

# Data Need for Better Policies on Air Pollution in Rwanda

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# Air Pollution

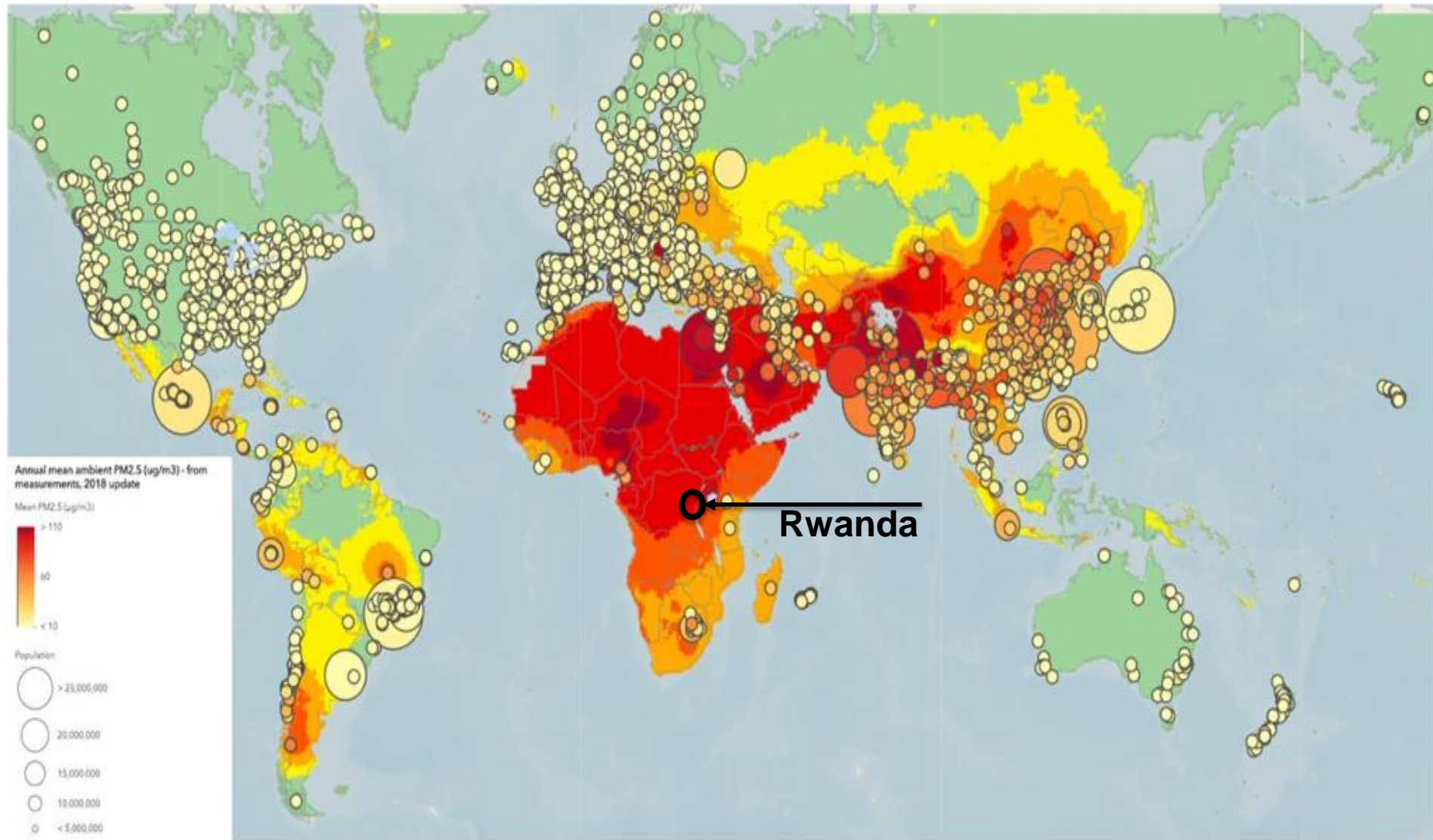
- The new Air Quality Law No. 18/2016, which sets the framework for the regulation and prevention of air pollution in Rwanda required REMA to monitor and report air quality data for six common air pollutants.
- These pollutants are found all over the Rwanda country- some from natural sources and some from man-made sources.
- They harm our health and the environment, affect climate change, visibility and cause property damage.

