfur Strategy, Global Green Freight Action Plan, Global Strategy for Ports and Maritime Vessels
- **Targeted support on the ports' project**
Bangladesh (Port of Chittagong), Chile (Port of Valparaíso), Ghana (Port of Tema), Jordan (Port of Aqaba)
- **Targeted support on Green Freight Strategy**
Bangladesh, Mexico, Vietnam
- **Targeted action on soot free bus fleets in 20 cities**
Abidjan, Accra, Addis Ababa, Bangkok, Bogotá, Buenos Aires, Dar es Salaam, Dhaka, Istanbul, Jakarta, Johannesburg, Lagos, Lima, Manila, Mexico City, Nairobi, Santiago, Sao Paulo and Sydney



Overview: The Diesel Initiative in numbers

Outputs

21 political outreach events
21 media coverage events
11 knowledge resources and tools

Outcomes

154 strengthened institutions
5 laws and regulations
10 policies and plans
2 changes in technologies and practices
58 commitments

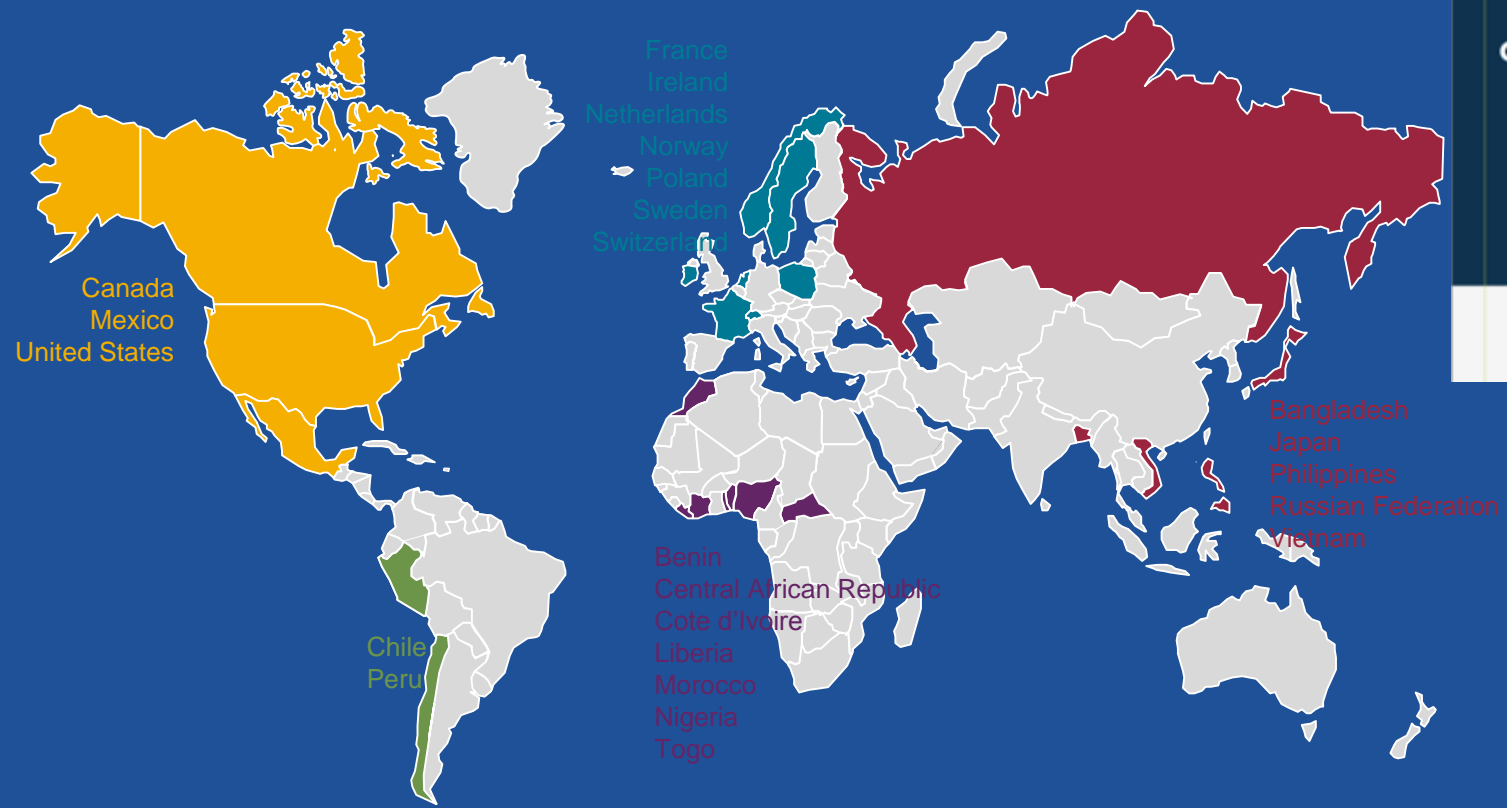
Potential impact

Global Sulfur Strategy in 2030:
1 MMT BC /780 MMT CO₂e GWP₁₀₀ cumulative
100,000 fewer deaths per year

