

# Tackling Transport in Africa The TEST Network

Dr Jürgen Perschon / EURIST  
European Institute for Sustainable Transport  
Hamburg / Germany

Learning Centre UN CSD 19  
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**Introduction**

**Key Challenges**

**Objective of the  
TEST Network**

**Current Activities  
& First Results**



# “Transport, Environment, Science and Technology (TEST) Network”.

-The EU supports the development of a research network in six African countries

- Tanzania, Zambia, Uganda, South Africa, Mozambique and Zimbabwe

-Fund: ACP Science and Technology Programme of the 9th European Development Fund

## Network Leader

Stockholm Environment Institute,  
University of York

## International Partners

European Institute for Sustainable  
Transport, Germany (EURIST)

## Country Partners

Mozambique – Universidade Eduardo  
Mondlane

South Africa - University of Cape Town

Tanzania - Ardhi University

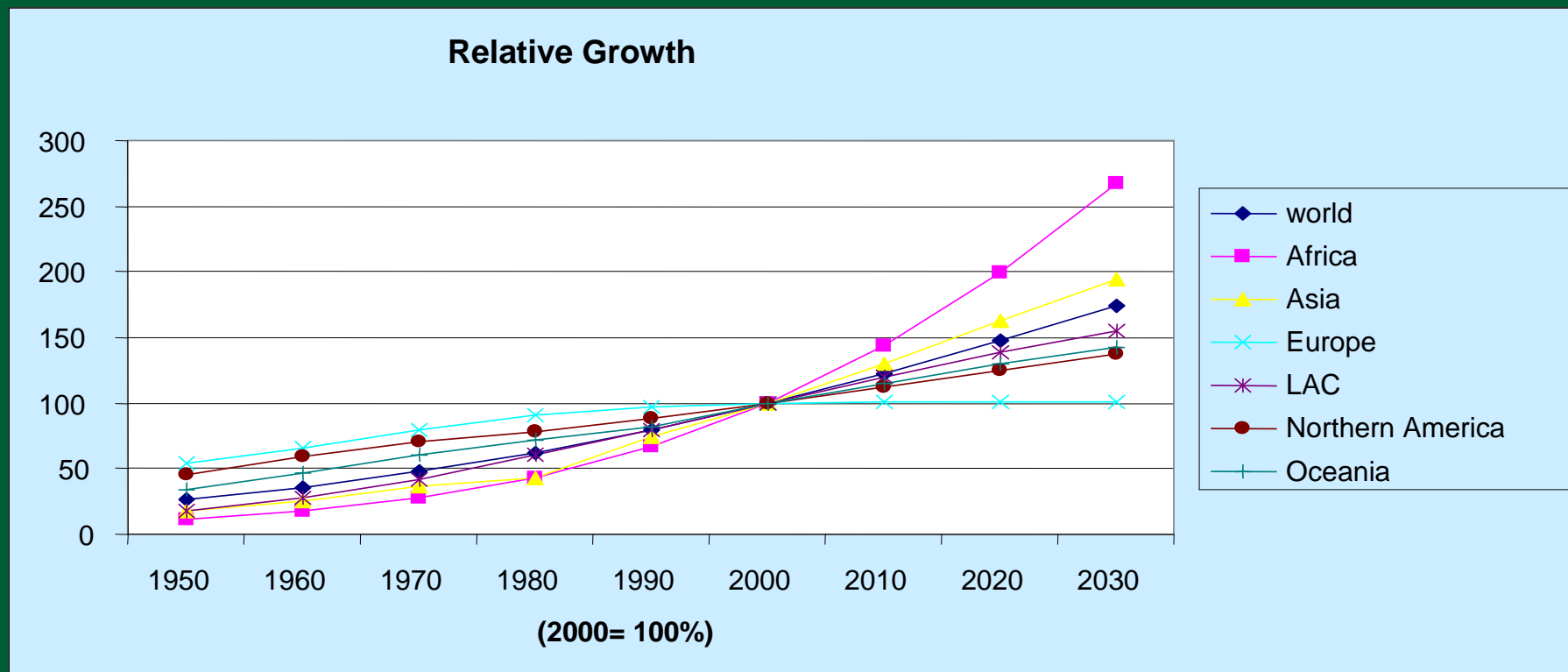
Uganda - Makerere University

Zambia - University of Zambia

Zimbabwe - University of Zimbabwe



# Urbanisation (1950-2030)



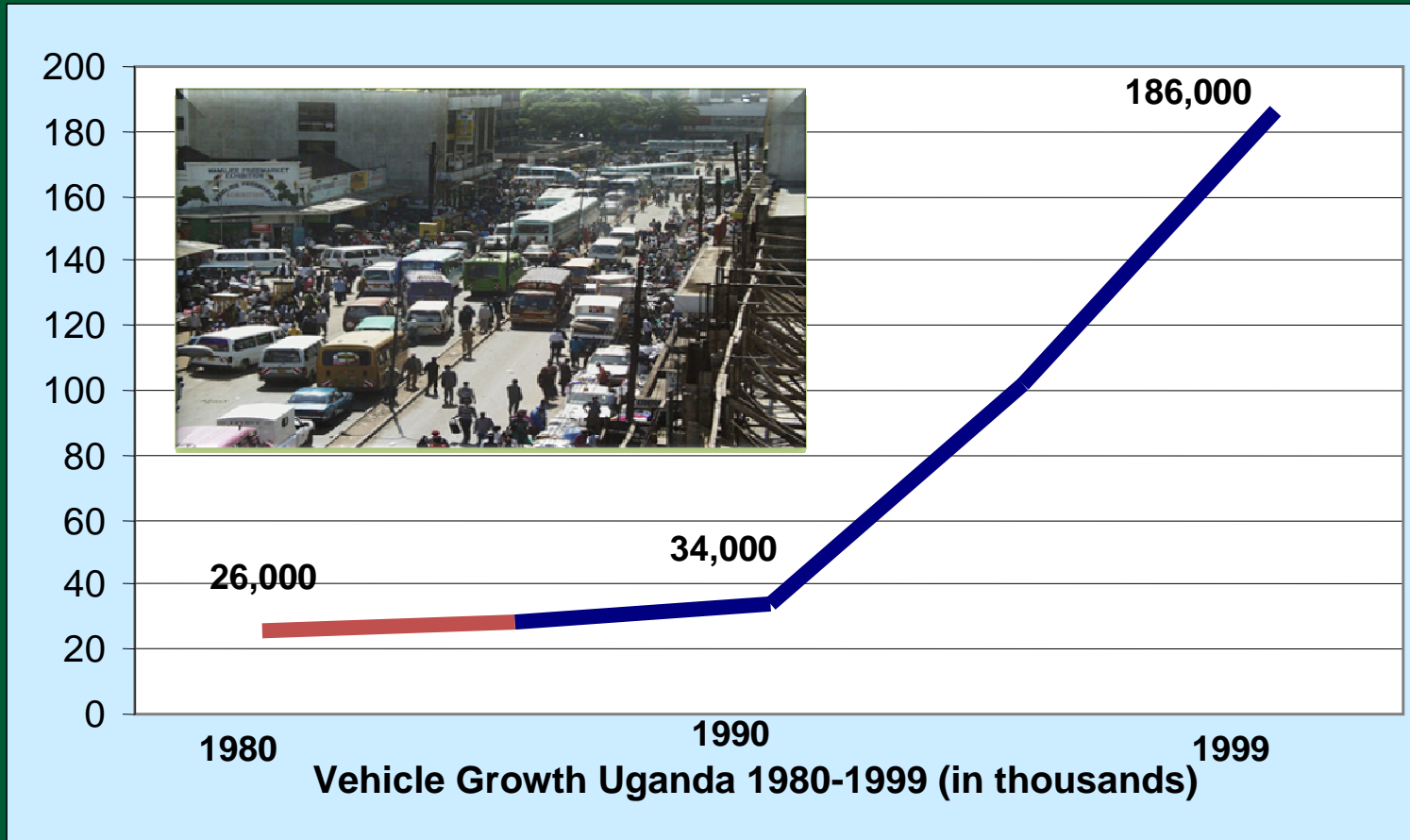
- Africa's urban population growth rates continue to be the highest in the world
- Approximately 3.3 to 3.7 per cent annually
- African based population are growing faster than the counterparts in Asia

(UNDESA, 2004)

- A key source of urban air pollution in Cairo, Cape Town, Dakar, Nairobi and Johannesburg
- In 2000 Africa had 2.5 per cent of the total world vehicle population, approx. 700 million
- Doubling of motor vehicle fleets in the past 10 yrs in Botswana, Uganda, Zimbabwe  
(UNEP, 2006)



