

Addressing Air Pollution through Cleaner Fuels and Vehicles

9 December 2024

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ASI Principle

Avoid



Reduce the need for travel

- Urban planning
- Providing for NMT
- Behavioral changes

Share the Road

Design for walking and cycling



Shift



Shift to more efficient modes of mass transport

- Shift to public transportation
- Shared mobility

Share the Road

Design for walking and cycling



Improve



Improve vehicles and fuels

- Shift to electric mobility
- Promote efficient & cleaner fuels and vehicles



The Partnership for Clean Fuels and Vehicles (PCFV)



- **Global Initiative** : Promotes cleaner fuels and vehicles in developing countries.
- **Established**: 2002, World Summit on Sustainable Development.
- **Hosted**: by UNEP
- **Approach**: Align cleaner fuels with stricter vehicle standards .

Fuels Campaign

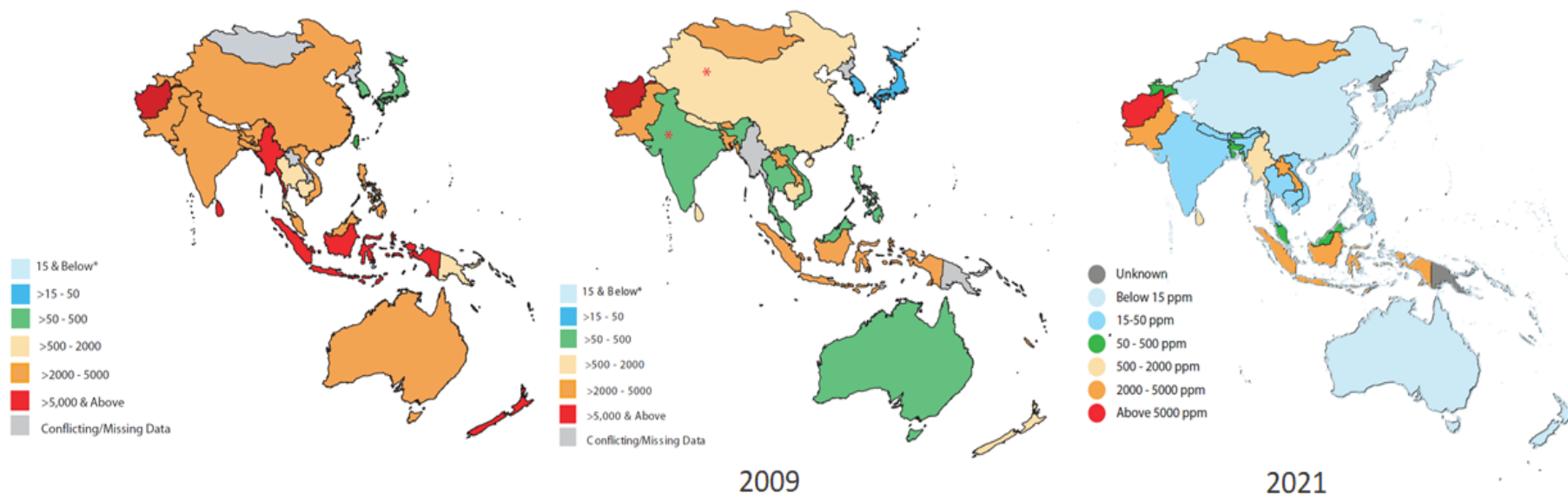
- Eliminated leaded petrol (2021).
- Target: 50ppm sulfur in fuels.

Vehicles Campaign:

- Target: Euro 4/IV+ emission standards.



Clean fuels progress - diesel



*ppm: parts per million

Progress lowering sulphur content in diesel in Asia-Pacific

- 50ppm **sulfur** in both gasoline and diesel is widely available in Asia-Pacific
- Majority of Asian countries have reduced sulfur levels in diesel and gasoline fuels to 50ppm (Euro IV equivalent)
- Significant progress made in achieving Euro IV and higher emission standards.



Clean Vehicles work – soot-free HDVs

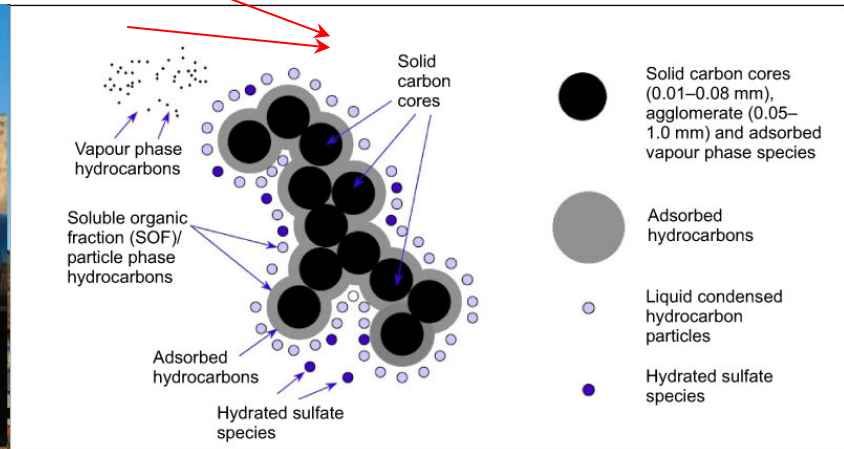
- Transition to Euro VI emission standards would reduce growing black carbon emissions by 98%
- HDVs account for over 40% of on-road nitrogen oxides (NO_x) emissions, over 60% of on-road particulate matter (PM 2.5), and more than 20% of black carbon emission
- UNEP- ICCT working on the ASEAN regional roadmap for e-HDVs