Ports/Marine Strategy in 2030:
0.15 MMT BC/ 8 MMT CO₂e GWP 100 cumulative



Highlight: Over 50 organizations and countries have pledged their support to the Global Green Freight Action Plan



Action Plan Available at: <http://www.globalgreenfreight.org/>



Highlight: Soot-free bus fleets



Committed
Not Committed
as of July 2016

≡ LATERCERA

FORGET CHARGING YOUR VOLT
JUST PARK

Nacional

Las nuevas medidas para el plan de descontaminación para la RM

A partir del año 2017 se le exigirá al Transantiago la norma Euro VI que permitirá disminuir sus emisiones contaminantes en un 75%.

José Irrazábal
05 de enero del 2016 / 11:17 hrs

The Jakarta Post

Thursday, Jul 21, 2016 | Video | 29°C

NEWS SEASIA COMMUNITY ACADEMIA LIFE TRAVEL YOUTH MUL
POLITICS BUSINESS WORLD NATIONAL CITY

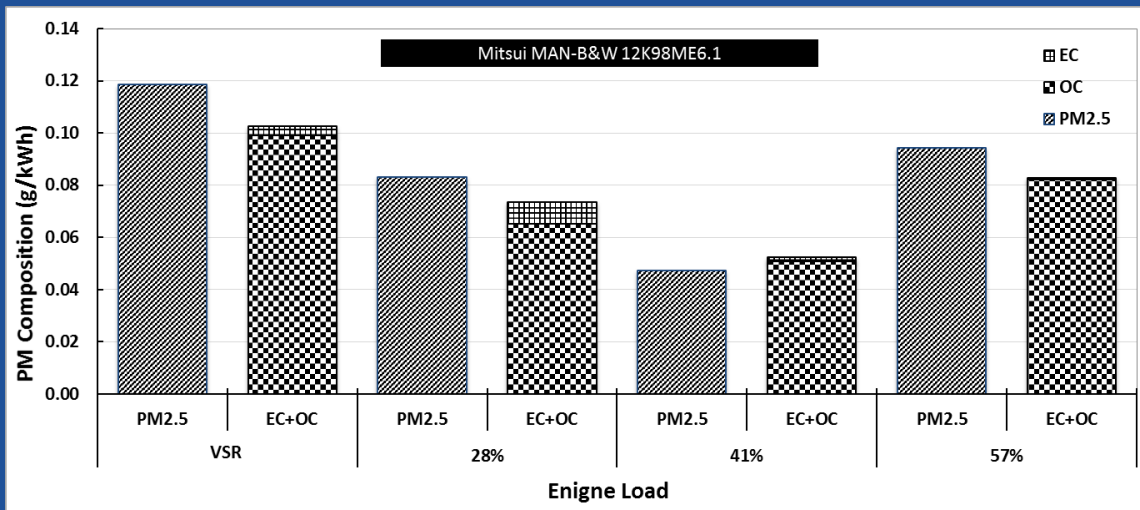
NEWS • CITY

City turns to Europe to improve Transjakarta service

Sita W. Dewi
The Jakarta Post
Jakarta | Fri



Highlight: Building global consensus on definition, measurement and control of marine BC



