

# Assessment of policies on air pollution in Africa

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# Outline

- **Introduction: policy development**
- **The Status of the Atmosphere and Air Pollution in Africa**
- **Progress in Implementing policy Goals and Targets**
- **Challenges and Constraints in Meeting the Goals and Targets**
- **Way forward**

# Introduction

- **Air pollution.** Presence of substances in the atmosphere is such duration and quantity that are **harmful** to biological systems, material, or interfere with **enjoyment of life**
- **Designated pollutant**—1. An air pollutant identified as potentially harmful, deserving monitoring and careful study. 2. An air pollutant that is controlled by government regulation.
- **Criteria pollutants**—Pollutants that can injure health, harm the environment, and cause property damage.
- **Policy** : *a statement of goals and objectives, and the guidelines and limitations on how those goals and objectives will be pursued.*

# Introduction

- Outdoor air pollution
- Indoor air pollution
- Noise pollution and Light pollution
- Urban air pollution
- Stationary air pollution
- Mobile air pollution
- Cabin air quality
- Background air pollution

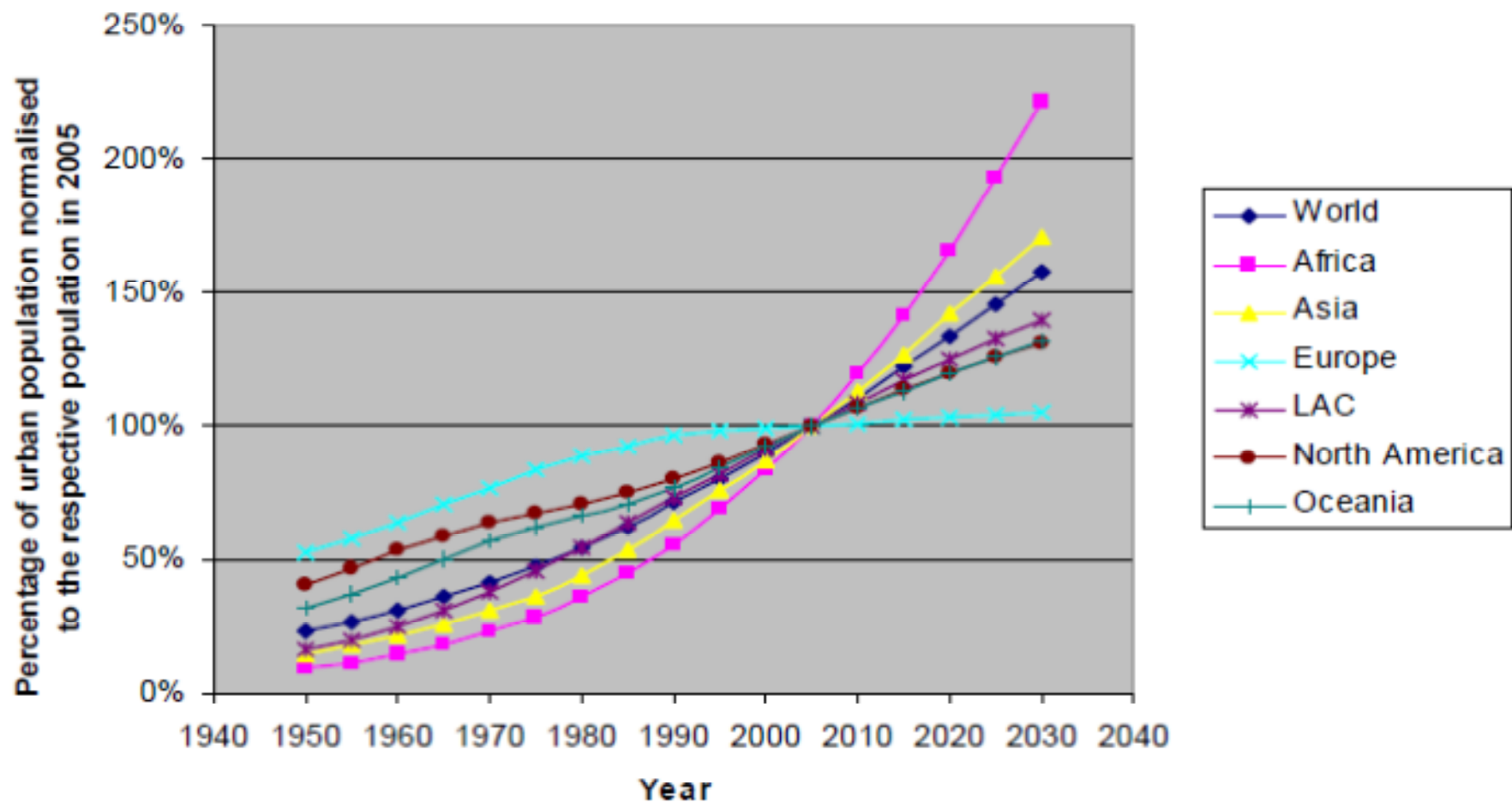
Smog in Cairo is an example of outdoor air pollution