We cannot monitor what we do not measure.

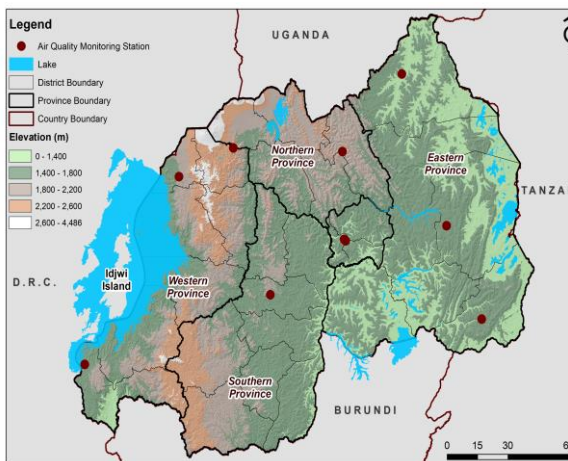




# Global Particulate Air Pollution and National Air Monitoring Network Locations (Circles) (WHO, 2016).



# Rwanda Air Quality Monitoring Stations



- We have so far established **22 ambient air quality** monitoring's (reference stations and low-cost AQ Networks) across the country ).

## April 2021:

- We will enhance the stations with
- 5 mobile air quality monitoring,
- 2 near-reference air quality station
- 7 more low cost- air quality sensors).



# AIR QUALITY MANAGEMENT SYSTEM

- Air Quality Mobile App
- Web base-application

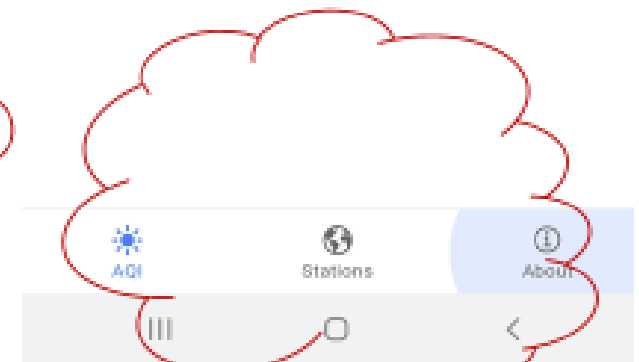
# RWANDA AQI

Rwanda AQI

## Air Quality Index

Gicumbi NO2	48
Kigali PM25	152
Kawangire NO2	40
Mount Mugogo NO2	57
Nyagatare SO2	77
Rubavu PM25	50
Rusizi PM25	18

- Air Quality Rwanda mobile application can be downloaded from Google Play Store for Android mobile devices
- It provides live data for the quality of air from districts in Rwanda.
- The purpose is to keep public informed wherever they are.
- By clicking on a station, the application displays more information about that station, pollutants monitored,



