



**United Nations Environment Assembly (UNEA)**

***Side Event: Improving Air Quality in African Cities***

***June 23, 2014***

***1:15 to 2:45***

***Conference Room 9***



**Concept Note**



## Introduction

Air quality is a serious and worsening problem in the rapidly growing cities of Africa, as a result of increasing population, urbanization and motorization. According to a March, 2014 report by the World Health Organization (WHO), air pollution is now the world's largest single environmental health risk, and is fast becoming one of the leading causes of illness and death in developing countries.

Because of the worsening air pollution in many parts of Africa, the Governments of Kenya and Senegal, UNEP and the World Bank are sponsoring a Side Event at UNEA: *"Improving Air Quality in African Cities"*. The Side Event will be held on June 23, 2014 from 1:15 to 2:45 in Conference Room 9.

The aim of the Side Event is to discuss the key sources of air pollution in African cities and the current gaps in understanding of air pollution in Africa. It will emphasize the actions that countries and cities are taking now, and present snapshots of what is happening in several cities in Africa, including in Senegal, Kenya and Nigeria. The event will capitalize on the WHO's recent report on the health effects of air pollution, which is fast becoming one of the leading causes of illness and death in developing countries, and leads to 176,000 deaths annually in Africa (from outdoor air pollution) and 3.7 million deaths globally. The side event also builds upon the proposed air pollution decision tabled for discussion at UNEA by the US government, and the close links to UNEP's existing programs.



Proposed speakers at the side event will include:

- Martin Kimani, the Head of Kenya's Mission to the UN in Nairobi
- A panel of African experts, with representatives from Kenya, Senegal, and Nigeria.
- Mounkaila Goumandakoye, Regional Director, Regional Office for Africa, UNEP

The outcomes of this side event will include:

- A renewed focus on the importance of air pollution in Africa;
- An opportunity to discuss the African air quality challenges and what Africa is doing to alleviate air pollution; and
- An announcement of a new Government of Kenya-UNEP-World Bank-UN-Habitat initiative, *the Africa Sustainable Transport Forum*, which will be formally launched in



October, with the 1st **High-Level Policy and Technical Conference on Sustainable Transport in Africa.**

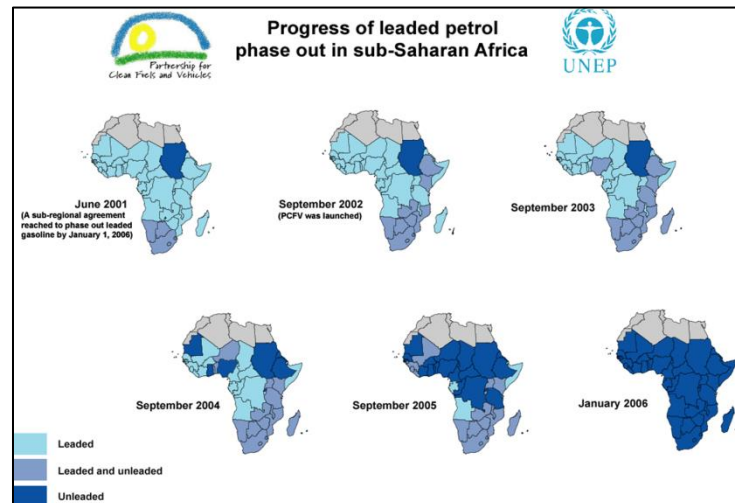
## Background on Air Quality in Africa



According to a study published recently in *Environmental Research Letters* (March 11, 2014), air emissions in Africa are expected to increase rapidly over the next 25 years, particularly if no policies and regulations are put in place. This study showed that climate change models used by the Intergovernmental Panel on Climate Change (IPCC) underestimate Africa’s emissions, which by 2030 will account for 20-55% of the global man-made emissions of gaseous and particulate pollutants. Unfortunately, there is little air monitoring data available in Africa, with the exception of a few cities in North and Southern Africa. Better and more consistent air monitoring data would provide a clearer picture of air pollution emissions in Africa.

