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IMPROVING AMBIENT AIR QUALITY IN URBAN CENTERS OF KENYA

By

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Introduction



Global Level

- In 2012, it was estimated that pollution caused 3.7 Million premature deaths worldwide annually (WHO 2014).
 - **Causes:** Exposure to small particulate matter of 10 microns or less in diameter (PM₁₀)

National Level

- Ambient air quality has deteriorated over the years resulting in increased Upper Respiratory Tract Infections (URTI).
 - Indoor air pollution is a health concern for Kenya .

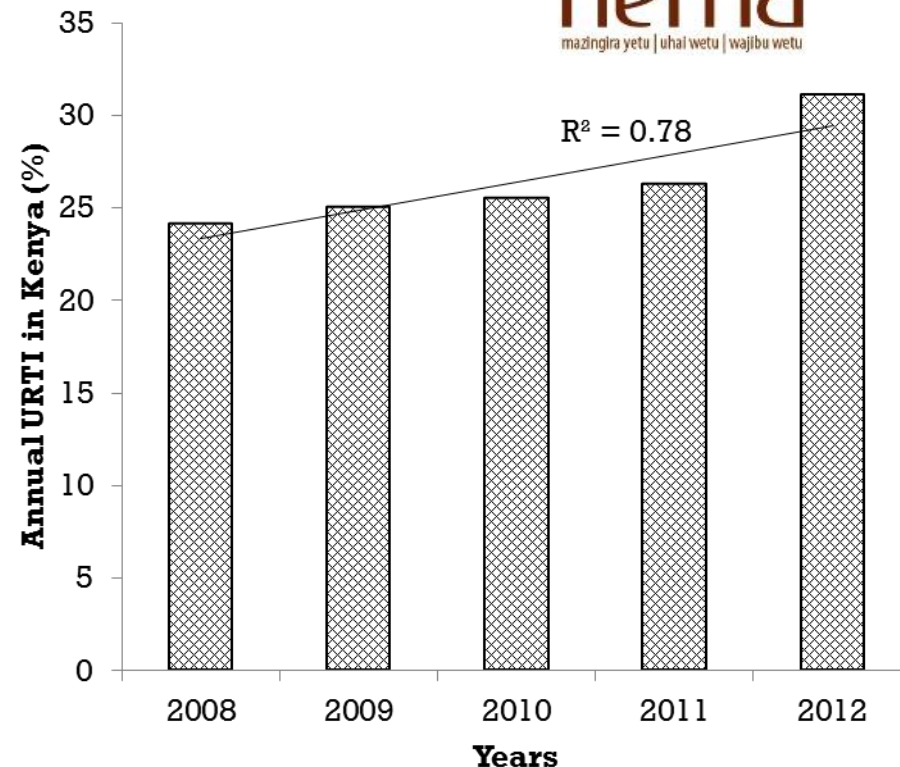
Effects of Deteriorated Ambient Air Quality

URTI as a national burden of diseases reached 31.1% in 2012

- 39.20 million cases of diseases in Kenya; about 12.20 million cases were attributed to respiratory diseases (Economic Survey of 2012)