(African Environment outlook, 2013)

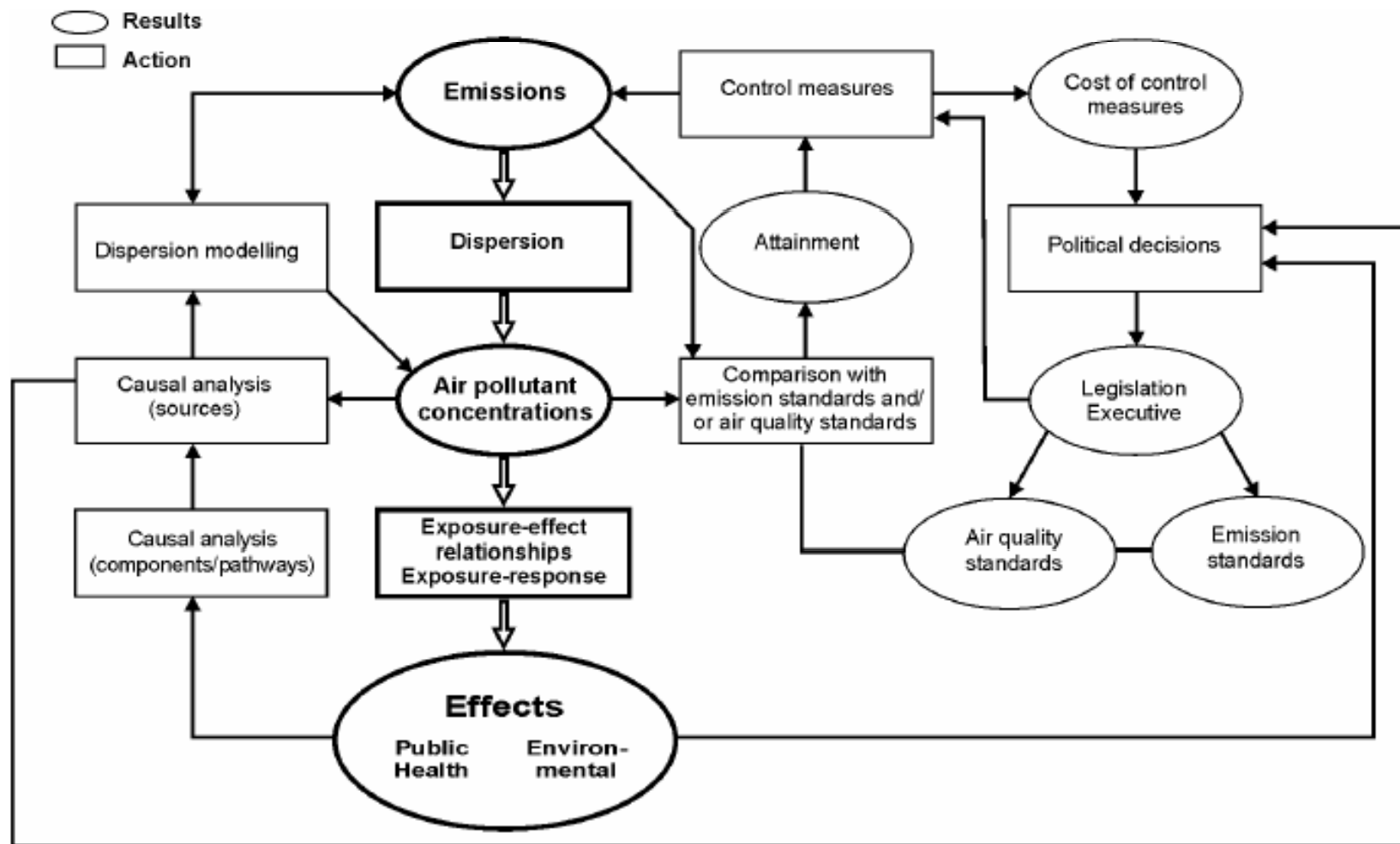


Indoor pollution in  
Burkina Faso  
(African Environment  
outlook, 2013)





