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Filling the data gaps for air quality management

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U.S. EPA



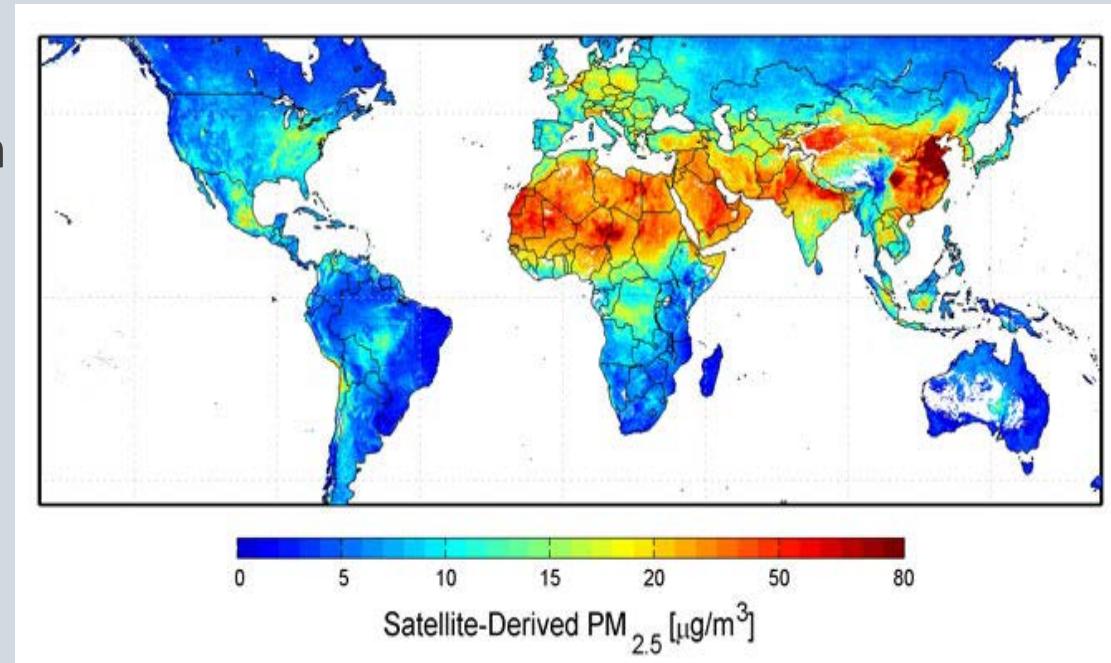
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The current state of the air

- Ambient air pollution is a leading cause of sickness and death worldwide – ranked in the top 10 health risk factors in the Global Burden of Disease (Lancet, 2015)
- Most of those deaths occur in developing countries and result in a heavy economic burden (>3% of GDP in some countries)
- Other impacts: visibility, ecosystems
- Air pollution is constituted of a complex mixture of gases and particles.
- Particles smaller than 2.5 micrometers – or PM_{2.5} – are a primary pollutant of concern in many countries due to wide-ranging health effects and formation from many sources

Satellite image showing average PM_{2.5} levels from 2001-2006. Reference: van Donkelaar et al, 2010.



Measuring the air in low and middle income countries



- Measurement of air pollution is critical to support successful air quality management
- Air monitoring practices worldwide range widely:
 - Prevalence: No air monitoring at all to mature networks
 - Quality: Inconsistent training, equipment management, and quality assurance to rigorous air quality monitoring.
 - Data availability: If measured, limited data availability to real-time updates to accessible databases
 - Support: Low priority to mission critical