Realtime

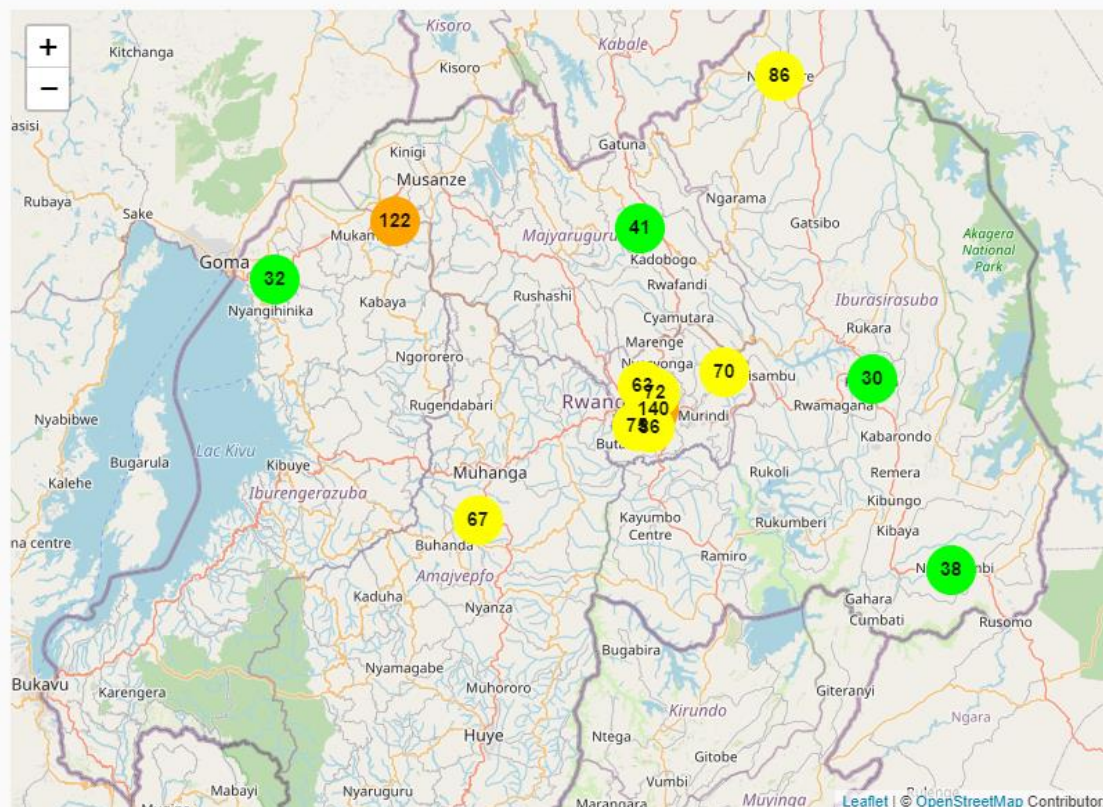
Dashboard

Stations

AQMS

Get Data

Login



AQI 0.0 50.0 100.0 150.0 200.0 300.0



Health effects

- No data
- Good
- Moderate
- Unhealthy for sensitive groups
- Unhealthy
- Very unhealthy
- Hazardous

<http://aq.rema.gov.rw/>



# Air Quality Status in Rwanda

- The Rwanda air quality project is the first integrated pollution monitoring system in the country
- Ambient air pollution levels at rural locations are generally good and moderate
- Ambient pollution levels at rural locations can be high near busy roads and downwind cities

# Rwanda Climate Observatory Project

**This AGAGE station** : World-class observatory on Mt. Mugogo measuring climate change and the atmospheric species forcing climate change.



# Rwanda Climate Observatory Project

1. Capacity building for Nationals in the field of Climate Change and Atmospheric Sciences. (MSc Program at UR)
2. Increase the number of Graduates and Researchers in Climate Change and Atmospheric Sciences
3. Create a Center of Excellence for Climate Change Research
4. Enhanced understanding of the relationship of climate with economy, environment and society.
5. Increased Ability to mainstream into government policy
6. Increased ability to manage economy more resilient to climate shocks, and manage climate variability and climate change
7. Collaboration with International Climate Researchers
8. The station contributes to International Climate Change Policy.