Key tailpipe pollutants:

- Carbon monoxide (CO)
- Hydrocarbons (HC)
- **Nitrogen Oxides (NO and NO₂ = NO_x)**
- **Particulate Matter / Number and Black Carbon (BC)**

Photo: ICCT – Aditya Mahalana



Clean Vehicles work – used vehicles

Global Challenge

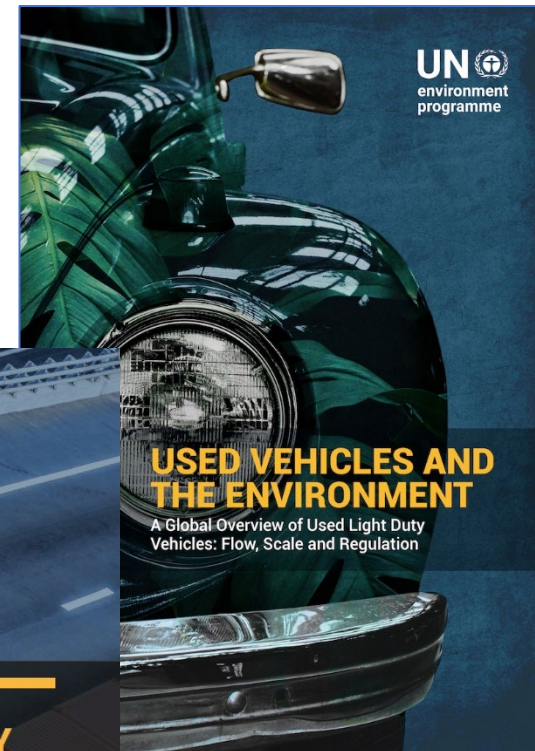
- Unregulated flows from developed to developing economies
- Vehicles often obsolete, unsafe, and polluting

Key Needs

- Implement minimum safety and environmental standards
- Shared responsibility between exporting and importing countries
- Potential for high-quality, affordable vehicle access

UNEP's Used Vehicles Programme

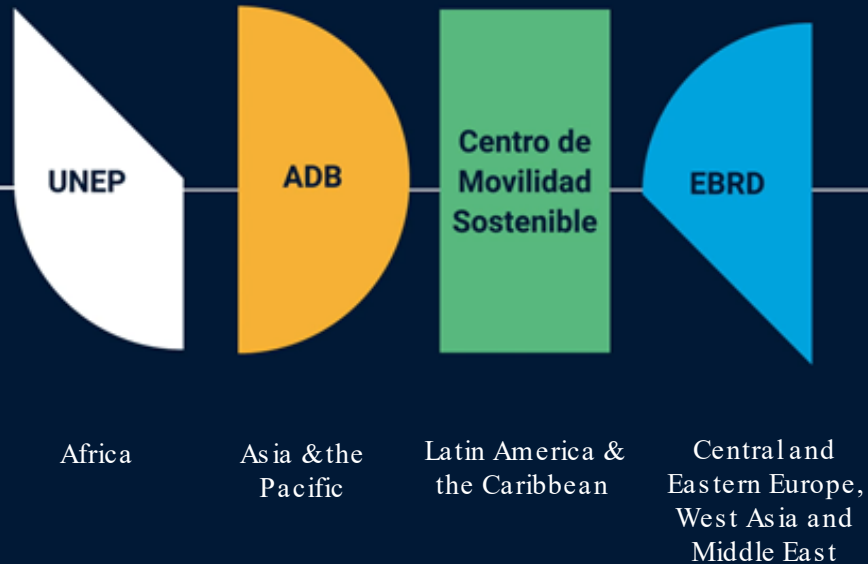
- Research vehicle flows and regulatory environments
- Support policy interventions in developing countries
- Achievements:
 - Harmonized regional agreements
 - Age restrictions
 - Fiscal incentives
 - Labeling requirement



Global Electric Mobility Programme

Supporting 50 Country Projects

4 Regional Support Platforms



Global Thematic Working Groups



WG 1: Electric LDVs



WG 2: Electric 2&3W



WG 3: Electric HDVs





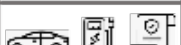














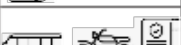
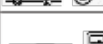