Highlight: Global Clean Ports initiative

United Nations Environment Programme
environment for development

Climate Change, Disasters & Conflicts, Ecosystem Management, Environmental Governance, Chemicals & Waste, Resource Efficiency, Environment Under Review

GLOBAL CLEAN PORTS
Reducing air pollution from ports in low and middle income countries

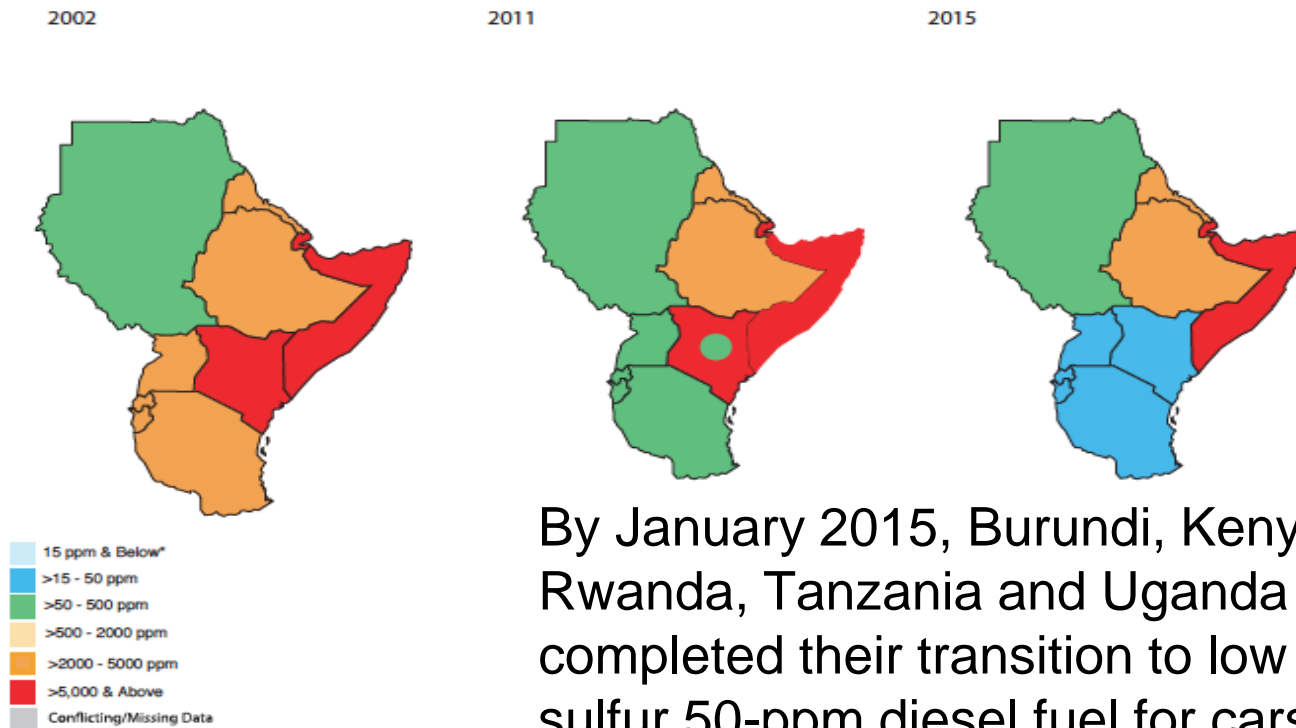


Initiative homepage: <http://www.unep.org/Transport/ports/index.asp>



Highlight: East Africa desulfurizes