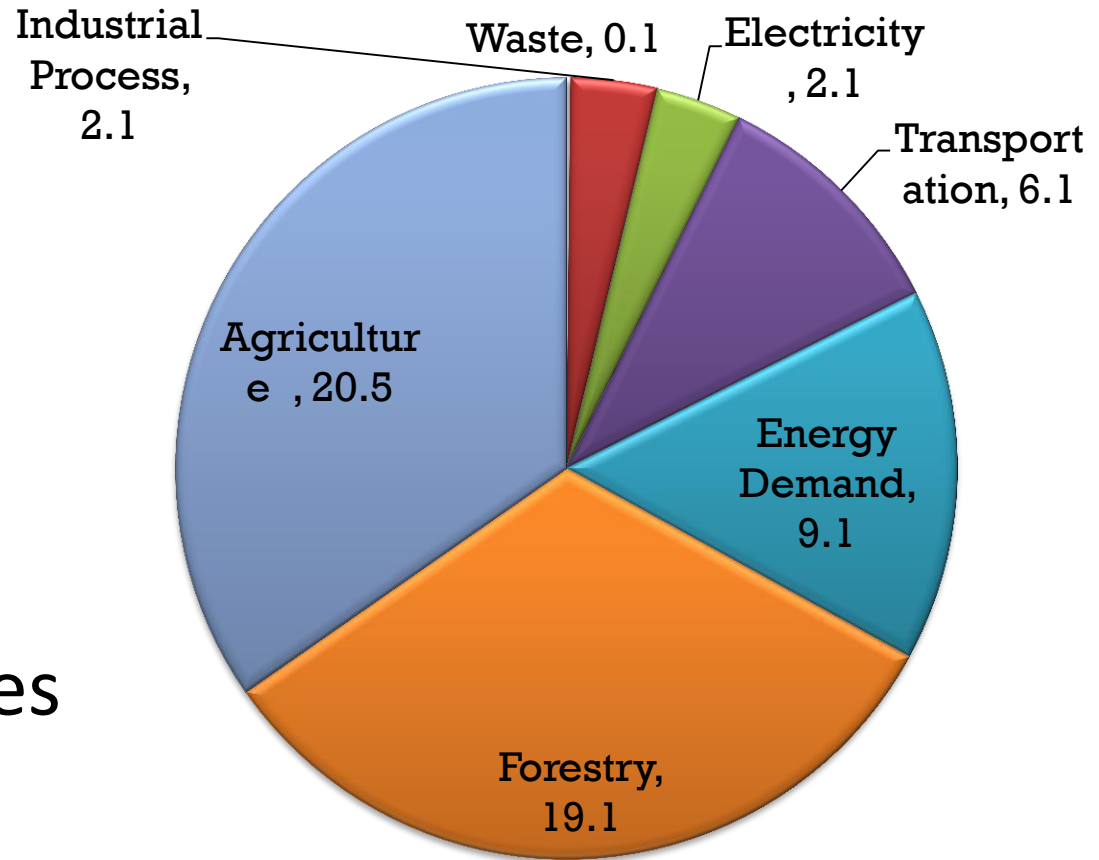


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Kenya's Total Emissions per Sector in Metric tones, 2010

- Industrial sector
- Energy sector
- Transport sector
- Waste disposal systems, and
- Domestic processes among others.



Provisions of the Air Quality Regulations (Draft 2014)

- Provisions to reduce impacts of air pollution
- Guidelines to minimize greenhouse gases
- Recommends appropriate air pollution control technologies
 - Applies to all internal combustion engines; all premises, places, processes, operations, or works from which emissions may occur



Regulation Recommendation

- Priority air pollutants;**
- Ambient air quality tolerance limits;**
- Guidelines on application of occupational air quality exposure limits;**
- Methods of test and measurement of air pollutants;**
- List of controlled facilities;**
- And emission limits for controlled and non-controlled facilities.**

Analytical methods for monitoring air contaminants

- **Further recommendations:**
 - A reporting system by the industries on their emission levels and measures taken to control their fugitive emissions;
 - A licensing system on emission levels for controlled facilities;
 - Establishment of the baseline levels

Corrective Actions Taken

- **Industrial Sector**

- Authority has stipulated emission limits for various types of industries
- Challenge: Use of obsolete technologies

- **Energy Sector**

- **Emission limits** for various sizes of energy generators
- **Petroleum Monitoring unit** to check adulteration of fuels
- Government has reduced **subsidies** on kerosene in order to discourage adulteration of fuels
- Very **stiff penalties** by Energy Regulatory Commission to discourage adulteration of fuels (about Kshs. 1.0 million)
- Alternative **renewable energy sources** such as geothermal and wind power