# Vehicle Growth (Example Uganda)



| Country      | Key pollutants   | Sulphur content <sup>††</sup> of diesel [ppm] | Inspection & maintenance for mobile sources | Emissions inventory          | Routine monitoring    | Health impact assessment | Projects or plans with AQ benefit ongoing | Estimated stage of air quality management |
|--------------|--|---|---|------------------------------|-----------------------|--------------------------|---|---|
| Mozambique   | PM <sub>10</sub> , PM <sub>2.5</sub> , Black Carbon, SO <sub>2</sub> , NO <sub>x</sub> , CO <sub>2</sub> , O <sub>3</sub> ,              | 500   | No  | Being developed              | No                    | No                       | Yes                                       | Early*                                    |
| South Africa | PM <sub>10</sub> , PM <sub>2.5</sub> , NO <sub>x</sub> , SO <sub>2</sub> , O <sub>3</sub> , CO, Pb                                       | 500   | Yes   | Yes                          | Yes                   | Yes, a few               | Yes                                       | Advancing <sup>††</sup>                   |
| Tanzania     | PM, CO, NO <sub>2</sub> , SO <sub>2</sub> , O <sub>3</sub> , Pb  | 5,000   | No  | No                           | Yes, in Dar-es-Salaam | No                       | Yes                                       | Early*                                    |
| Uganda       | PM, CH <sub>4</sub> , H <sub>2</sub> S, NH <sub>3</sub> , dioxins and furans, HCs, NO <sub>x</sub> , SO <sub>x</sub> , re-suspended dust | 5,000   | No  | No                           | No                    | No                       | Yes                                       | Initial <sup>†††</sup>                    |
| Zambia       | SO <sub>2</sub> , NO <sub>2</sub> , PM, black smoke, dust, CO, CO <sub>2</sub> and odours  | 7,500   | No  | Yes, initial, in copper belt | Yes, campaigns        | No                       | Yes                                       | Intermediate**                            |
| Zimbabwe     | SO <sub>2</sub> , NO <sub>2</sub> , PM, CO, VOCs   | 500   | Yes, for stationary sources                 | No                           | Yes, campaigns        | Anecdotal evidence       | No  | Intermediate**                            |

<sup>†</sup> Source: Schwela 2007, updated. This table is not meant to compare the stages of AQM capability across countries. The parameters on which AQM capability was estimated are not the “ideal set of parameters for doing this but the “best available common parameters” in SSA countries. The scale from “Initial” to “Comprehensive” is a relative scale with respect to the countries covered in this table and not an absolute scale. <sup>††</sup> Source: PCFV (2010); <sup>†††</sup> Initial = Any one topic addressed; \* Early = Any two topics addressed; \*\* Intermediate = Any three topics addressed; <sup>†††</sup> Advancing = More than three topics addressed.



Road traffic crashes are major causes of in SSA region 28 people per 100,000 die compared to 17 in EU low-middle income countries

## Deaths/100k persons/2000

|              |      |
|--------------|------|
| Angola       | 58.0 |
| Sudan        | 30.8 |
| South Africa | 30.3 |
| Rwanda       | 29.0 |
| Uganda       | 27.5 |
| Sweden       | 6.2  |
| Singapore    | 5.3  |



## Men More at Risk

Uganda:  
Unintentional deaths  
75% Male  
25% Female

Young adults (16-40)  
more affected



## Major causes of road crashes:

- **Human Error with the traffic system**

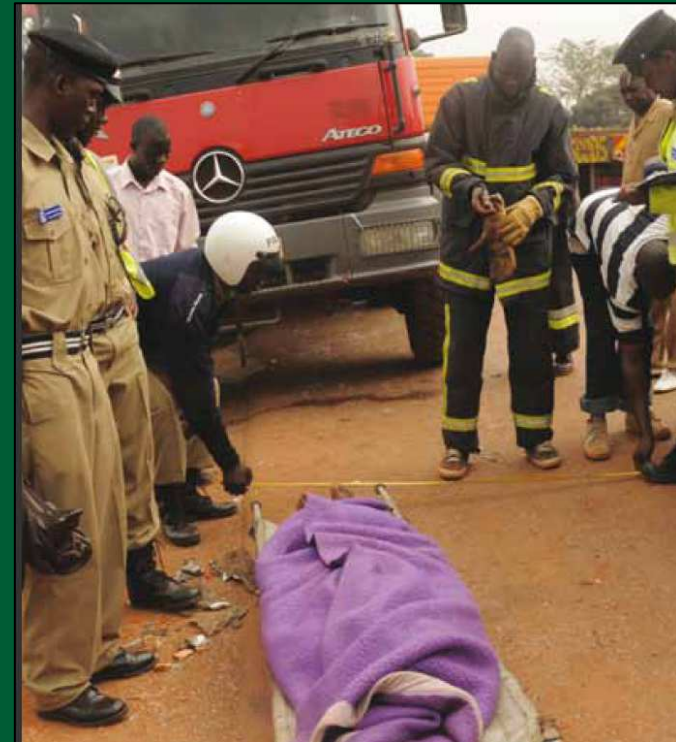
*Speed a cause of 50% of road crashes  
in Ghana  
(1998-2000)*