## Sources of Air Pollution

Many factors contribute to increasing air pollution in Africa: growing vehicle emissions, inefficient industrial technologies, and energy generation are important contributors in urban areas. Many countries in Africa have a large number of older vehicles, most without emission controls. Few countries have efficient and effective public transport options and most have poor walking and cycling facilities – all of which can help to decrease vehicle use, vehicle emissions, and air pollution. UNEP has worked closely with governments in Africa to successfully eliminate lead from petrol in almost all African countries, eliminating exposure to toxic impacts of lead emissions – see progress map. UNEP is now working to reduce sulphur in diesel and petrol, which will reduce particulate emissions from vehicles, and to introduce cleaner, more fuel efficient vehicles.





Open burning of waste, road dust, and windblown dust also contribute to air pollution. The use of biomass fuel for cooking and heating in households is a major source of air pollution, particularly in rural areas. Cookstoves have a direct health impact on the most vulnerable in society – women, children and the elderly. WHO estimates that, in Africa, 600,000 people die every year from indoor air pollution -- primarily from cookstoves.

## Health and Economic Impacts

The World Health Organization, in a new report released March 25, 2014, has significantly increased the numbers of deaths attributable to outdoor air pollution, with 176,000 deaths annually from outdoor air pollution in Africa, and 3.7 million deaths globally. [32]. Air pollution is now the world’s largest single environmental health risks, and is fast becoming one of the leading causes of illness and death in developing countries. WHO estimates that, in Africa, about 600,000 people per year die from exposure to household air pollution. Smoke from cookstoves primarily affects women and children in the developing world

“The risks from air pollution are now far greater than previously thought or understood, particularly for heart disease and strokes, “ said Maria Neira, Director of WHO’s Department for Public Health, Environmental and Social Determinants of Health. “Few risks have a greater impact on global health today than air pollution; the evidence signals the need for concerted action to clean up the air we all breathe. “

“Excessive air pollution is often a by-product of unsustainable policies in sectors such as transport, energy, waste management and industry. In most cases, healthier strategies will also be more economical in the long term due to health-care cost savings, as well as climate gains.” Carlos Dora, WHO Coordinator for Public Health, Environment and Social Determinants of Health said.





The graph above shows levels of particulate matter (PM) or soot in cities around the world, including a few African cities. All pollutant levels are above the WHO guideline for particulate matter, shown as an orange line. Particulate matter is the key pollutant of concern for health impacts and is linked to premature death, asthma, heart attacks, and respiratory diseases.

The UN Economic Commission of Africa has estimated that the cost of air pollution in a number of African cities can be as high as 2.7 percent of GDP.

A recent study, just finalized by the University of Nairobi, shows that the economic loss per year in Kenya of vehicle emissions (and associated air pollution) is **115 billion shillings** – from related illnesses and deaths.

## Improving Air Quality in Africa: Solutions

**Transport:** The 5 member states of the East African Community – Burundi, Kenya, Rwanda, Tanzania, and Uganda -- have committed to lowering sulphur in fuel to less than 50 ppm by January 1, 2015, which will have a substantial impact on particulate emissions from transport in the East Africa region, specifically from diesel vehicles.

Additionally, many cities in Africa are looking towards Bus Rapid Transit or BRT as the key component for improving their public transport systems, with the goal of reducing vehicles. Currently, a handful of cities in Africa are developing, or have already developed BRT systems: Dar es Salaam, Tanzania; Accra, Ghana; Lagos, Nigeria; Johannesburg, Capetown, Pretoria and Nelson Mandela Bay Municipality in South Africa; Addis Ababa, Ethiopia; Nairobi, Kenya; and Kampala, Uganda.



Other African cities, all in North Africa, have developed tramways, including Algiers, Constantine, and Oran in Algeria; Cairo and Alexandria in Egypt; and Rabat and Casablanca in Morocco. Tunis, Tunisia has 135 articulated trams in operation, covering 32 kilometers, with 47 stations. Several other cities are now in the process of developing light rail: Abuja and Lagos in Nigeria, and Addis Ababa in Ethiopia. The Cairo and Alexandria tramways have been in operation since the beginning of the 20<sup>th</sup> century – see



picture. The Alexandria tramway is one of a few in the world that have double-decker trams. It is the oldest system running in Africa, and one of the oldest in the world.