EAST AFRICA LOW SULFUR FUELS TRANSITION



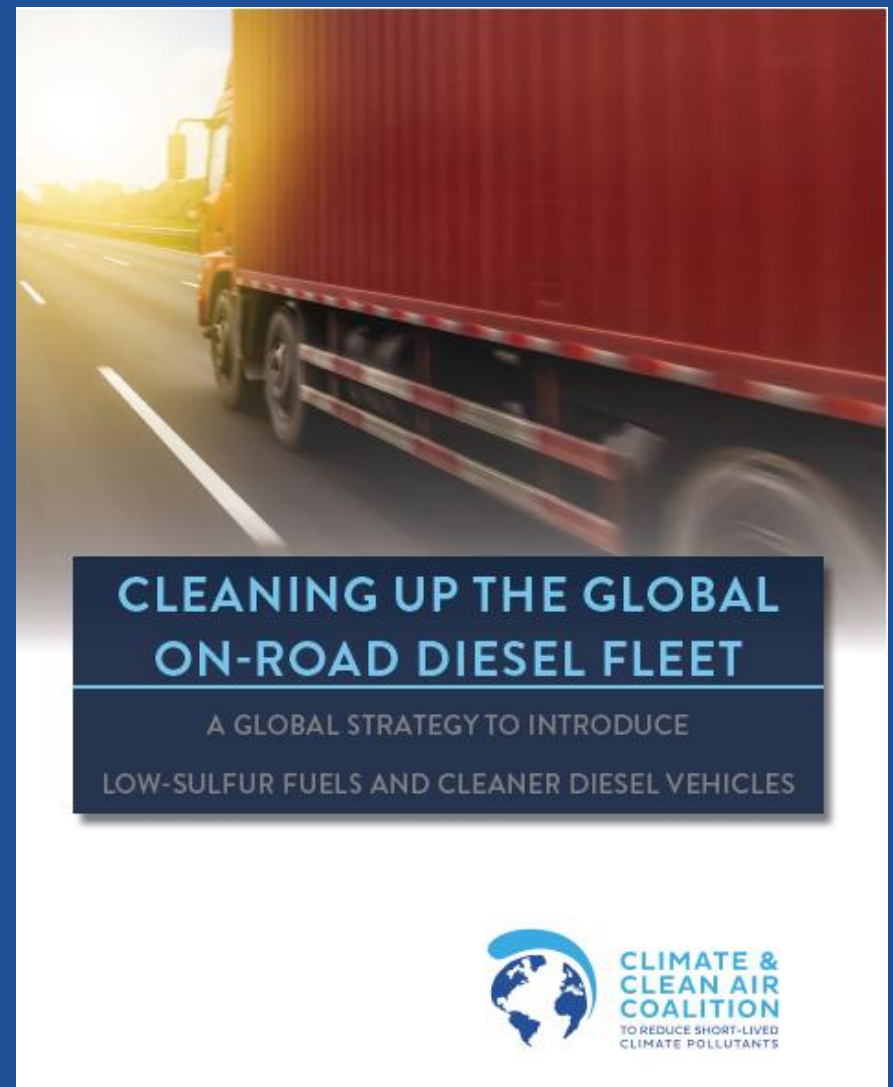
* Information in parts per million (ppm)
For additional details and comments per country, visit www.unep.org/transport/pch/

By January 2015, Burundi, Kenya, Rwanda, Tanzania and Uganda completed their transition to low sulfur 50-ppm diesel fuel for cars, trucks and buses



Spotlight:

Global Strategy to Introduce Low-Sulfur Fuels and Cleaner Diesel Vehicles



Strategy Available at: <http://ccacoalition.org/en/content/global-sulfur-strategy/>