- **The vehicle and equipment**

*Vehicle defects as a cause of crashes  
5% Kenya, 3% South Africa*

- **Infrastructure and environment**

*Lack of road barriers, segregation, crossings*



## Rapid Urbanisation

*Migration from towns and villages to the cities for work*

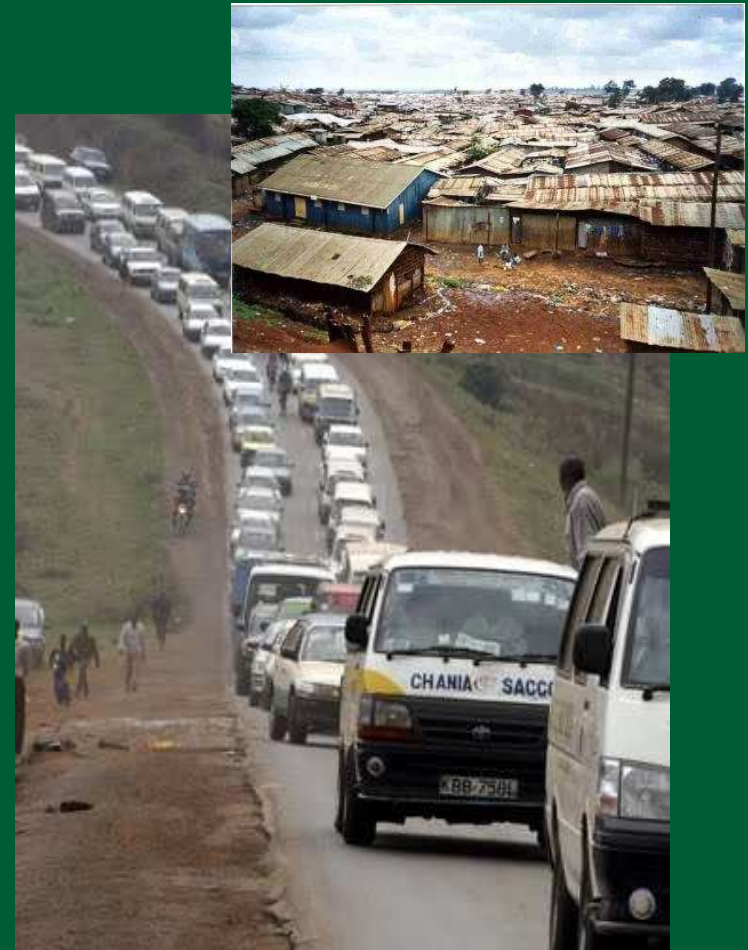
*Rapidly expanding cities, long travel distances, limited road space*

## High Motorisation Rates

*Poor public transport, increase in personal motor vehicles and Motorcycles*

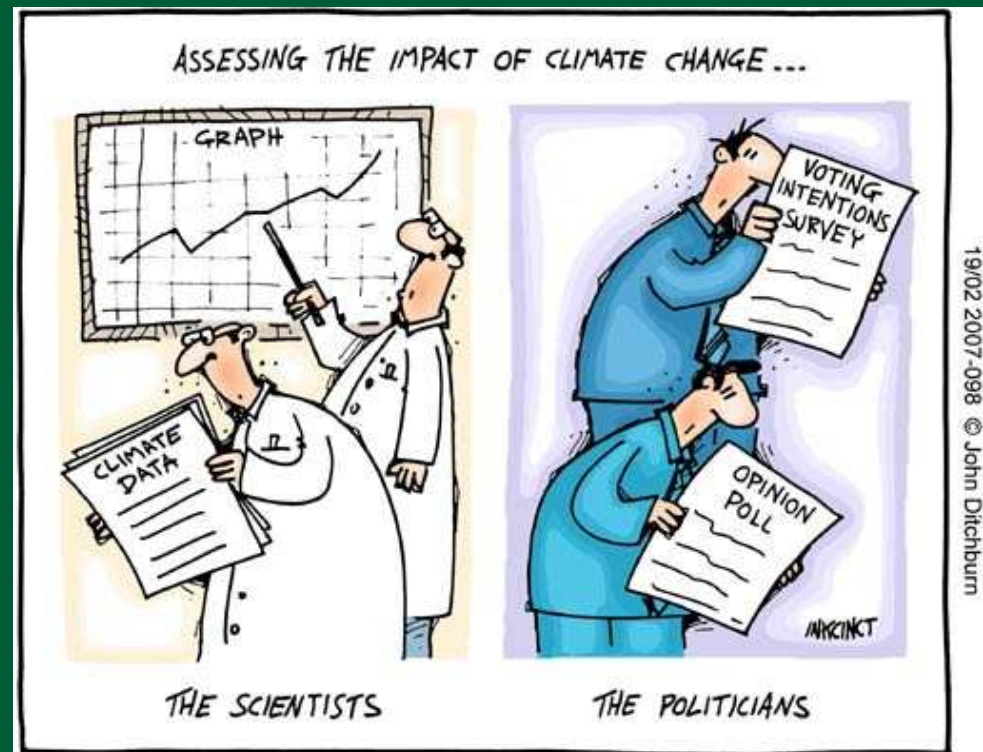
## Infrastructure, Management, Regulation, Enforcement