**Figure 1.3: A framework for air quality management**  
 Source: Schwela et al. (2006)



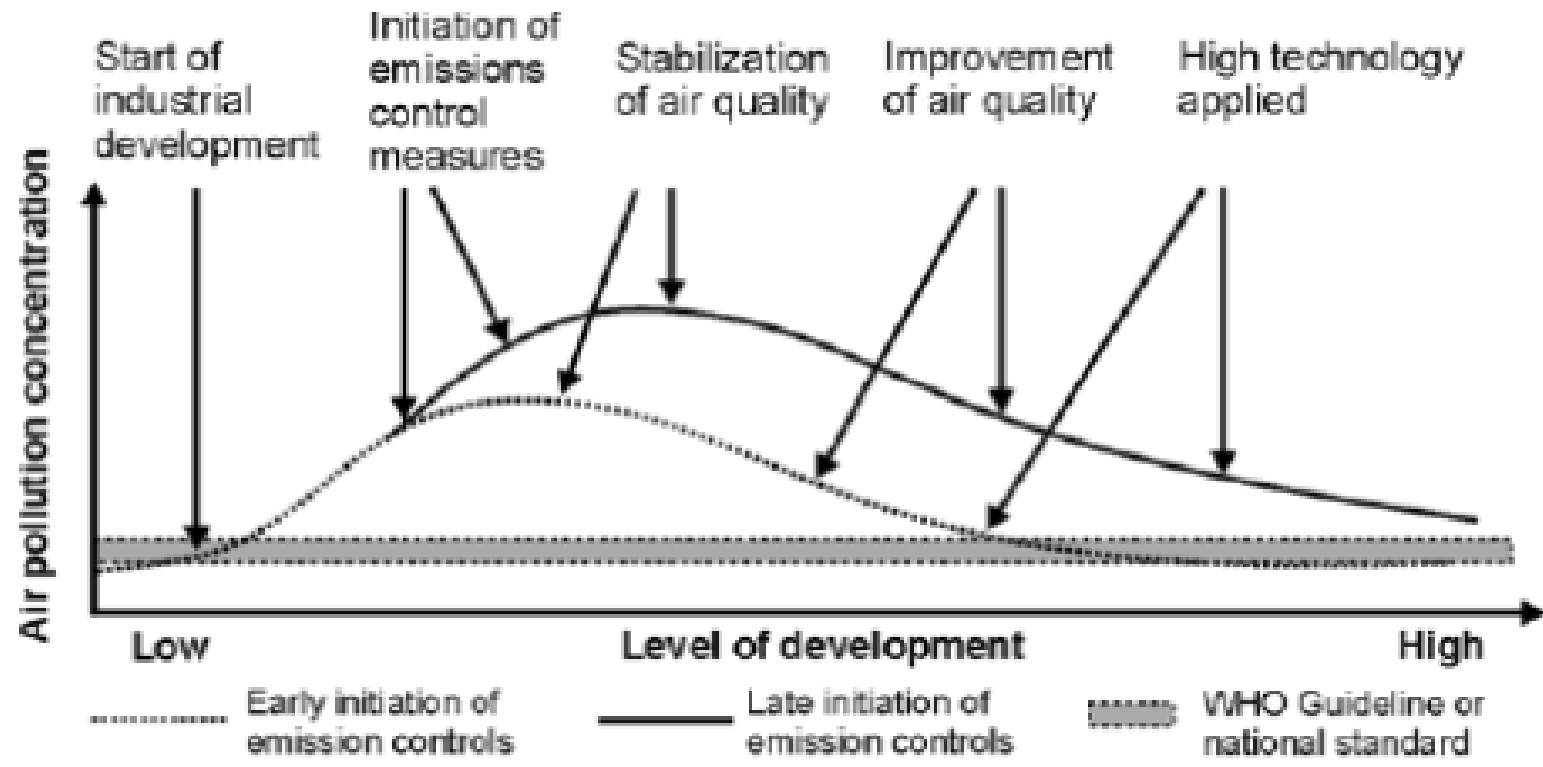


# The Status of the Atmosphere and Air Pollution in Africa

- In Africa, **urban outdoor air pollution** is responsible for an estimated **49,000 premature deaths annually** with indoor use of solid fuels being responsible for eight times this value, the main burden being borne by Sub Saharan African countries (WHO, 2002).