The ***Africa Sustainable Transport Forum*** is a new partnership between the Government of Kenya, UNEP, UN-Habitat and the World Bank, and will provide a platform for high-level attention and policy dialogue on access to environmentally sustainable transport in Africa. The goal of the Forum is to “integrate sustainable transport into the region’s development and planning processes and increase the amount of funding going to sustainable transport programs in Africa – to improve access to transport, reduce air pollution and climate emissions, and improve road safety and health.” The Forum will be officially launched at the **1<sup>st</sup> High-Level Conference on Sustainable Transport in Africa**, 28-30 October at the UN in Nairobi.



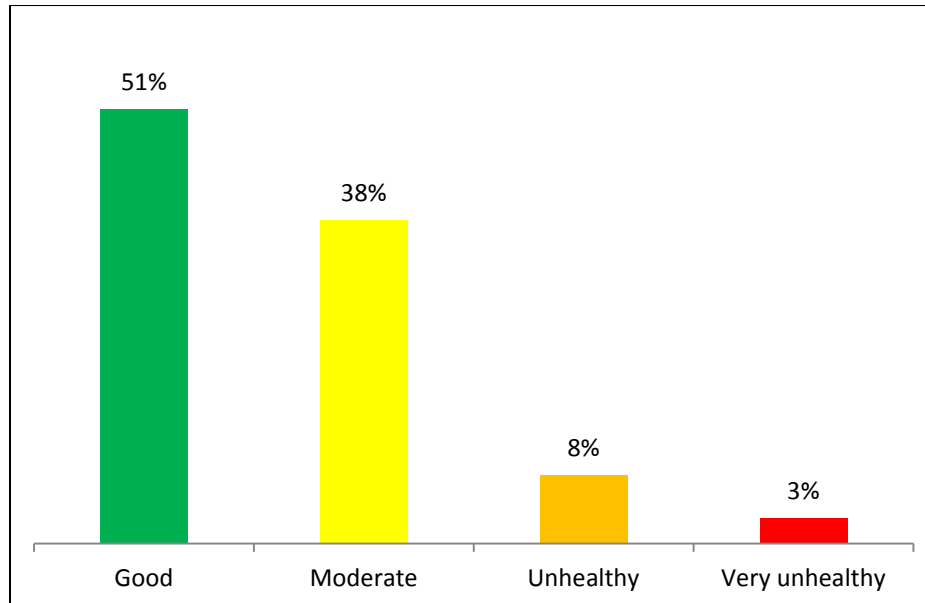
**Cookstoves:** The use of traditional cookstoves and open fires for cooking and heating is a problem affecting 3 billion people globally. **The Global Alliance for Clean Cookstoves** is a public-private partnership that seeks to save lives, improve livelihoods, empower women, and protect the environment by creating a thriving global market for clean and efficient household cooking solutions. The Global Alliance is working across Africa to introduce clean and efficient cookstoves.



**Air Quality Data: Senegal:** Air quality data is a gap in the understanding of, and quantification of, air pollution in Africa. In order to provide a clearer picture of the air quality in Senegal, the Senegalese Ministry of Environment and Sanitation has set up a *Centre for Management of Air Quality*, funded by the Nordic Development Fund. The Centre has 5 fixed monitoring stations throughout Dakar and a laboratory. Also available is a portable air quality



monitoring van for areas not covered by the fixed stations. The air quality measurements are characterized and communicated to the public through a simple air quality index.



The above graph shows the air pollution monitoring results for 2013. The three years of measurement show that suspended particulate matter (PM<sub>10</sub> and PM<sub>2,5</sub>) are the most frequent air pollutants in Dakar. Desert dust from Sahara, intensification of road traffic -- especially diesel vehicles, and various human activities are all factors which contribute to the accumulation and resuspension of particulate matter. Exceedance of the Senegalese air quality standards (260 µg/m<sup>3</sup> daily) occurred most of the time during the dry season. During the rainy season, the particulate matter concentrations decrease significantly due to the atmospheric leaching by rainfall.