# A timeline of key policies and events

- In 2016, Rwanda started car-free day as a monthly event, but a year later it was made fortnightly, on the recommendation of President Paul Kagame after he attended it in 2017.
- August 2019: President Paul Kagame announces that the Government supports the rapid replacement of combustion engine motorbike taxis with electric motorbikes.
- February 2020: MININFRA holds a joint event with the International Growth Centre (IGC) focusing on scaling electric mobility in Rwanda.
- May 2020: The Ministry of Environment releases Africa's first updated Nationally NDC to the IPCC, and outlines electric vehicles and vehicle emissions standards as important mitigation measures.
- January 2021: Rwanda's electric mobility policy and air pollution policy (parts of National Transport Policy) is finalized .

# Legal framework

## Transitional legislation:

Prime Minister's Instructions N° 005/03 of 27/12/2013 preventing air pollution caused by vehicular emissions and machines using petroleum products in Rwanda



- Art. 4: All fuels imported inspected for verification of compliance using applicable national standards.
- Article 5: All vehicles to undergo emissions inspection with the Motor Vehicle Inspection Centre.
- Commercial vehicles shall undergo emission inspection every six (6) months.

## Current legislation

Law N°18/2016 of 18/05/2016 governing the preservation of air quality and prevention of air pollution in Rwanda



- Emissions inspection mandatory to all vehicles. Failing vehicles not allowed on national roads.
- Used motorcycles banned for importation/exception on motorcycles for disabled and sports.

Ministerial Orders Implementing the law include:

- M.O. determining requirements and measures for compliance with permissible emissions limits by motor vehicle
- Ministerial Order determining administrative sanctions for violations of provisions of the Law

# Emissions control & enforcement

## *Emissions inspection during Motor vehicle Inspection:*

The Kigali Motor vehicle Inspection Center and its satellite Centers equipped with emissions inspection equipment



## *On-road emissions inspections*

- Handheld inspection gadgets recently acquired by Rwanda National Police.
- On road inspections launched during the Environment Week





# Air Quality Baseline and Control Strategy

- Inventory of Sources of Air Pollution in Rwanda
- Key pollutants of concern in Rwanda are:

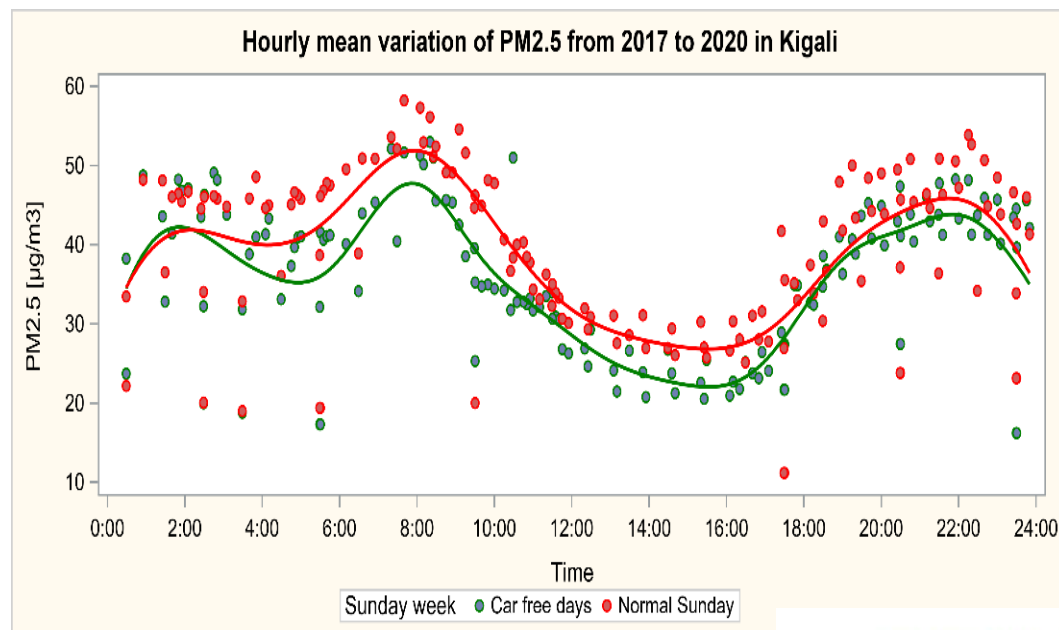
- ✓ Particulate matter (PM2.5)
- ✓ Nitrogen oxides