- Air pollution, outdoor and indoor, **affects the health and life chances of millions of people in Sub Saharan Africa every day.**
- There is a link between air pollution and **poverty since poor people are exposed to higher concentrations** of air pollutants and tend to suffer disproportionately from the effects of deteriorating air quality (AQ).

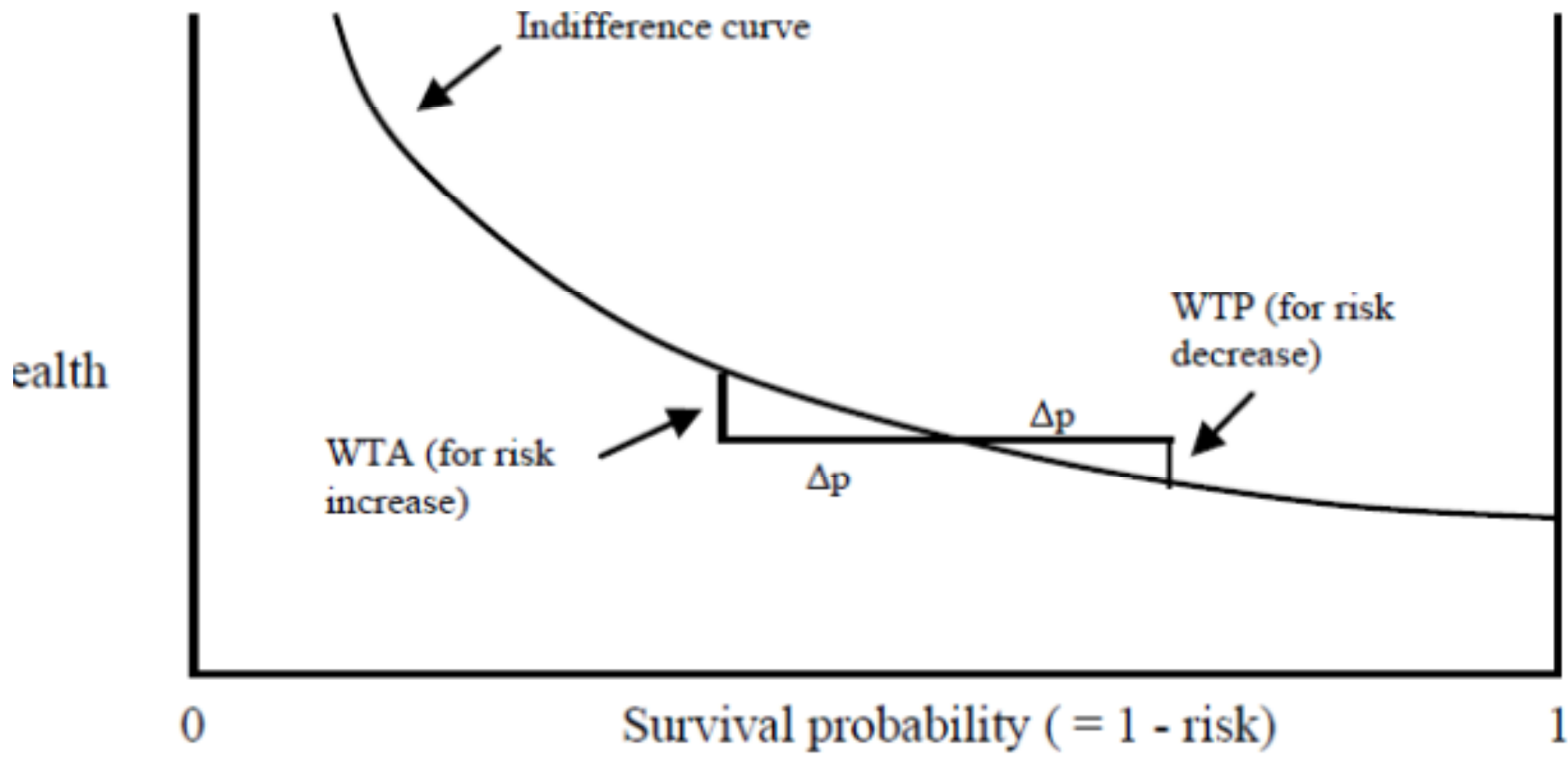
## The Status of the Atmosphere and Air Pollution in Africa..... cont.