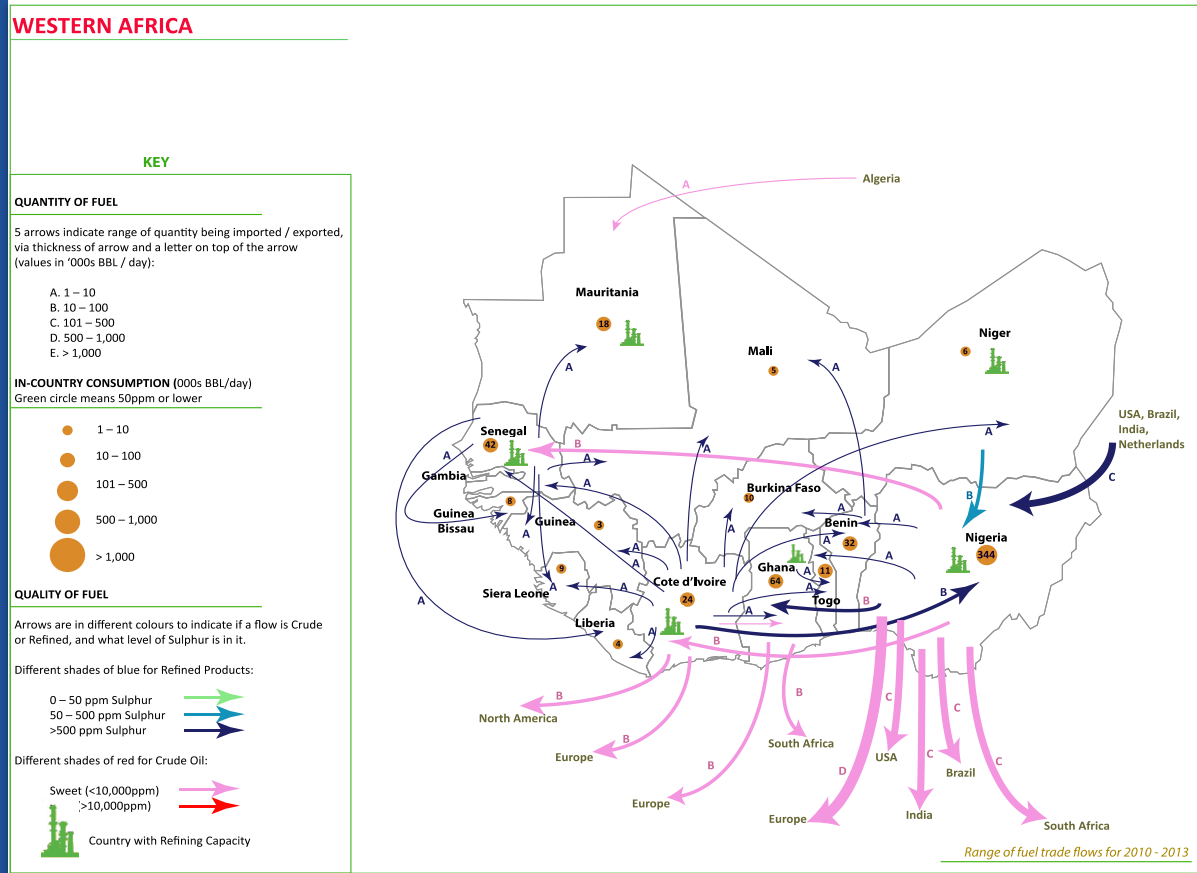
What: Objectives & targets

To significantly improve health and reduce SLCP by reducing PM/ BC emissions from the global HDD fleet through the introduction of low sulfur fuels and advanced vehicles standards for heavy duty vehicles