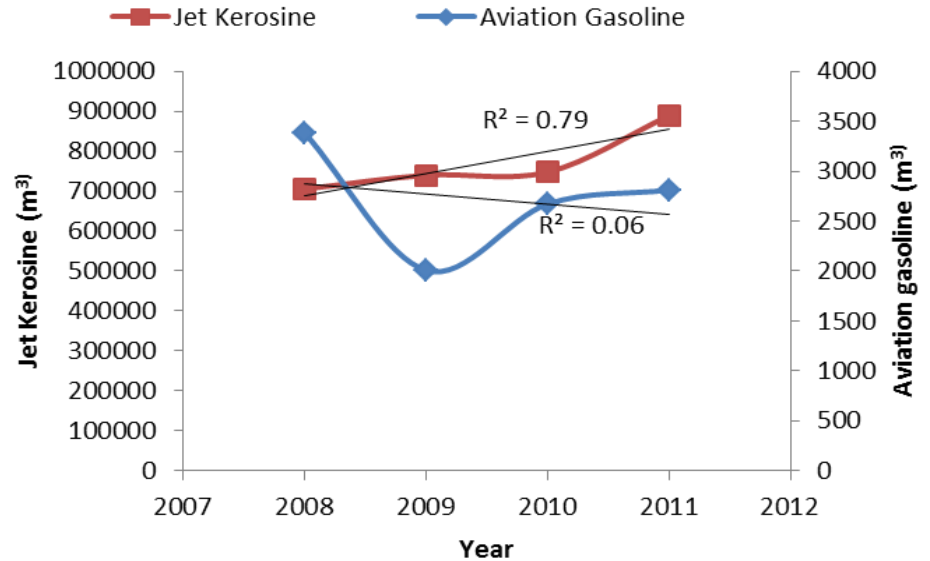
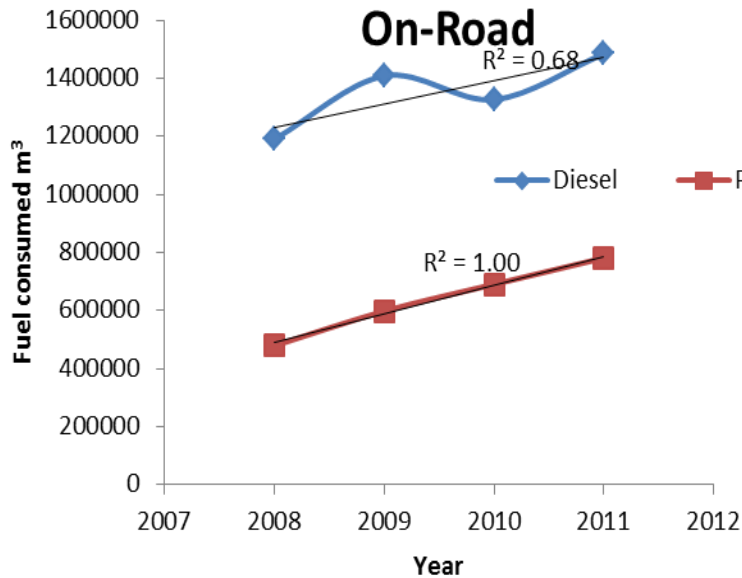
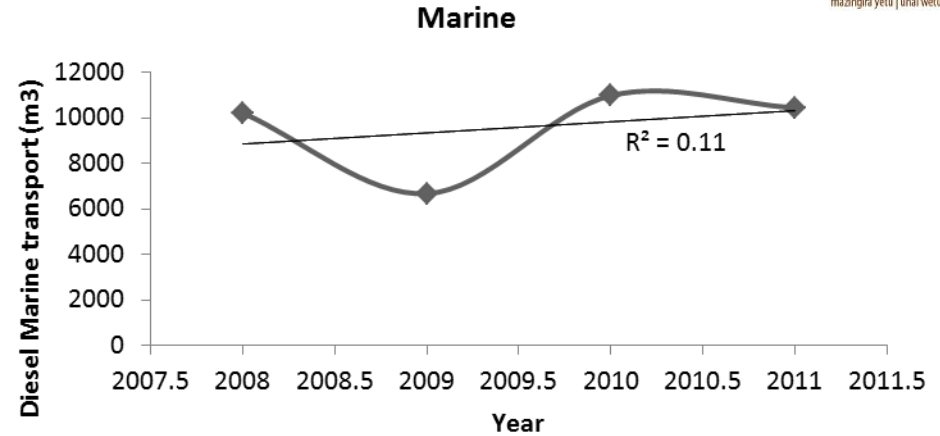
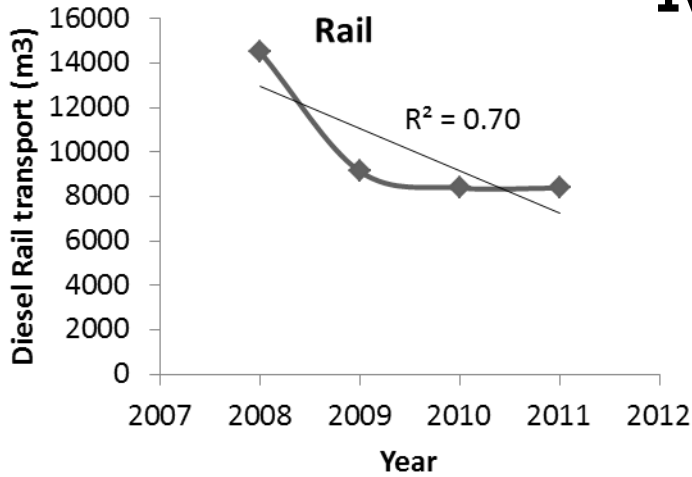
YEAR