- **Children** in cities exposed to high concentrations of air pollutants will more often develop respiratory ailments which prevent them from developing and learning well.
- As a consequence they will suffer in adult life from low levels of qualifications and skills.
- The implication of poorly educated children is not only a reduction of quality of their lives but also an obstacle for the economic development of a country as a whole.



**Figure 3.3: Development of air pollution problems in cities**  
 Source: Schwela et al. (2006)

$$VSL \approx \frac{WTP}{\Delta p} \approx \frac{WTA}{\Delta p}$$



# Public policies that can reduce the health impacts of ambient air pollution

Reducing the public health impacts of ambient air pollution requires addressing the **main sources of the air pollution**, including inefficient fossil fuel combustion from

- motor vehicle transport,
- power generation and
- improving energy efficiency in
  - homes,
  - buildings and
  - manufacturing.

# Public policies that can reduce the health impacts of ambient air pollution... cont

Reducing the health effects from ambient air pollution requires **action by public authorities** at

- national,
- regional and
- international levels.

**Individuals can contribute** to improving air quality by choosing cleaner options for

- transport or
- energy production.

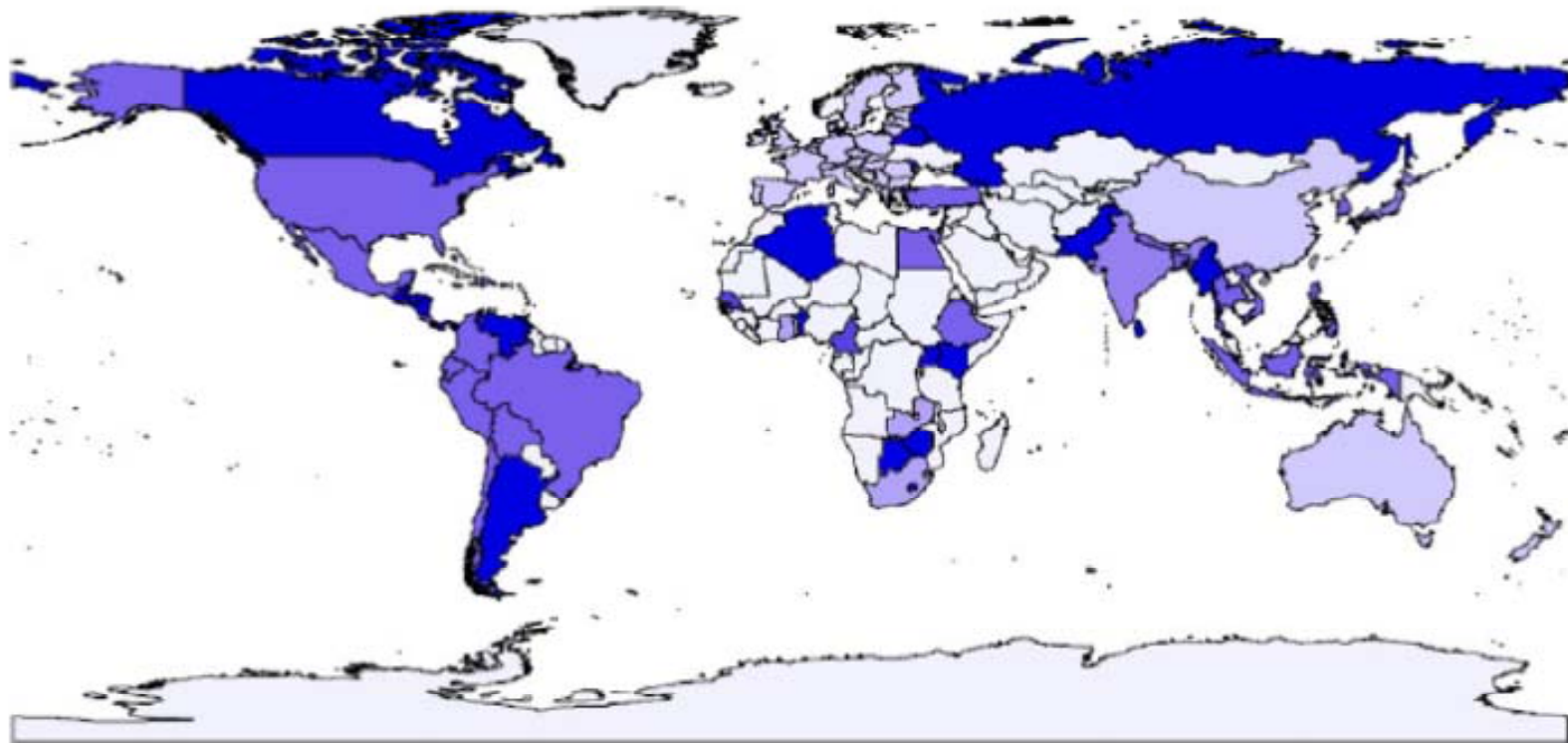
## Public policies that can reduce the health impacts of ambient air pollution ... cont

- The **media can play a key role** in activating a multi-sectoral approach to **prevention of exposure** to ambient air pollution, by
  - engaging with and
  - supporting the work of other sectors (i.e. transport, housing, energy, industry)
- to **develop and implement long-term policies** and programs aimed to reduce air pollution and improve health.

Fig. 1 Map of national 24-h AAQS for PM<sub>10</sub> AAQS (WHO AQG equivalent)

Air Qual Atmos Health

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AAQS (WHO AQG Equivalent)

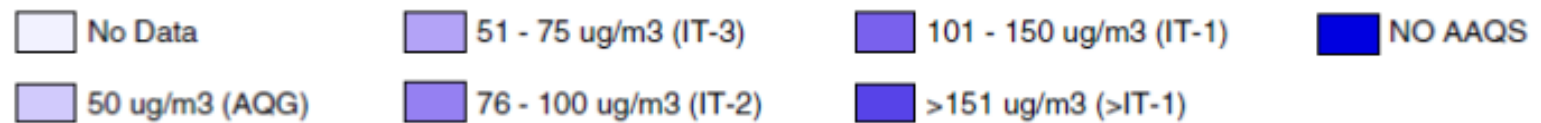
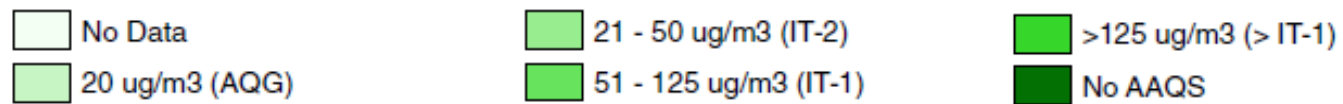




Fig. 2 Map of national 24-h AAQS for SO<sub>2</sub> AAQS (WHO AQG equivalent)



AAQS (WHO AQG Equivalent)



## Progress in Implementing National Action Plans of urban Air Quality.

A total of 25 countries provided country reports on the above-mentioned topical themes.