*Lack of road space, traffic lights, speed controls, capacity to manage and enforce*

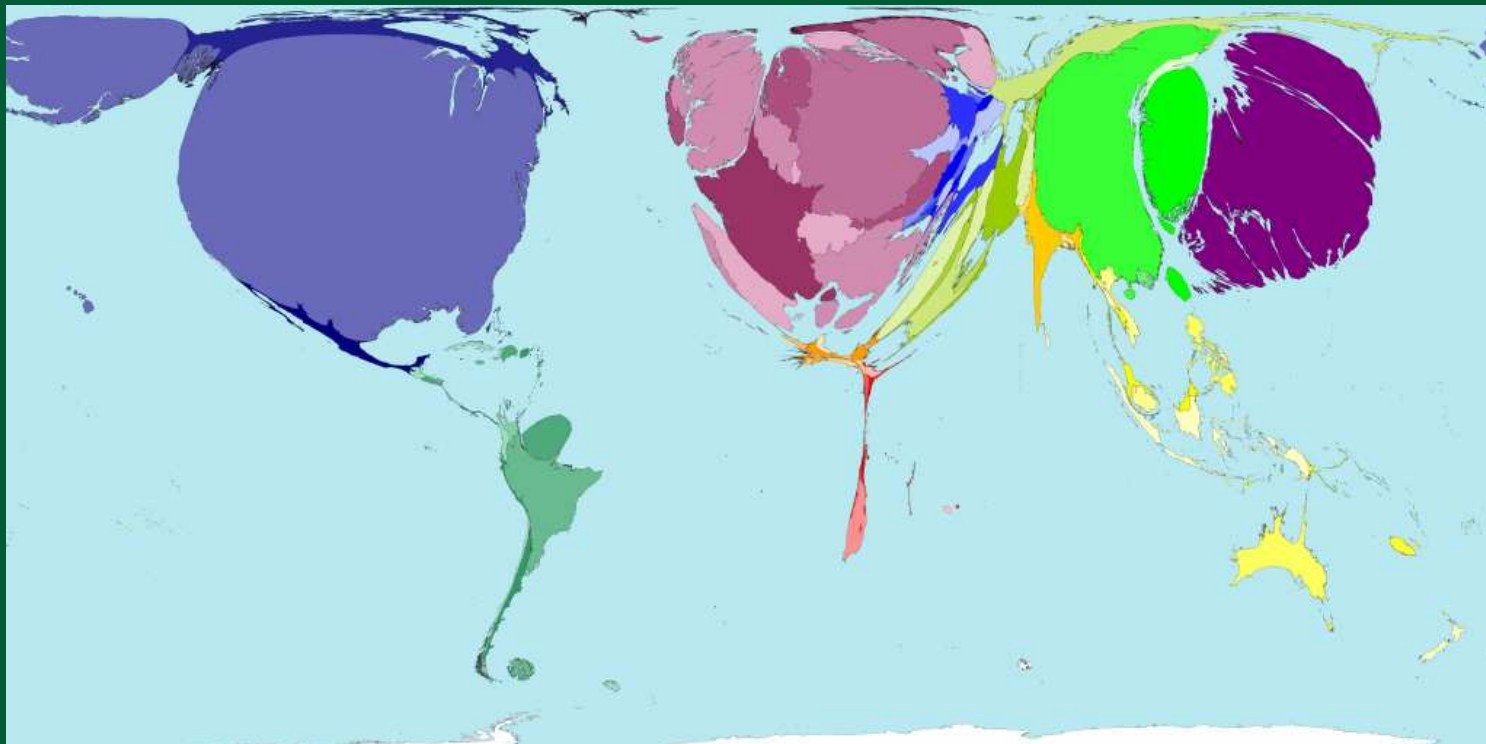


Published data on transport congestion, air pollution (including greenhouse gases and noise) and road safety in SSA tend to be

- variable
- of poor scientific quality
- based on many perspectives



## Worldwide Research Expenditure



(Source: [www.worldmapper.org](http://www.worldmapper.org))

*To strengthen scientific and technological capacity to support the formulation and implementation of sustainable transport policies which contribute to poverty reduction and economic development in SSA*



*Sustainable transport?*

## Determining the evidence base and enhancing capacity

**STRENGTHEN NETWORKING** between EU and SSA partners

**SHARING KNOWLEDGE** via quality-assured knowledge database

**ENHANCE RESEARCH CAPACITY** via short-term training programmes

**COMMUNICATE AND DISSEMINATE** knowledge



## Knowledge

- *Benchmarking of research and innovation needs*
- *Assessment of best practice case studies*
- *Peer review and evaluation procedure*
- *Web-based database*

## Enhance Research Capacity

- *Training programmes*
- *Seminars*
- *National stakeholder meetings*
- *Workshop on scientific publishing*
- *Science-technology policy dialogue*