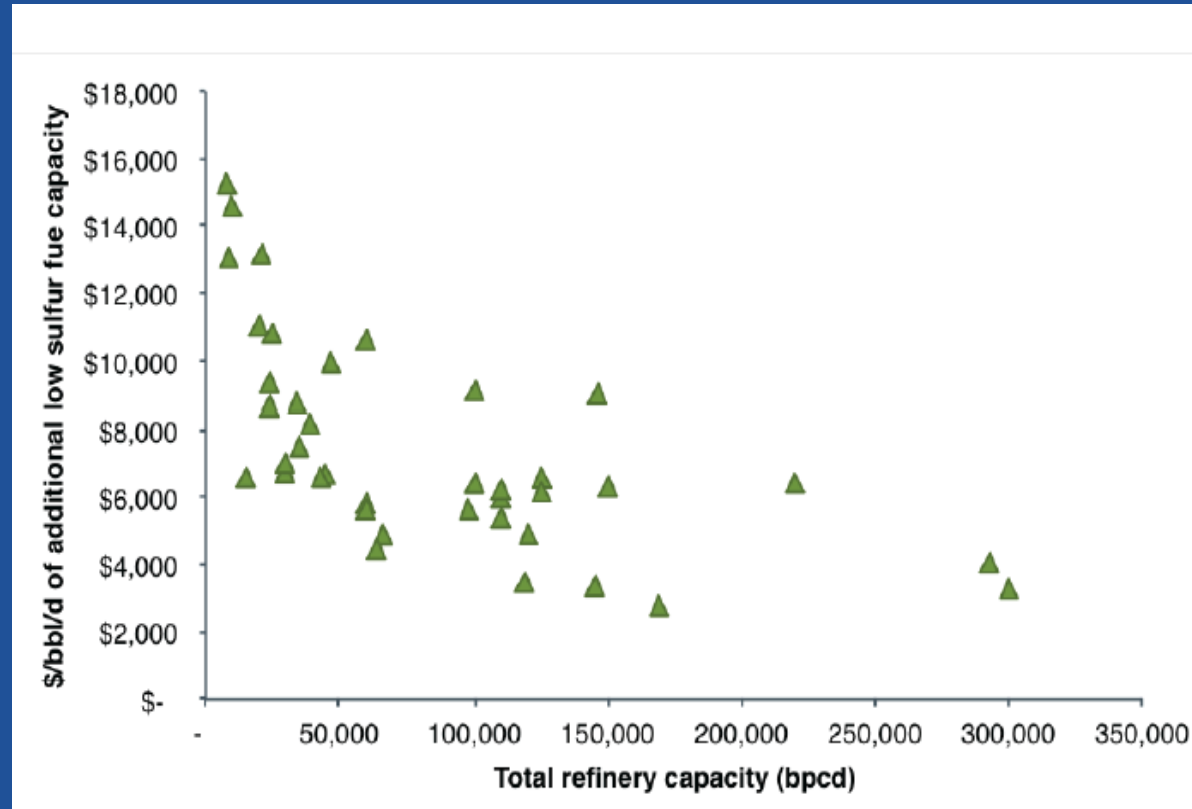
How: Markets & refineries

Oil and fuel flows worldwide; opportunities to support shifts in markets



Refineries

Refinery upgrade cost differs in all regions – opportunities for investment



Four categories of strategic action in countries

1. **Importers** buy fuels on the open market and have not switched to buying low-sulfur fuels
2. **Refiners** produce high sulfur fuel and must make new investments to produce low sulfur fuels
3. **Vehicle Standards** are countries that already consume low sulfur fuels but do not require cleaner vehicles to lower emissions
4. **City First** consume low sulfur fuels in urban areas but do not require cleaner vehicles to lower emissions



Table A

Priority countries for action, by region and strategic category

Region	Category 1: Importers	Category 2: Refiners	Category 3: Vehicle Standards	Category 4: City First
Sub-Saharan Africa	Ethiopia	Cote d'Ivoire	<i>East Africa region:</i> Kenya, Uganda, Tanzania, Rwanda and Burundi	
	Mozambique	Ghana		
	Nigeria	Nigeria		
		South Africa		
Asia	Pakistan	Pakistan	Brunei	
	Bangladesh	Indonesia	Indonesia	
		Malaysia	Malaysia	
		India		
Latin America & the Caribbean	<i>Central America region:</i> El Salvador, Guatemala, Nicaragua and Honduras	Venezuela	Panama	Argentina
			Barbados	Brazil
				Peru
East Europe	Georgia	Ukraine		
	Moldova			
Middle East and North Africa	Lebanon	United Arab Emirates	Oman	
	Tunisia	Kuwait	Tunisia	
		Bahrain		



