



Global Fuel Economy Initiative
Vehicle Fuel Efficiency Baselines: Practicalities and Results Workshop
30 November, UNEP Headquarters, Nairobi, Kenya
Discussion and Background Paper

Launched on March 4, 2009 by the United Nations Environment Programme (UNEP), the International Energy Agency (IEA), the International Transport Forum (ITF) and the FIA Foundation (FIAF), the Global Fuel Economy Initiative (GFEI) aims to catalyze large reductions of greenhouse gas emissions and oil use through improvements in automotive fuel economy in the face of rapidly growing car use worldwide.

The global vehicle fleet is set to triple by 2050; over 90% of this growth will take place in developing and transition countries. Achieving ambitious, yet realistic, fuel economy targets is especially important in developing countries since most new vehicles in the world will be bought and operated in these countries by 2050. Developing and transitional countries are in an advantageous position to take advantage of improving fuel quality and clean vehicle technologies more readily available to their economies.

Africa Fuel Quality

Africa has come a long way from the turn of the 21st century, when leaded fuel was used almost exclusively on the continent. As of January 2006 leaded fuel has been completely phased out of all countries in Sub-Saharan Africa. In Northern Africa, only Algeria and Egypt offer leaded alongside unleaded petrol. On sulphur levels in fuels, Morocco currently uses fuels with 50ppm sulphur, with Tunisia and Algeria moving to 50ppm and 15ppm, respectively, in the coming few years. Many countries¹ in Eastern and Southern Africa are now importing, or are in the process of introducing, 500ppm diesel fuel – an essential first step to the reduction of transport-related emissions from diesel vehicles. With cleaner fuels of 500ppm sulphur and below, emission reduction technologies, such as catalytic converters, can be utilized to drastically reduce the levels of toxic emissions from the light-duty vehicle fleet.

Many countries in Africa have seen large growths in their vehicle fleet in recent years (eg. South Africa saw a 20% growth of the vehicle fleet from 2000-2005). This growth is a sign of economic development, but along with it

¹ Countries: Botswana, Kenya, Malawi, Mozambique, Namibia, South Africa, Tanzania, Uganda, Zimbabwe

comes greater air pollution, road congestion and other negative consequences related to an increase in transport activities. The growing vehicle fleets will emit more pollution and produce greater harm to human health and the environment, especially with high sulphur levels in diesel and petrol fuels, and an aged and under-maintained vehicle fleet.

Fuel Economy- Fuel Quality Connection

Sulphur is a fuel contaminant linked to emissions of particulate matter. These particulates are some of the most harmful air pollutants to public health. A reduction in sulphur will produce a direct decline in particulates, so any reductions in sulphur are good for air quality and health. Many countries at this dialogue event currently are in the process of introducing fuel at 500ppm sulphur or less, which also has a direct impact on fuel quality of countries in the wider region, who import their fuel from a few source countries.

Sub-Saharan countries in Africa have benefited from unleaded fuel since 2006, with a large number of Northern, Eastern and Southern African countries currently going to low sulphur fuels (see Annex 1 & 2 for fuel quality in Africa). The introduction of low sulphur fuels lays the groundwork for introduction of cleaner, more advanced vehicles, thus ensuring improved fleet wide auto fuel efficiency. Low sulphur fuels will in turn result in lower CO₂ and non-CO₂ emissions (black carbon), and will contribute to climate change mitigation efforts.

Reductions of sulphur levels in fuels have a direct impact on poverty, especially in urban areas. Though cities are engines of economic development, uncontrolled urbanization can offset some of the economic and social opportunities presented by cities. Some of the challenges faced by the region include rapid motorization, which has resulted in increased urban air pollution. In Kenya, cases of morbidity have been on the increase due to upper respiratory tract infections attributed to air pollution. Introduction of low (500ppm-50ppm,) and ultra low (50ppm or less) sulphur fuels and clean vehicle technologies can significantly reduce instances of health problems, environmental damage and lost economic potential (eg. in lost working days due to pollution-related illnesses).

GFEI Targets

The global average automotive fuel consumption is currently 8L/100km. The aim of the GFEI is to cut the average automotive fuel consumption to ~4L/100 km by 2050. This has the potential to result in savings in annual oil import bills alone worth over USD 300 billion in 2025 and 600 billion in 2050², in addition to lowering harmful pollutant emissions.