## ***Strategic actions include:***

- Refreshing existing air quality standards (currently undergoing)
- Applying strict import regulations on vehicles
- Smooth traffic flows around traffic hotspots
- Reduction of emissions from bus fleet (Promote incentives to renew the bus fleet and include new hybrid vehicles)
- Investment in public transport systems

## *car-free days in Rwanda is beyond mass sport but reduce air pollution*



PM<sub>2.5</sub> was reduced by 15% on car-free days.

# Health co-benefits of NDC mitigation actions in Rwanda



•**For industry:** clean technologies that reduce industrial smokestack emissions and use as biogas

•**For energy:** ensuring access to affordable clean household energy solutions for cooking, heating and lighting.

•**For transport:** shifting to clean modes of power generation; prioritizing rapid urban transit, walking and cycling networks in cities as well as rail interurban freight and passenger travel; shifting to cleaner heavy-duty diesel vehicles and low-emissions vehicles and fuels.

- **For urban planning:** improving the energy efficiency of buildings and making cities more green and compact, and thus energy efficient;
- **For power generation:** increased use of low-emissions fuels and renewable combustion-free power sources (like solar, wind or hydropower).



### The impact of scaling up electric motorbikes in Rwanda



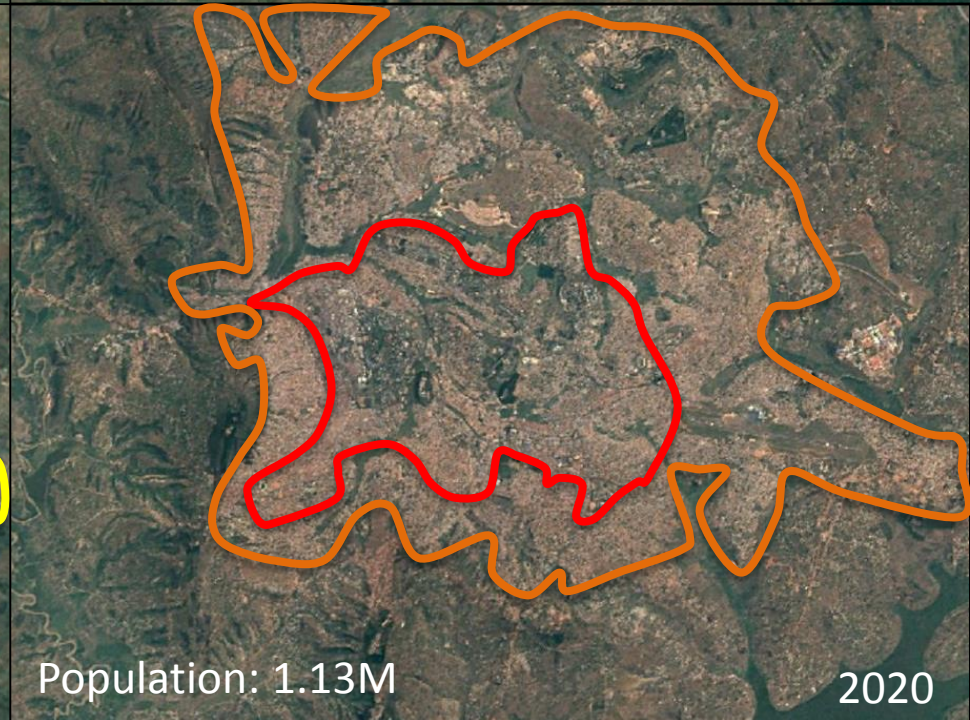
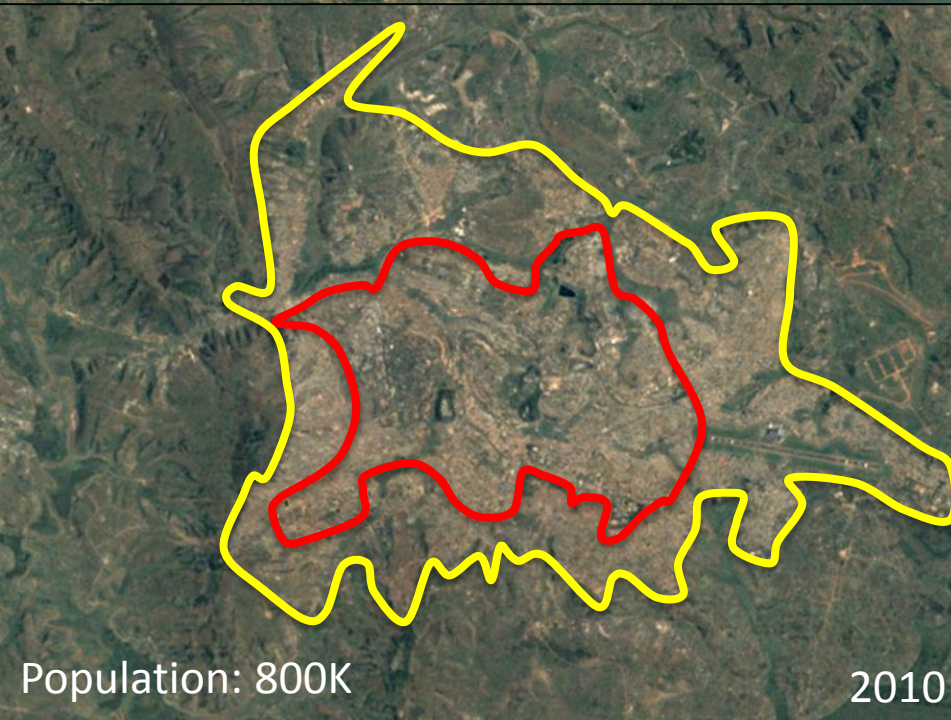
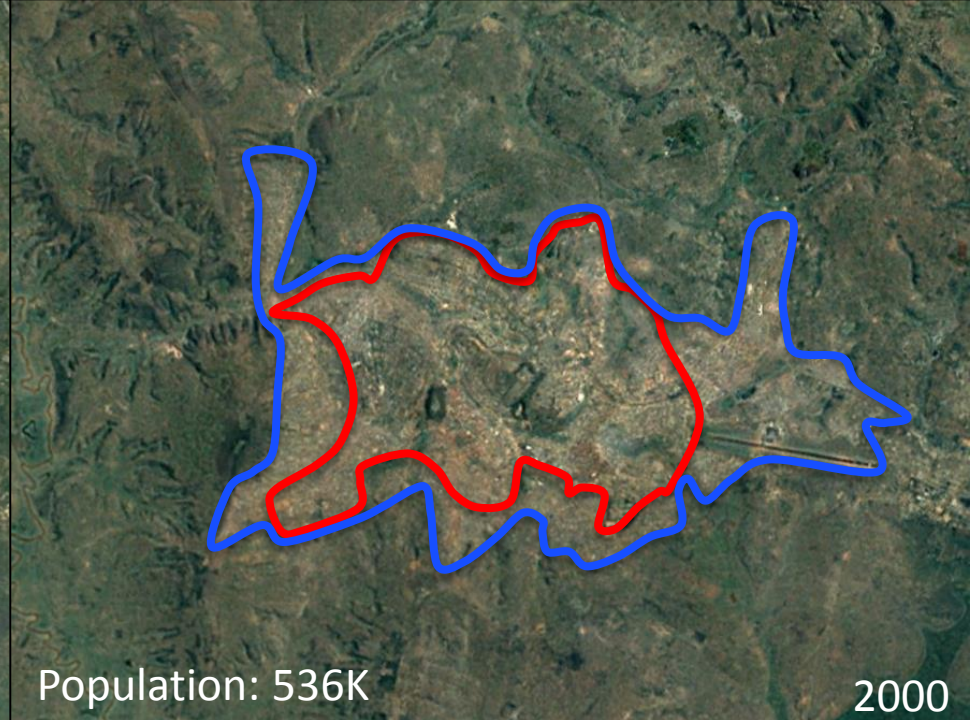
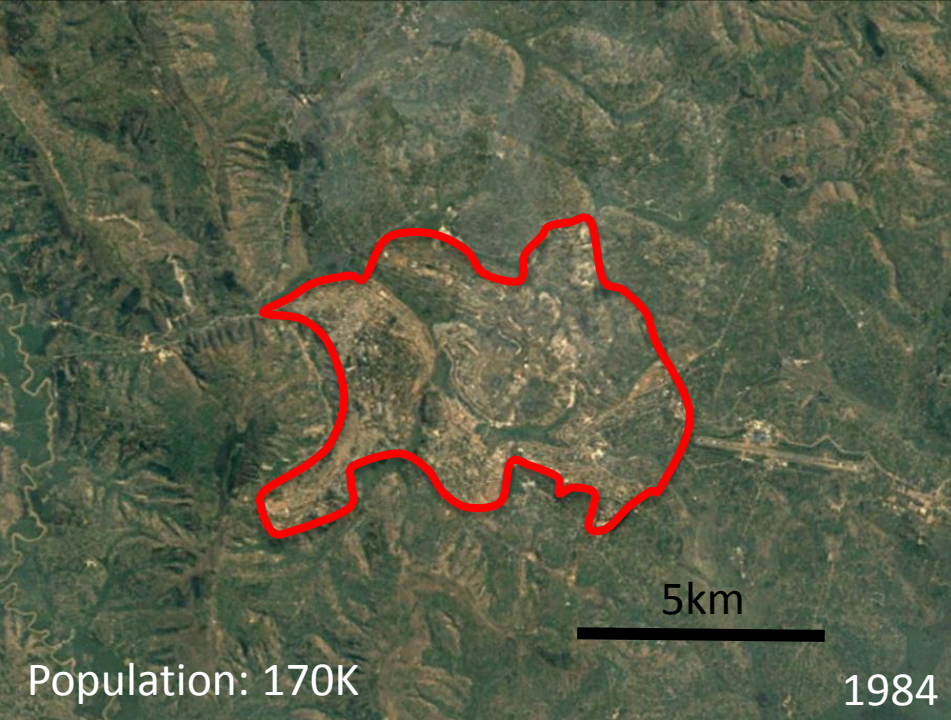
Scaling up e-motos to 100% of moto taxis in Kigali by 2025 would:

- Prevent an annual 70 kilotonnes of carbon dioxide emissions and annual health benefits equivalent to 1350 Disability-Adjusted Life Years (DALYs) per year
- Reduce fuel imports by approximately 23 billion Rwandan Francs (RWF) annually
- Increase electricity spending by an additional 14 billion RWF spent annually
- Reduce fuel tax revenues by 6 billion annually

# The urban population of Rwanda is expanding rapidly

<u>Year</u>	<u>Urban population</u>
1950	2.1%
1990	5.4%
2018	17.2%
2050	29.6%

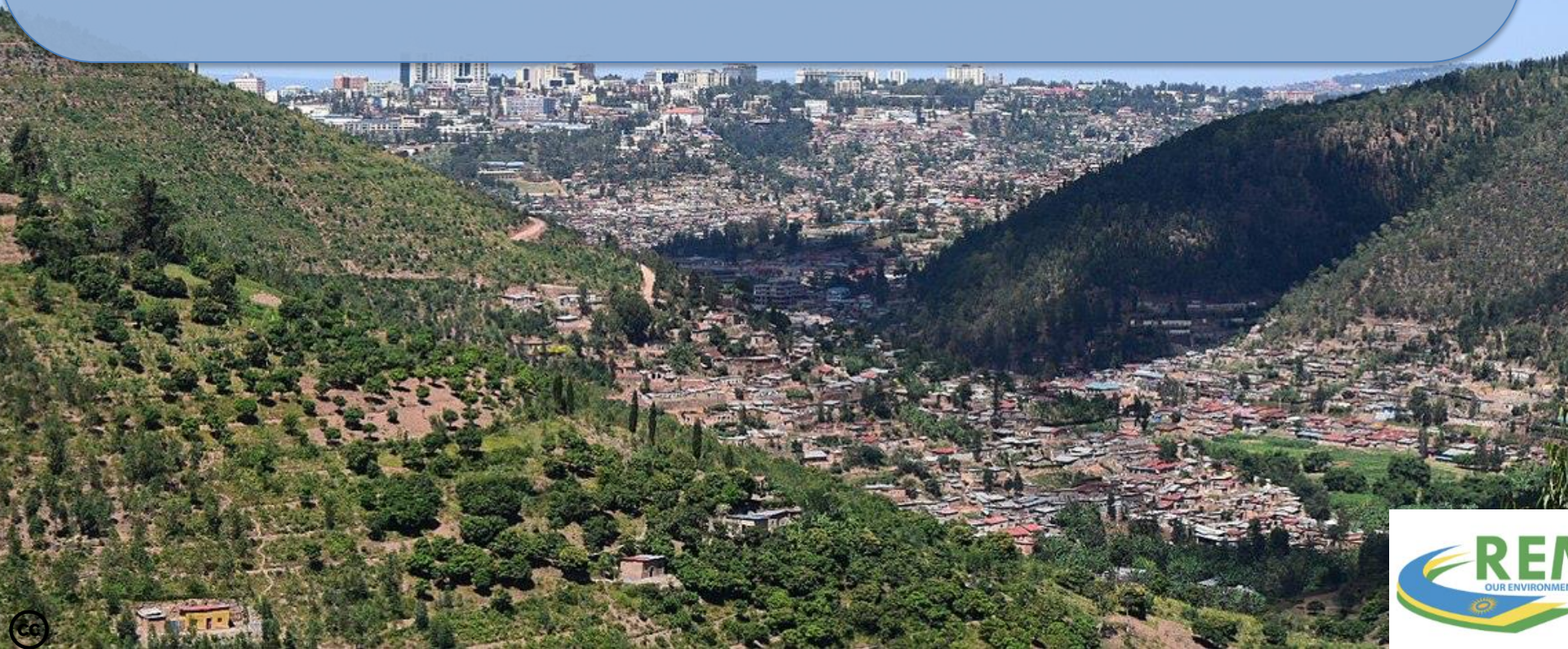






## **Current Measures to reduce air pollution in Kigali City**

- A. Increasing Infrastructure for walking and cycling
- B. Invest in Green Project-FONERWA
- C. Expand AQ Monitoring
- D. Car sharing /Bus Lanes
- E. Co-locating different urban functions to other secondary



# More Greenspace = Igiti cy'umwana

- Reduced sedentary behaviour
- Increased physical activity
- Increased mental health
- Reduced aggression
- Improve memory and attention
- Reduced blood pressure and stress
- Decreased disease diagnosis
- Reduced incidence of cancer (urban vs rural)
- Improved recovery from surgery
- Reduced mortality

**YES YOU LIVE LONGER IF YOU ARE CLOSER TO GREEN SPACE**



- This covid-19 lockdown shows that we must reset to a new normal by rebuilding green cities, invest in more climate-friendly projects.
- Extensive air quality monitoring covering all location in Rwanda is strongly required to assess long-term pollution trends.







## Recipe for a Healthier City

- More green space
- Connected green space
- Increase AQ Stations
- Engaged public and politicians
- Money!





# Thank you!