### Communicate & disseminate

- Website
- Biannual newsletter
- Policy briefs
- National seminar series & debates
- Media communication workshop



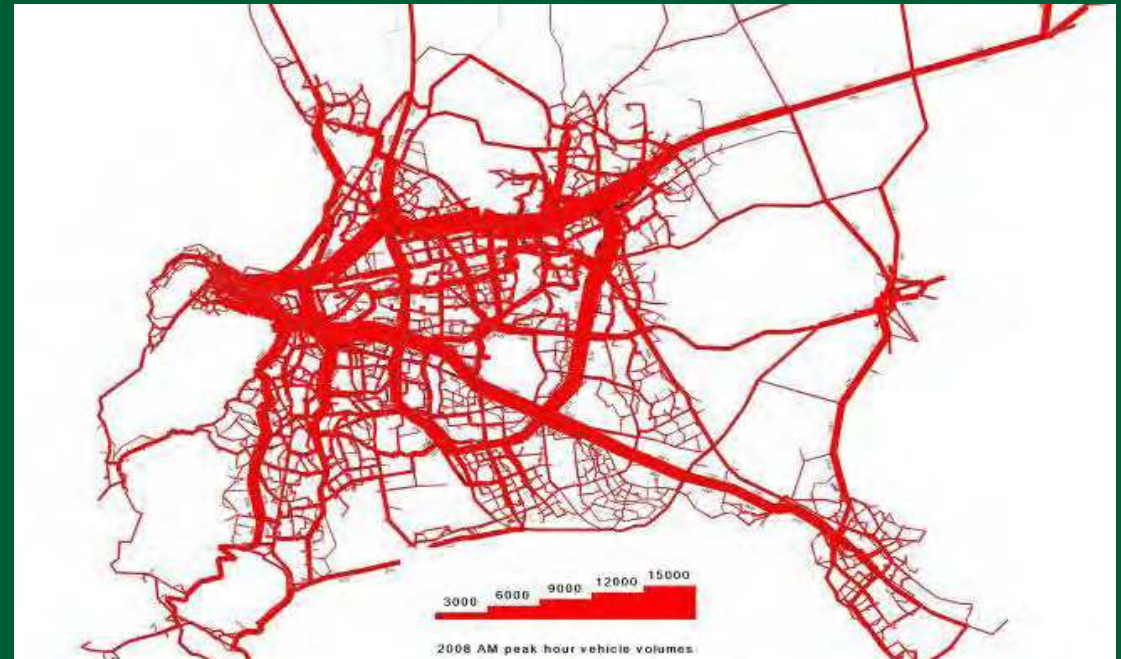
- Survey of research capacities and activities of various local and national entities with regards to traffic flow management, air pollution and road safety
- Data was gathered by
  - Review of literature (internet)
  - investigation of published material
  - questionnaire- and telephone-based surveys
  - local contact knowledge

## Activities so far

- National stakeholder meetings with participants from each relevant field were held to
  - review data captured
  - help formulate strategic objectives for the TEST activities
- Website established
- Newsletter developed
- Synopsis Report submitted to EU

## South Africa with relatively best data quality:

- RELIABILITY
- OBJECTIVITY
- VALIDITY
- FREQUENCY OF ASSESSMENT



**Cape Town Peak-hour traffic volumes on  
the City's primary road network**

(Source: City of Cape Town 2009)

- There are only a few institutions or entities involved in transportation research
- Most research output comes from academic institutions and some from governmental institutions
- Other research work is conducted but not published - especially for data from consultants work on specific governmental transport projects

### LACK OF...

- Transportation research standards and guidelines
- Research infrastructure, equipment
- institutional capacity especially in both governmental agencies and local universities
- Management and coordination of research efforts
- Financial resources to support research