These countries are Benin, Botswana, Burkina Faso, Burundi, Cameroon, Republic of the Congo (Congo-Brazzaville), Democratic Republic of the Congo (Congo-Kinshasa), Ethiopia, Gabon, Ghana, Guinea, Kenya, Liberia, Madagascar, Mali, Mauritius, Mozambique, Nigeria, Rwanda, Senegal, Swaziland, Tanzania, Togo, Uganda, and Zimbabwe

## Progress in Implementing National Action Plans of urban Air Quality .... cont

- **All countries** are parties to the **Convention on Climate Change** and the Montreal Protocol on Substances depleting the Ozone Layer. Most countries have also signed the **Kyoto Protocol**.
- Legislation on environmental protection has been developed in the majority of countries.
- Only Congo-Kinshasa, Guinea, Liberia, Malawi and Rwanda seem to not have promulgated Environmental Protection Acts.

# Ozone measuring instrument



Dobson D065 equipped with encoder, and laptop computer.

## Progress in Implementing National Action Plans of urban Air Quality .... cont

- The Environment **Act covers air pollution**. Comprehensive legislation **specific for air pollution sometimes exists**, e.g. in the Atmospheric Pollution Prevention Act of Botswana.
- The Environment Act is complemented by regulations and rules which specify fuel parameters, emission standards and AQS.
- While 16 countries have set fuel specifications for **gasoline** and 14 for **diesel**, only 5 countries have promulgated emission standards for vehicles and **8 have set AQS**.

## Progress in Implementing National Action Plans of urban Air Quality .... cont

Most countries address **AQM in an ad hoc fashion**, only Madagascar appears to develop a full fledged AQM system addressing revision of

- legislation,
- emissions, dispersion,
- air pollutant concentrations,
- control measures,
- impacts and cost-benefit analysis,

Ghana and Tanzania are on the way to develop an AQM system.

## Progress in Implementing National Action Plans of urban Air Quality .... cont

- Benin's legislation refers only to mobile sources which are apparently considered the most significant source.
- Thus, industrial sources, uncontrolled fires, waste deposits and trans-boundary air pollution are disregarded. Botswana's air pollution legislation is very old and covers only industrial sources. Updating this legislation would make the AQM approach more realistic.

## Progress in Implementing National Action Plans of urban Air Quality .... cont

- In Nigeria, little activities in relation to AQM have taken place and ad hoc measures are adopted.
- This procedure bears the risk of making wrong decisions. Togo's two policies on energy
- development and transport and the strategy to combat air pollution have the character of ad hoc
- measures rather than being integrated policies. This makes them not very suited towards rational
- AQM. In addition, the implementation of these strategies has not yet started due to lack of
- funding and logistics.



# Challenges and Constraints in Meeting the Goals and Targets

Challenges that have slowed the progress towards meeting air pollution goals and targets include

- socio-economic and political impacts of closing down outdated emission sources such as refineries,
- lack of information and understanding of gasoline engine performance,
- weak national energy policies,
- lack of local lead-exposure data for policymaking and standard setting, as well as
- inadequate retail infrastructure for unleaded gasoline.

# Challenges and Constraints in Meeting the Goals and Targets ... cont

Barriers in mitigating **indoor air pollution** associated with energy use, on the other hand, include

- limited access to cleaner technology financing,
- lack of awareness,
- weak public health policy and regulation, and
- cultural diversity.

# Challenges and Constraints in Meeting the Goals and Targets .... cont

Lack of appropriate **early warning systems** and prediction of atmospheric changes and fluctuations resulting from local air pollution is another serious challenge to intervention.

This is particularly so for

- desert dust storms,
- savanna and grassland/forest burning and
- related emissions.