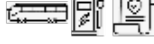




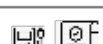
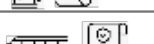
WG 4: Charging infrastructure, batteries & grid integration







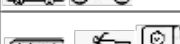
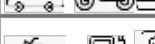
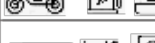

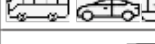
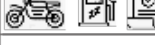
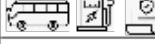
- Supports more than 50 low and middle-income countries with more than USD 70 million in grants and over USD 250 million in loans at the national, regional and global level
- Funded by the GEF, the German Climate Initiative, the EU, the IEA Clean Energy Transitions Programme & EVI members, foundations and bilateral development aid
- Jointly implemented with partners such as ADB, EBRD, IEA, Centro Mario Molina Chile, UNDP, UNIDO and the SOLUTIONSplus project









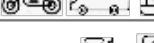


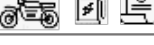
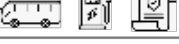
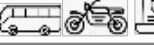








Latin America & the Caribbean		
Antigua & Barbuda		UNEP
Argentina		UNEP
Belize		UNEP
Colombia		UNEP
Costa Rica		UNEP
Chile		UNEP
Cuba		UNEP
Dominican Republic		UNEP
Ecuador		UNEP / SOL+
El Salvador		UNEP
Grenada		UNEP
Guatemala		UNEP
Honduras		UNEP
Jamaica		UNDP
Mexico		UNEP
Nicaragua		UNEP
Panama		UNEP
Paraguay		UNEP
Peru		UNDP
St. Lucia		UNEP
Uruguay		UNEP / SOL+

Central & Eastern Europe, West Asia, Middle East		
Albania		UNIDO
Armenia		UNEP
Azerbaijan		UNEP
Jordan		UNIDO
Lebanon		UNDP
Ukraine		UNEP / EBRD
Uzbekistan		UNDP

Asia & the Pacific		
Bangladesh		UNDP
Fiji		UNEP / ADB
India		UNEP / ADB
Indonesia		UNDP
Malaysia		UNIDO
Maldives		UNEP
Nepal		UNEP / SOL+
Philippines		UNEP / SOL+ UNIDO
Solomon Islands		UNEP
Sri Lanka		UNEP
Thailand		UNEP / UNIDO
Vanuatu		UNEP
Viet Nam		UNEP / SOL+

Africa		
Burundi		UNEP
Cote d'Ivoire		UNEP / UNIDO
Ethiopia		UNEP
Ghana		UNEP
Kenya		UNEP
Madagascar		UNEP
Mauritius		UNDP
Rwanda		UNEP / SOL+
Senegal		UNEP
Seychelles		UNEP
Sierra Leone		UNEP
South Africa		DBSA
Tanzania		UNEP / SOL+
Togo		UNEP
Tunisia		UNIDO
Uganda		UNEP
Zambia		UNEP
Zimbabwe		UNEP

Summary

- Significant progress in Asia with substantial sulfur phase-down in fuels (50ppm) and most have switched to at least Euro 4/IV equivalent vehicle emission standards.
- China and India lead with Euro VI standards and 10ppm sulfur fuels, reducing emissions.
- Persistent challenges remain due to the sheer volume of vehicles in the region, particularly diesel-powered commercial fleets.
- Rise in used heavy-duty vehicles a major contributor to pollution, prompting calls for more stringent regulations as developing countries rely on used vehicles imports to grow their fleet. Regulation and enforcement on the quality of used vehicles imported, especially for HDVs, are either low or non-existent.
- E-mobility has the potential to complement cleaner fuels and tackle mobile source air pollution.
- Rapid vehicle growth is taking place in Asia. Two trends are observed from this vehicle growth. First, the dominance of internal combustion engine cars, buses, and trucks to additional vehicle fleets, and secondly, to meet increasing mobility needs most of these countries rely on import of used vehicles.



Recommendations

- A-S-I principle – key to combating air pollution from the transport sector
- In the short term, the import and/or production of low sulphur fuels, combined with cleaner, safer, and more stringent vehicles standards (minimum Euro 4/IV to Euro 6/VI) will help to address increasing air pollution, contribute towards climate change mitigation, and improve road safety.
- Collaborate on accelerating clean fuel and vehicle standard adoption due to the interconnectedness of the automotive sector supply chain
- Regional cooperation is needed for introducing and enforcing minimum standards for used vehicle imports, such as emission standards and age limits.
- Invest in scaling e-mobility to reduce reliance on polluting vehicles in the region
- Through partnerships and initiatives like the Partnership for Clean Fuels and Vehicles (PCFV), the Global Fuel Economy Initiative (GFEI), the Climate and Clean Air Coalition (CCAC), and the Global Electric Mobility Programme, UNEP is supporting this shift to cleaner, more sustainable mobility, with a major success being the global elimination of automotive leaded petrol fuels in 2021.