Benefits: 500,000 early deaths avoided in 2050

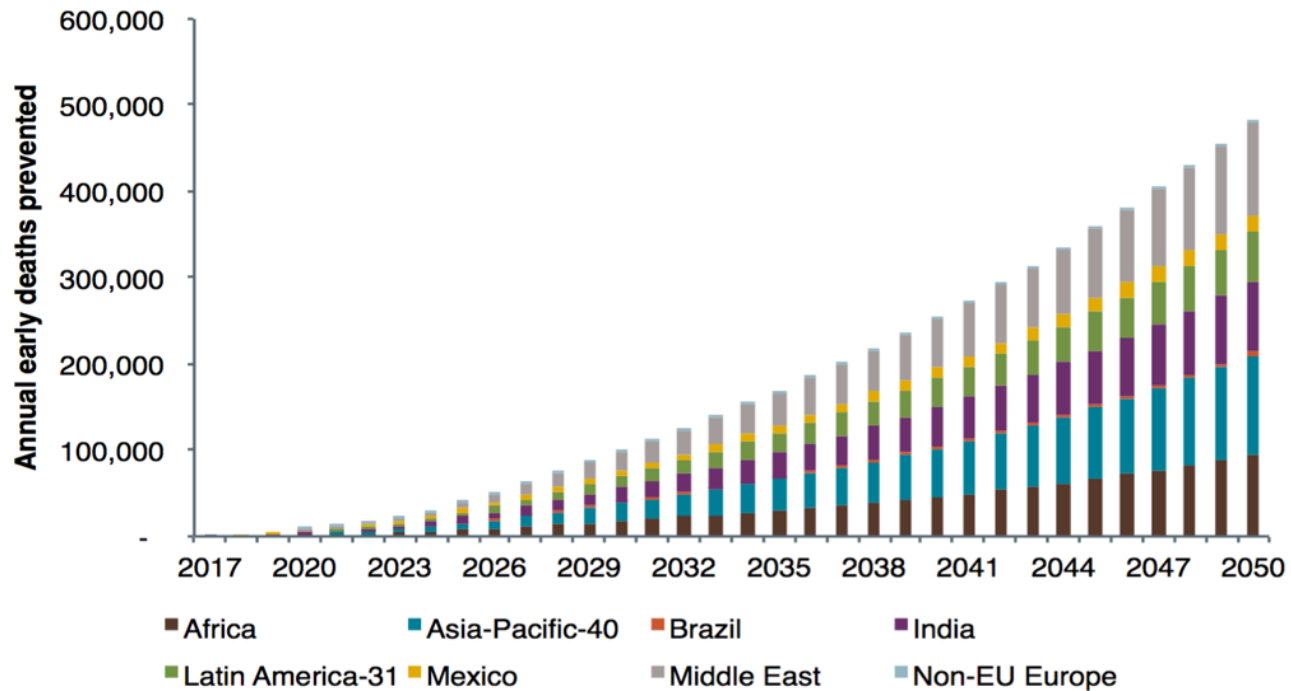
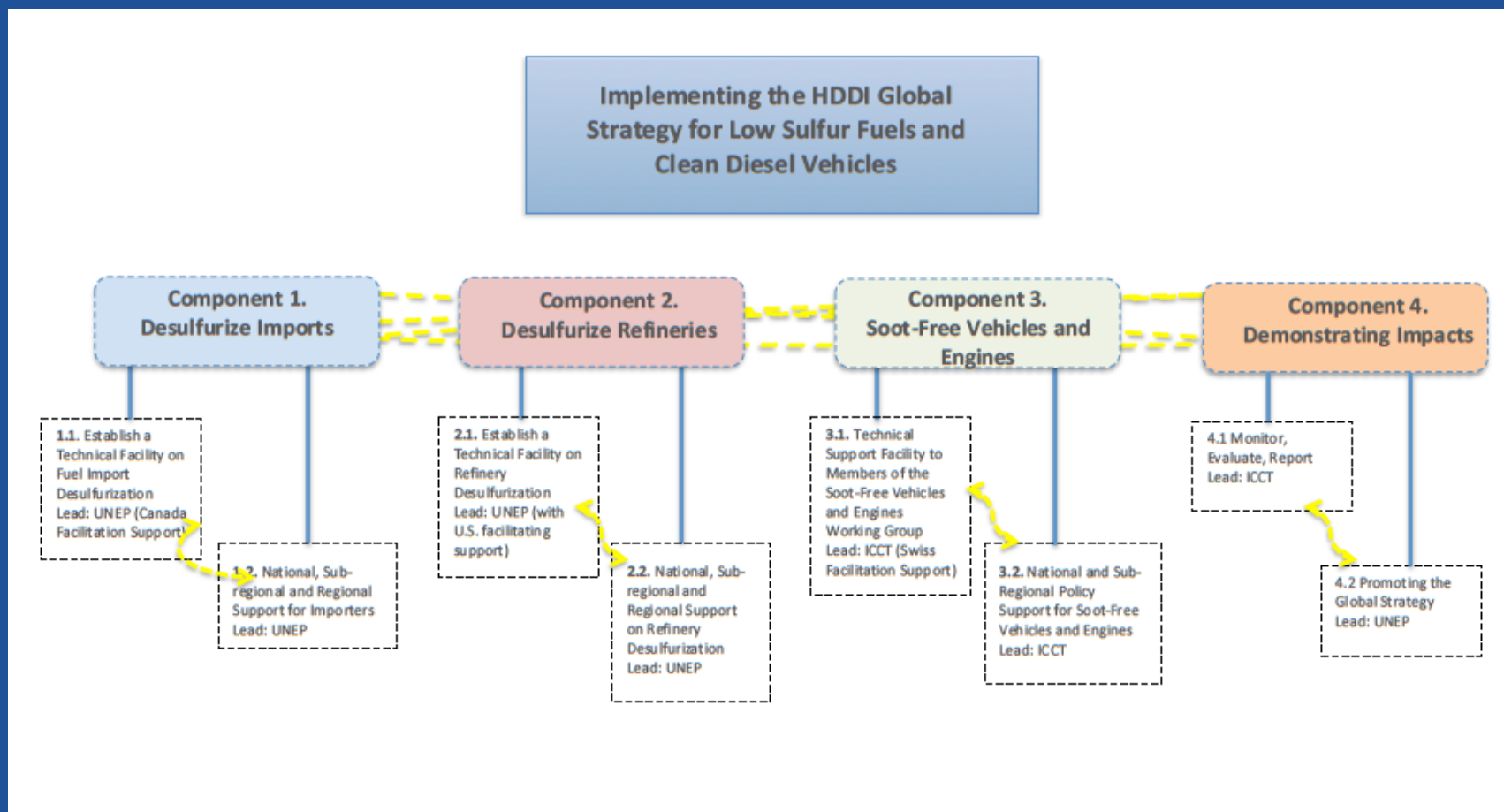


