



Photo by: Fleet Forum

As a humanitarian organisation, we should help to reduce air pollution by setting a good example with our fleet!

- In **Egypt**, the use of leaded petrol had the following estimated annual effects: up to 11,200 heart attacks, 1,400 strokes, 1,300 premature deaths, 820 infant deaths and from transport and the related cost is assumed to be 1.1 % of national income.
- In the **EU** the average life is expected to be 10 months shorter due to air pollution premature deaths are linked to high PM concentrations in the air.
- For example, in **Dhaka** yearly over 10,000 premature deaths are attributed to air pollution, costing 3 - 4% of national income. In Mexico City each year 4,000 premature deaths are linked to high PM concentrations in the air.
- It is estimated that in **developing countries** 13% of the "burden of disease" is related to air pollution. In **developed countries**, 2-6% of the total "burden of disease" is related to air pollution.

The World Health Organisation estimates that more than 1 billion people are forced to breathe air exceeding WHO standards and that 800,000 deaths can be attributed to urban air pollution every year. Air pollution costs people, companies and governments billions of dollars in medical bills and lost working days. Transport is a major source of air pollution, especially in urban areas.

### The effects of air pollution today

### Your new vehicles....

#### Consider the environment when buying new vehicles

- Choose fuel efficient, low emissions vehicles

Choosing a vehicle with low fuel consumption means that you get lower emissions of pollutants as well.

Newer vehicles have substantially better environmental performances than older ones. However, there is a huge difference between new vehicles in terms of emissions. Asking for a vehicle environmental rating will give you crucial information and send an important signal to the vehicle dealer.

Older diesel trucks with mechanical fuel injection systems (typically pre-1990) consume more fuel and emit significantly more pollutants.

For motorcycles, you should avoid 2-stroke engines. A 2-stroke motorcycle emits much more particulate matter than a 4-stroke motorcycle.

- Buy the right vehicle for the right job

Emissions are strongly related to the size of the car. So size matter, don't drive around with 4-wheel drives if you are not leaving town.

For example, a big 4-wheel drive consumes approximately 12 liters per 100 km whereas an ordinary passenger car consumes about 6 liters per 100 km.



Photo: Fleet Forum

It is important to use an appropriately sized truck based on the size and weight of deliveries. An overloaded truck emits disproportional more pollutants.

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- Environmental ratings of vehicles: [www.epa.gov](http://www.epa.gov)
- Retrofits: [www.meca.org](http://www.meca.org)
- Fuel quality: [www.uneep.org/pcfv](http://www.uneep.org/pcfv)
- Eco-driving: [www.greener-driving.net](http://www.greener-driving.net)
- Maintenance: [www.cleanairnet.org/info](http://www.cleanairnet.org/info)

#### For more info on:

For more information: [www.uneep.org/pcfv](http://www.uneep.org/pcfv)  
 NGOs.

The United Nations Environment Programme (UNEP) is hosting the PCFV clearing house at its headquarters in Nairobi, Kenya. Over 80 organisations have joined the partnership, representing governments, industry, international organisations and Summit on Sustainable Development in September 2002 to reduce vehicular air pollution in developing countries through the promotion of clean fuels and vehicles. The Partnership for Clean Fuels and Vehicles (PCFV) was established at the World UNEP and PCFV

For more information: [www.fleetforum.org](http://www.fleetforum.org)  
 \$800million.

The Fleet Forum is an informal, voluntary association of more than 40 UN agencies, International Organisations and NGOs working together to build humanitarian transport capacity and capability worldwide. Organisations participating in the Fleet Forum operate a global fleet of more than 60,000 vehicles of which more than half operates in Africa. The total fleet travels a total of 1.5 billion kms per year, consuming in excess of 200 million litres of fuel and with an annual operating cost in excess of

### This is a joint PCFV/UNEP and Fleet Forum publication

### Your drivers.....

#### Careful driving saves fuel, maintenance, emissions and lives

- Train and instruct your drivers properly

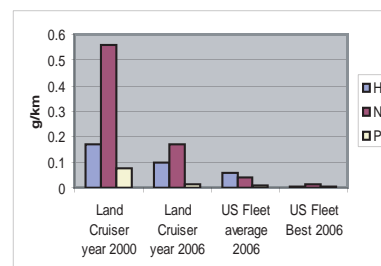
The influence of speed and driver behaviour is significant on emissions and fuel economy. Training courses introducing eco-driving, help drivers to lower fuel consumption with as much as 5 - 20%.