The GFEI will continue to target countries throughout Africa in the coming years, with the goal of establishing links and relationships with government ministries, industries, groups, and NGOs throughout the region. This will help countries in the region to achieve improved automotive fuel efficiency policies, practices and technologies for their light duty vehicle fleet.

² Based on an oil price of 100USD/bbl

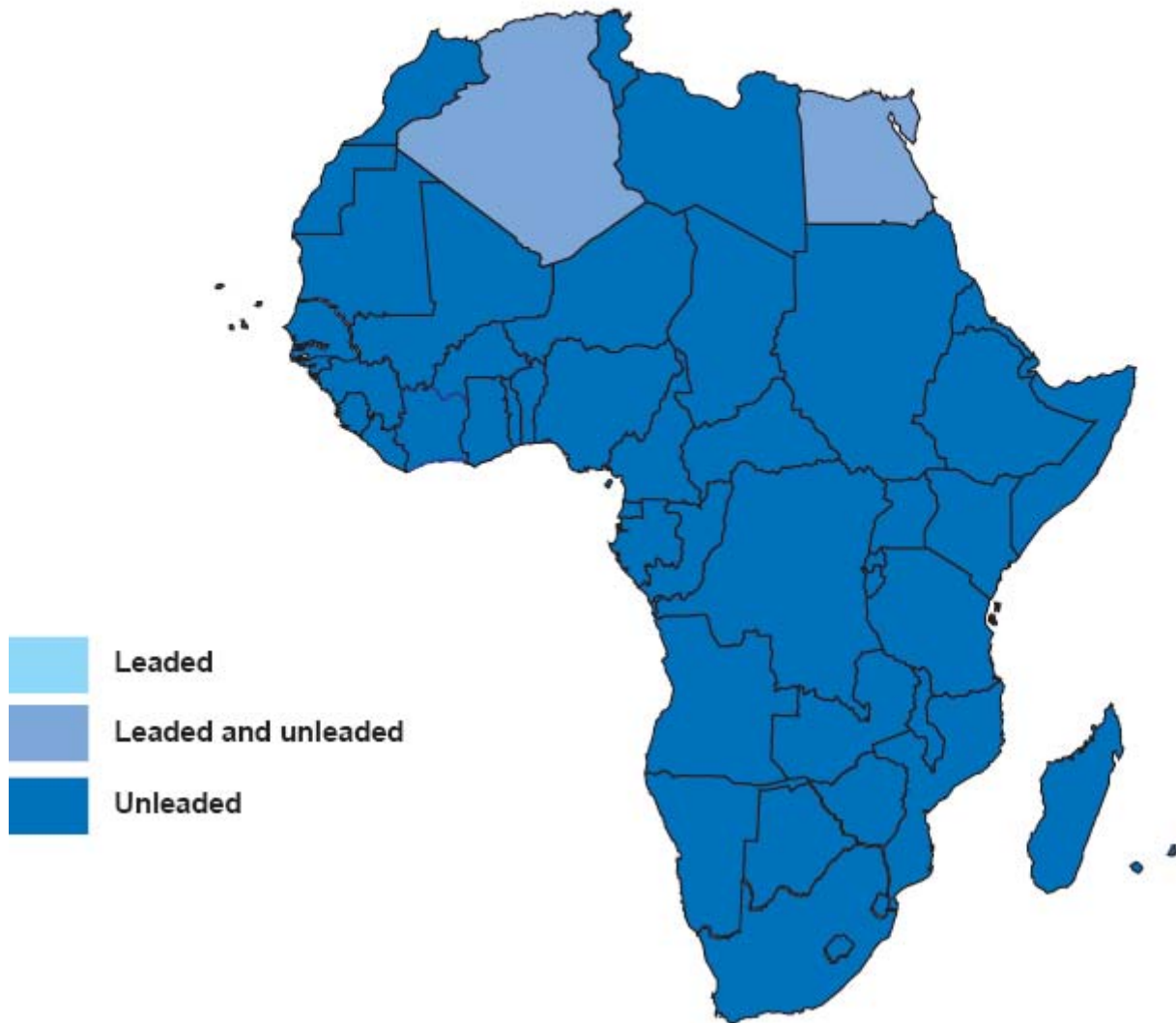
Recommendations and Role of Auto Clubs

A reduction in sulphur levels is the next important step towards improving urban air quality. Sulphur reduction to at least 500ppm will not only reduce vehicle emissions in all cars irrespective of age, but