Action Taken in Transport sector

- **2003** The government set the age limit for imported vehicles at eight (8)
- **Dec 2005,** The government phased-out use of lead in gasoline (According to Dakar declaration)
- **2010** The government reduced the standard limit of sulphur in fuel from 10,000ppm to 500ppm
- 2014** Air quality regulations draft to regulate vehicular emission limits as stipulated in the Kenya Standard KS 1515.

Others: - The Government has completed construction of the Eastern, Northern and Western by-passes to decongest the city Centre
- Rehabilitate and extend the commuter rail transport within the Nairobi city
- Construction of the standard gauge rail from Mombasa to Nairobi-Uganda

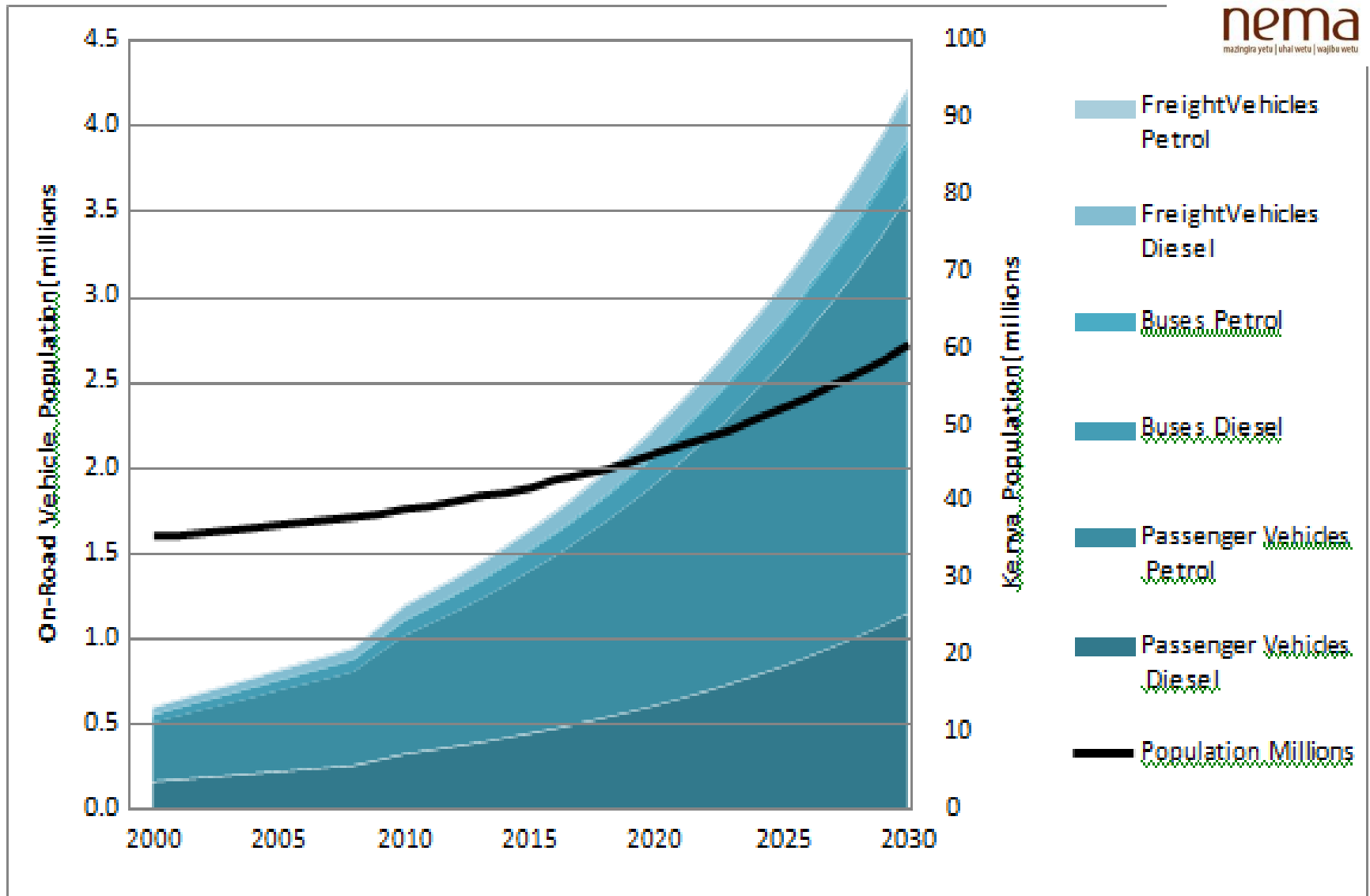
Fuel Consumption of transport Mode (m³)





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Figure 2.9: On-road vehicle population growth in Kenya (millions)



Waste Disposal Systems

In 2014 the Authority formulated the draft air quality regulations which:-

- outlaw open-burning of wastes
- stipulate emission limits for incinerators.
- The waste tyre regulation: The private sector has initiated activities on energy recovery from waste tyres
- Several attempts in plastics recycling:
 - the challenge is on the environmental friendliness of the technologies used

Domestic processes

- **Activities to promote uptake of cleaner fuels such as Liquid Petroleum Gas (LPG) to reduce indoor air pollution**
- **Cleaner cooking stoves and solar lanterns to reduce reliance on kerosene lamps**
- **zero-rated duty on solar panels imported into the country to reduce reliance on kerosene lamps**
- **Subsidized rural electrification activities which increased access of electricity in the rural areas**

Challenges



- Implementation of the air quality regulations
- Enforcement of the Vehicular emission standards; KS 1515
- Capacity building of the vehicle emission testing centres.
- Establishment of monitoring system for ambient air quality
- Establishment of an emission monitoring system
- Adoption of cleaner production technologies



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Thank You