Eco-driving means 'softer' driving, lowering speeds, gentler acceleration and "thinking ahead" in traffic. This driving behavior has also great safety benefits. Also, eco-driving saves brakes, clutches and the engine.



Photo: Fleet Forum

By driving a newer or/and smaller car you save a lot of emissions and fuel.



The illustration shows that newer vehicles are much cleaner than older vehicles of the same type. The cleanest vehicles ("US Fleet Best 2006") include the latest models of 4-wheel drive vehicles using the newest technologies (for example hybrid technology)

Estimated tail-pipe emissions for vehicles in the US

Source: [www.epa.gov/emisweb](http://www.epa.gov/emisweb)

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Photo: Thomas Harrison-Prentice

### What you can do

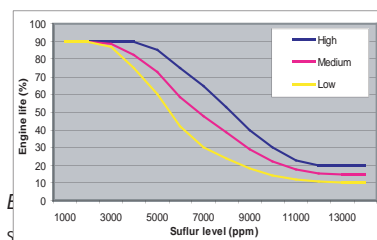
- Maintenance
- Cleaner Fuels
- Driver Behaviour
- Cleaner Vehicles
- Procurement

### Reducing the environmental impact of humanitarian operations

# Cleaner Relief

- For diesel vehicles, always use the lowest sulphur fuel available

The sulfur in fuel contributes to emissions of fine particles that have many severe health impacts, including respiratory illness. High levels of sulfur also limit the introduction of tailpipe pollution control technologies on vehicles: sulfur clogs catalysts and filters. In addition, high sulfur increases engine wear, reducing engine life.



The illustration show that by reducing the sulphur content in diesel fuel from 10,000 to 1,500 ppm (parts per million) engine life increases by around 80%

#### Tailpipe emission control possible with low sulfur diesel

- New diesel vehicles can be equipped with emission control devices that reduce emissions by up to 95%.

For existing heavy diesel vehicles with no emission controls retrofitting is a possible option. As the lifetime of heavy vehicles is long and the emissions are high, this is a good option. Retrofit technology includes diesel oxidation catalysts (DOC) and diesel particulate filters (DPF), costing between \$750 - \$6,000.

Tailpipe technologies require a sulphur diesel (less than 500 ppm for DOCs and less than 50 ppm for DPFs).



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### Global and regional impacts affecting our living conditions

Carbon dioxide (CO<sub>2</sub>) emissions from burning of fossil fuels contribute to climate change resulting in global warming, more extreme weather, and rising sea levels. People in developing countries are more vulnerable to these changes.

- **Inhalation of carcinogens and lead**

Even at low levels, exposure to lead causes high blood pressure, increases in heart disease and damage to organs in adults. In children lead affects mental development, IQ and growth.

- **Respiratory symptoms**

Coughs, eye, nose and throat irritation, aggravated allergies, reduced lung capacity and fatigue are all linked to air pollution. The elderly and people with asthma and existing heart and lung illness are especially vulnerable and at greater risk of premature death from poor air quality.

- **Cardiovascular disease (heart and circulatory system)**

Particulate matter (PM) increases cardiovascular diseases resulting in heart attacks and premature deaths. Elderly and people that already have a heart condition are at greatest risk.

- **Cardiovascular disease (heart and circulatory system)**

The main transport pollutants are particulate matter (PM), hydrocarbons (HC), nitrogen oxides (NOx), lead (Pb), sulfur oxides and sulfates (SOx), and carbon dioxide (CO<sub>2</sub>). Individually and combined, these pollutants seriously affect your health and quality of life.

### Your vehicles.....

#### Regular maintenance is good both for the vehicle and the environment

- Keeping the engine operating as the manufacturer intended is crucial

A malfunctioning engine can emit 50% more air pollutants and consumes between 5 to 10 % more fuel.

- Checking the tyre pressure frequently

Poorly inflated tyres increase fuel consumption and emissions. For every psi (pound per square inch) below the optimal tyre pressure fuel consumption increase with 2.5 - 3%. It is often found that up to a third of all vehicles have one or more tyres under-inflated.



Photo: Fleet Forum

#### Cleaner fuels - the first and a "no cost" step

- For petrol, always choose unleaded petrol at the pump

The myth that older engines need leaded fuel to run smoothly is untrue. Clean, modern fuels with adequate octane work better in all engines and minimise wear and tear on vehicle parts such as the exhaust system.



Photo: Fleet Forum

Fuel depot in Juba, Sudan  
 In some parts of the world humanitarian organisations import their own fuel. You should ensure that your fuels are unleaded (petrol) and have the lowest possible sulphur content (diesel).