will also allow for adoption of cars with additional vehicle emission control technologies (ie particulate traps). Reductions to even lower levels of sulphur (50 ppm or lower) will allow the introduction of the most advanced emission reduction technologies. Auto Clubs in Africa have an important role to play in the introduction of fuel efficiency standards in the region, working with government ministries on national policy building and informing the public on the benefits associated with a cleaner and more advanced vehicle fleet running on low and ultra low sulphur fuels.

Annex I



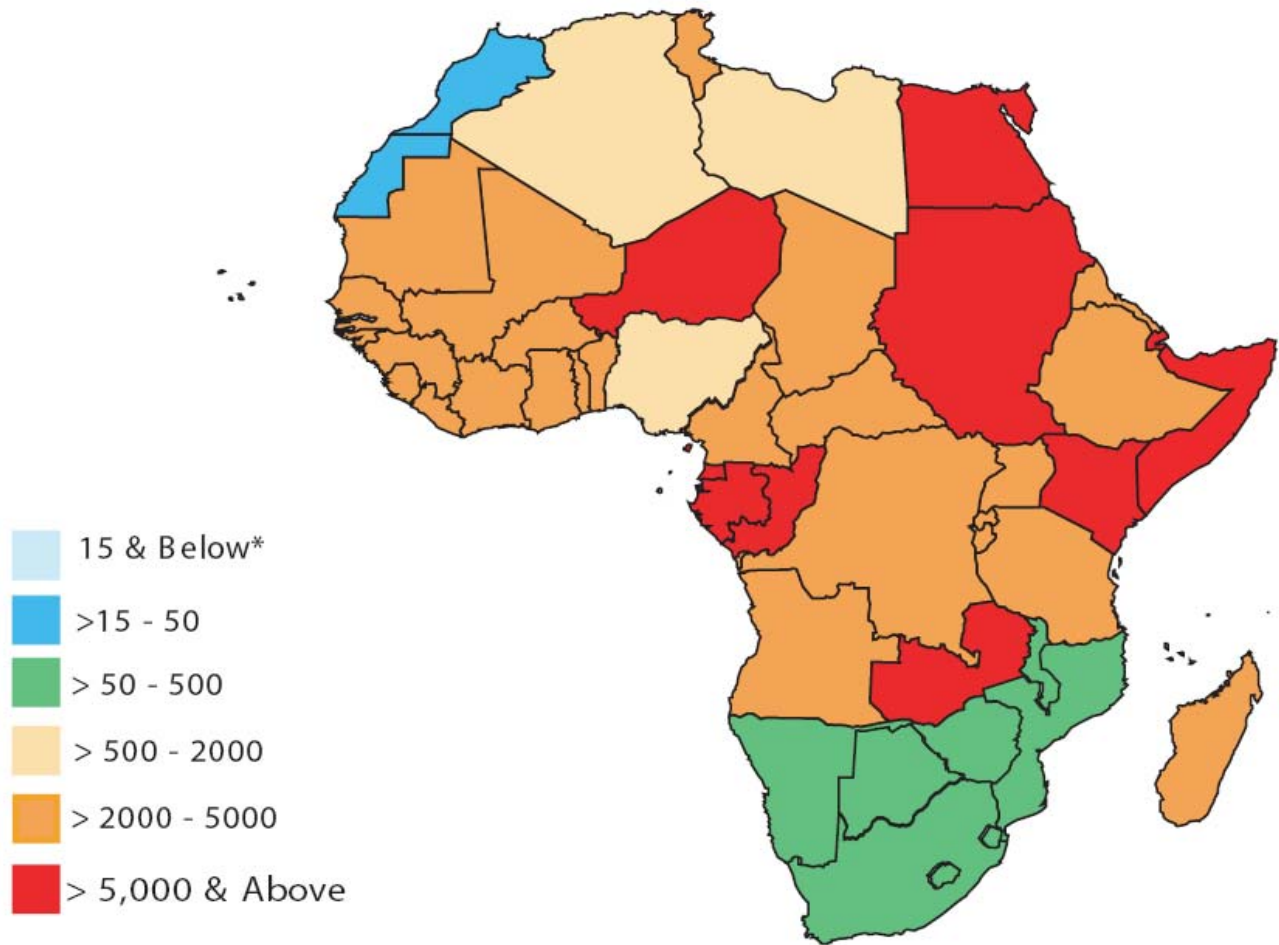
Status of leaded gasoline phase-out in
Africa, September 2010