Figure 1.6. **Urban health benefits of on-road fuel desulfurization in countries considered across Africa, Asia-Pacific, Latin America, and Middle East**

Source: ICCT estimates



Implementing the strategy



HLA Communiqué

Proposal to the HLA to endorse the new global strategy “cleaning up the global on-road diesel fleet” at the HLA during the Climate COP22 in Marrakech



Conclusions

- With support of the CCAC, the Heavy Duty Diesel Initiative has been able to support many countries and cities to reduce PM/BC emissions
- ... introduce low sulfur fuels; introduce cleaner vehicles; ports, green freight; bus fleets ...
- we now have developed a global strategy that shows *how* the world can move to clean heavy duty diesel
- that this is **doable and cost effective** and will have massive health and climate benefits
- and we hope to work with all of you to make this reality in the coming years



With thanks to our partners:

- Initiative partners:
 - C40 Cities, Smart Freight Centre, Clean Air Asia, Environment and Climate Change Canada, Transport Canada, Natural Resources Canada, US EPA, World Bank, Natural Resources Defense Council (NRDC), Centro Mario Molina Chile, national and local governments
- Actors:
 - Association for Southeast Asian Nations (ASEAN), CEGESTI, CITAC, Economic Community of West African States (ECOWAS), EnSys, The Gadjah Mada University Center for Transportation and Logistics Studies, KPBB (Komite Penghapusan Bensin Bertimbel), MathPro, Southern African Development Community (SADC), University of California Riverside (UCR), national and local governments



Thank you!

LEARN MORE:



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