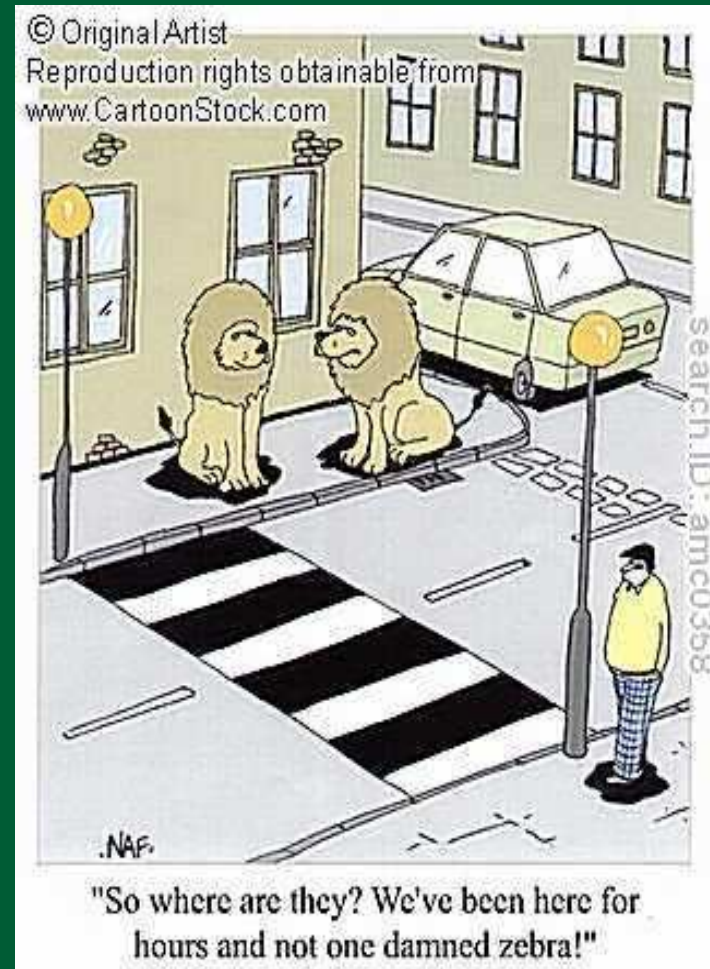
*Thank you  
for your attention!*

test



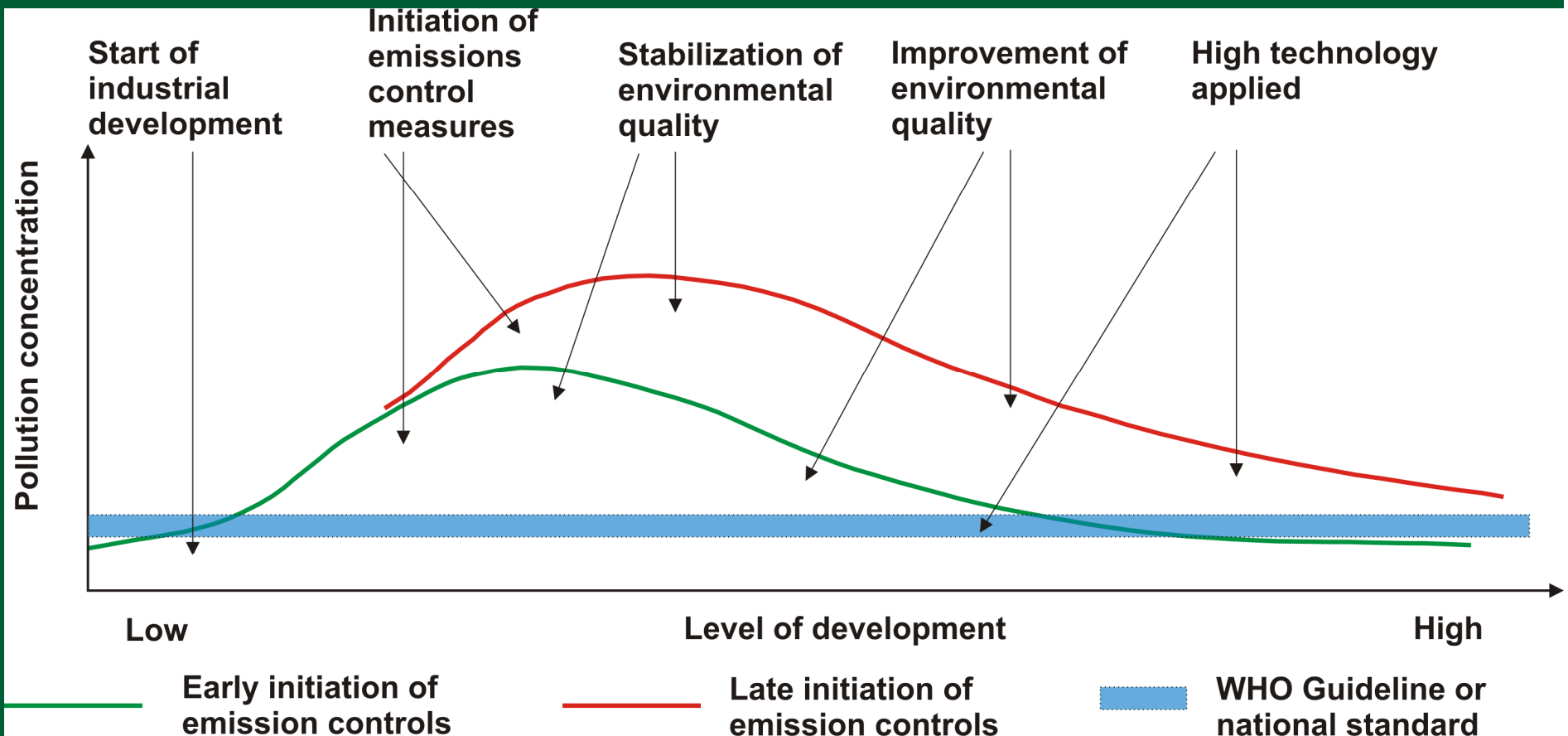
Transport and Environment

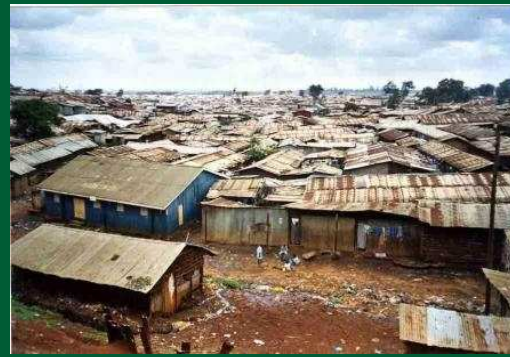
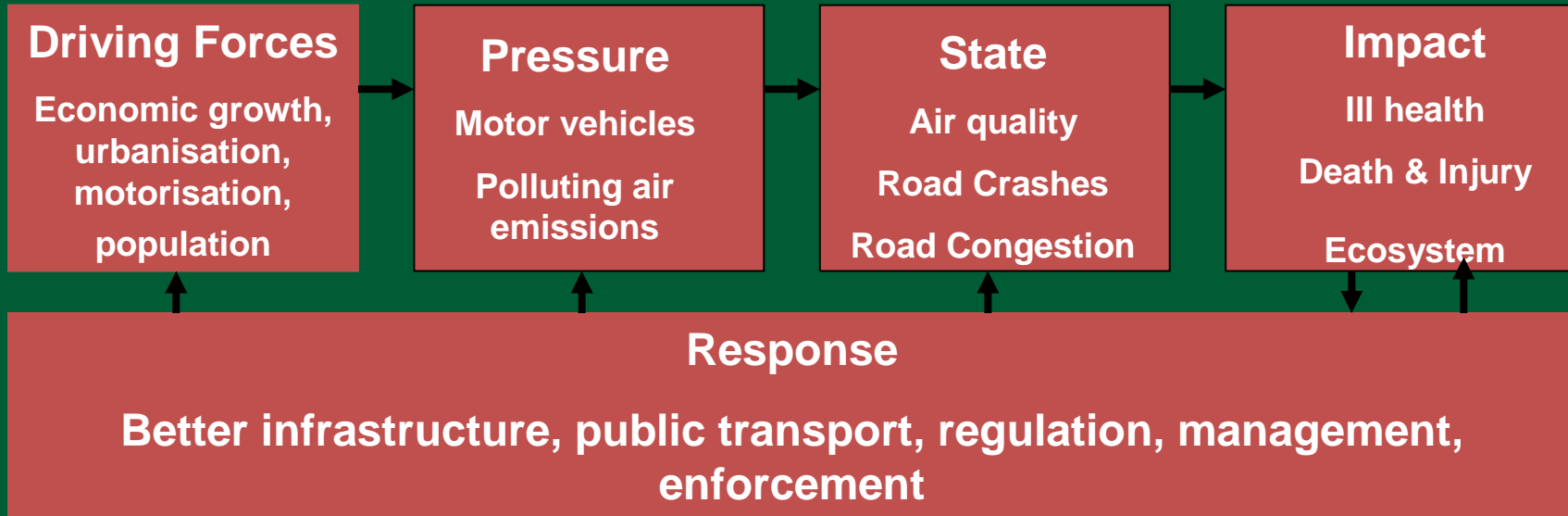
Science Technology Network





# Growth of the City







| Vehicle Type                     | 1997         | 2002         | 2005         | 2006         | 2007         |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|
| Cars and Taxis                   | 42           | 54.2         | 65.5         | 70.7         | 81.3         |
| Light Goods/4WD                  | 33.1         | 45.5         | 53.2         | 53.2         | 56           |
| Minibuses                        | 13.4         | 18           | 27.6         | 32           | 39.5         |
| Buses                            | 0.6          | 0.8          | 0.9          | 0.9          | 1            |
| Trucks (Rigid/Trailers/Artics)   | 9.9          | 15.7         | 18.7         | 20.5         | 23.3         |
| Sub-totals                       | 99           | 134.2        | 165.8        | 177.1        | 201.1        |
| Motorcycles                      | 48           | 71.2         | 108.2        | 134          | 176.5        |
| Agricultural Tractors and Others | 3.5          | 3.8          | 4.6          | 4.8          | 5.2          |
| <b>Totals</b>                    | <b>150.5</b> | <b>209.3</b> | <b>278.6</b> | <b>315.9</b> | <b>382.8</b> |

## Numbers of Registered Vehicles in Uganda, 1997 – 2007, in thousands

(Source: Uganda National Transport Master Plan, 2009)