# Challenges and Constraints in Meeting the Goals and Targets .....cont

Institutions in the regions are also weak in

- data collection and
- transformation for policymaking

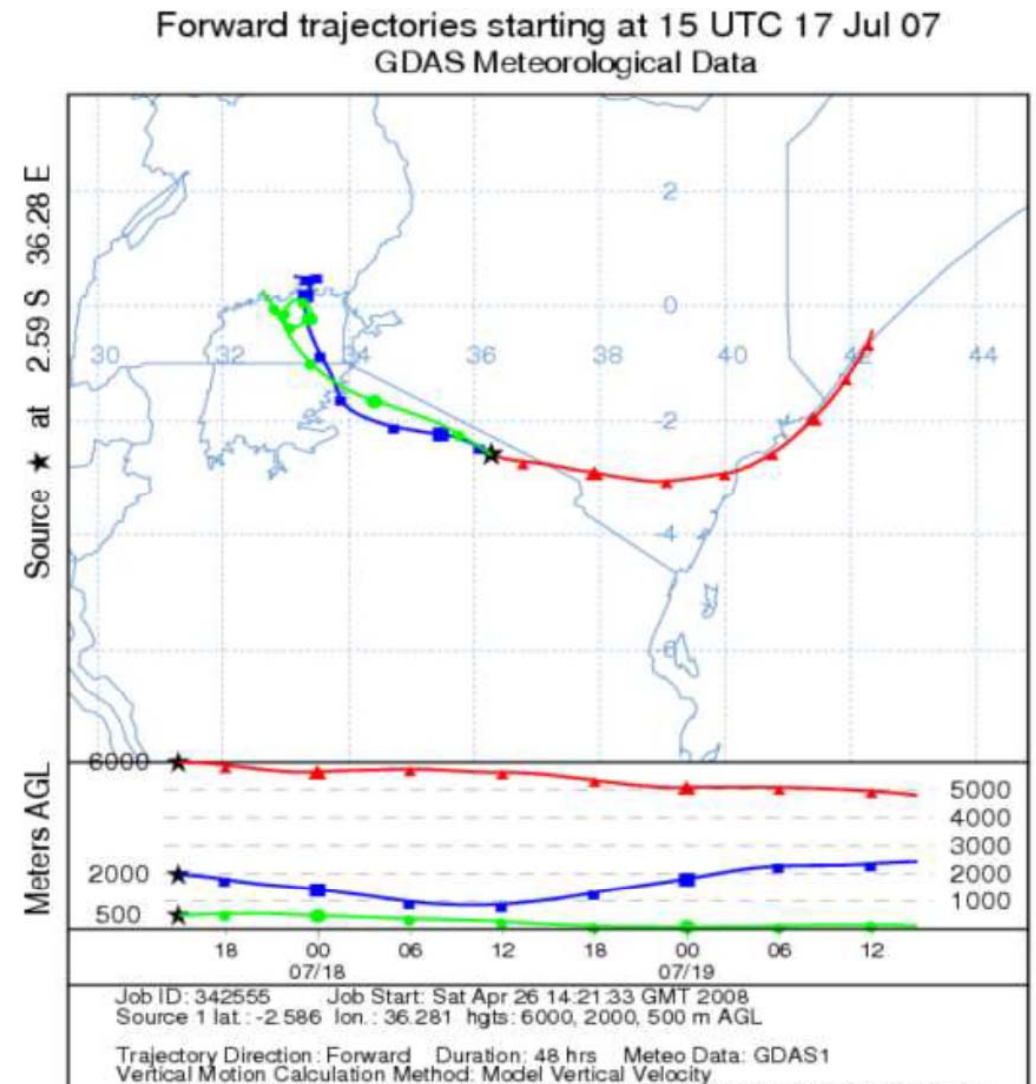
Overall, many countries lack relevant, strong and autonomous regulatory bodies.

It is critical that these barriers be lifted urgently to meet the air pollution targets for the continent.

# Trans-boundary pollution transport

Modelling volcanic ash from

Ol-donyo Lengai  
Eruption



# Way forward

- the gap in information from air quality monitoring, or even due to an under-appreciation of the potential solutions and measures that can be taken to improve air quality, should be bridged
- Air quality modelling should be encouraged
- To ensure the greatest benefits for health, improving air quality should be an important consideration in policy planning across different economic sectors (e.g. transport, energy, industry, urban development).
- Awareness creation is needed on formulation of relevant policies
- Air Quality Management systems should be put in place