Annex 2



Diesel Fuel Sulphur Levels: Africa Status September 2010



Annex 3

Sub-Saharan Africa Sulphur Levels in Diesel Fuel, March 2010

Country	Sulphur Level (Max. ppm)	Country	Sulphur Level (Max. ppm)
Angola	3000	Madagascar	5000
Benin	10000	Malawi	500
Botswana	500	Mali	10000
Burkina Faso	5000	Mauritania	5000
Burundi	5000	Mauritius	2500
Cameroon	5000	Mozambique	500
Cape Verde	3000	Namibia	500
Central Africa Republic	3000-5000	Niger	10000
Chad	5000	Nigeria	5000
Comoros	N/A	Reunion	N/A
Congo (Brazaville)	1000	Rwanda	5000
Democratic Republic of the Congo	5000	Sao Tome and Principe	3000
Cote d'Ivoire	5000	Senegal	5000
Djibuti	5000	Seychelles	N/A
Equatorial Guinea	5000-8000	Sierra Leone	5000
Eritrea	7000	Somalia	N/A
Ethiopia	10000	South Africa	500
Gabon	8000	Sudan	11000
Ghana	5000	Swaziland	500
Guinea	5000	Tanzania	5000
Guinea-Bassau	5000	The Gambia	5000
Kenya	10000	Togo	10000
Lesotho	500	Uganda	5000
Liberia	5000	Zambia	7500
		Zimbabwe	500

Northern Africa Sulphur Levels in Diesel Fuel, April 2010

Country	Sulphur Level (Max. ppm)	Country	Sulphur Level (Max. ppm)
Algeria	900	Tunisia	5000
Egypt	5000	Libya	1000
Morocco	50		

Annex 4

South Africa Case Study

Background

The majority of local air pollution in South Africa is mainly a consequence of fuel burning, which includes industrial and commercial fuel burning, petrol and diesel combustion in vehicles, domestic fuel burning, coal-fired electricity generation and biomass burning. In 2006, emissions from vehicles contributed 44% of the total nitrous oxide emissions and 45% of the total national NMVOC (non-methane volatile organic compounds) emissions, which contribute to the creation of photochemical smog.

Transport is a growing energy consuming sector in the country and is expected to grow considerably in the medium-term. South Africa has considered a number of policies, while looking at the measures that Europe has taken. Measures to address energy efficiency will not necessarily be easy to implement, as has been the experience internationally where motor vehicles have become the main means of transport.

Labeling

A labeling system, effective July 2008, is required for all new passenger cars offered for sale in South Africa. Vehicles are required to display a windscreen label informing prospective buyers how fuel efficient each vehicle is as measured in terms of the EU 'Combined Cycle' and the corresponding amount of carbon dioxide emitted. This labeling system displays vehicle energy consumption accompanied by legislation on the 'feebate system', technology upgrade leading to more efficient vehicles/turnover in the vehicle park, but has excluded taxi-recapitalization.

Import Restrictions

According to the South African Revenue Service, a second hand vehicle may only be imported if an Import Permit is obtained from the International Trade Association Commission ([ITAC](#)) of South Africa and a Letter of Authority from South Africa's National Regulator for Compulsory Specifications ([NRCS](#)).

Tax Instruments:

The new budget for 2010 recommends that the 2009 ad valorem CO₂ emission tax on new passenger motor vehicles be converted into a flat rate CO₂ emissions tax, effective from September 1st, 2010. The objective of the new CO₂ emission tax is to influence the composition of South Africa's vehicle fleet to become more energy efficient and environmentally friendly. This tax will be implemented as a specific tax, based on new passenger car certified CO₂ emissions at R75 per g/km for each g/km above 120 g/km, in addition to the current ad valorem luxury tax on new vehicles. Essentially, any gram of CO₂ a passenger vehicle releases above the 120 g/km threshold will attract a penalty of R75.