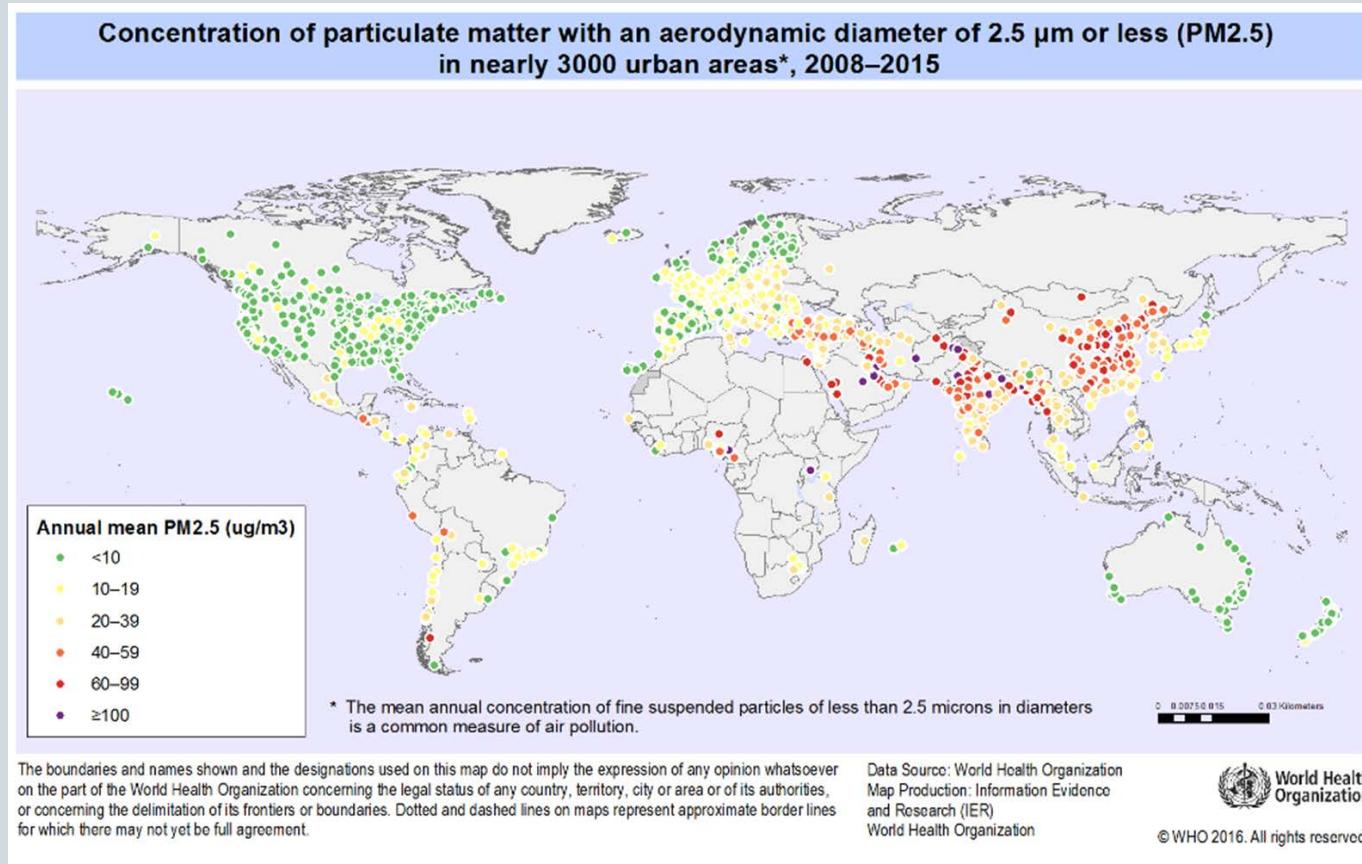
"If you cannot measure it, you cannot improve it..“ - Lord Kelvin

"Nigeria's Port Harcourt covered in mystery cloud of soot"

BBC News
4 March 2017



Measuring the air in low and middle income countries



Significant air quality data gaps in many countries
Source: waqi.info

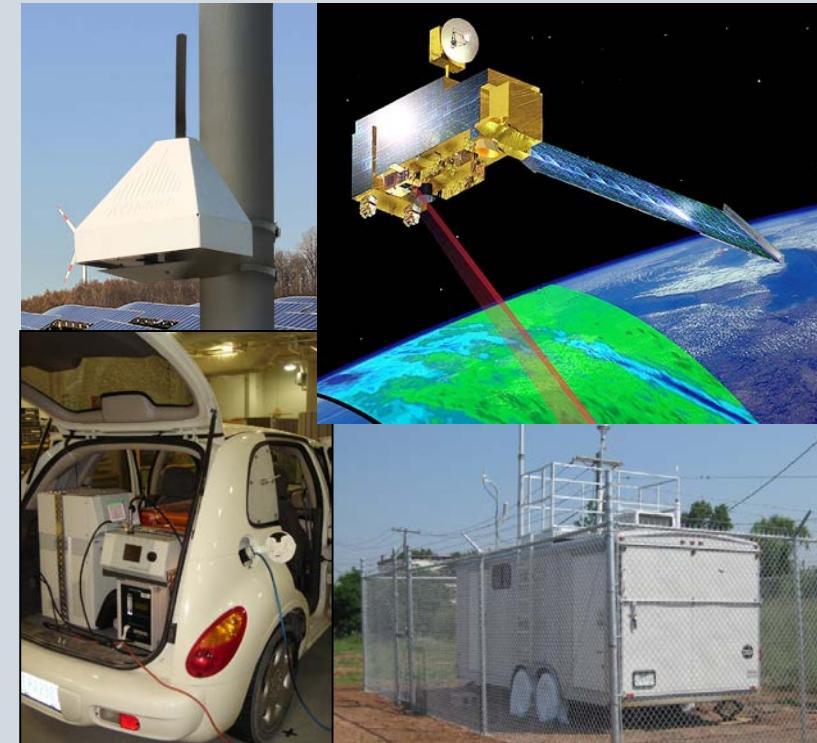


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Measuring the air

- Meanwhile, a growing diversity of measurement technologies has emerged:
 - Small air sensor technology – stationary networks, portable monitors
 - Mobile monitoring platforms
 - Satellite remote sensing data
- Can these technologies help improve knowledge of air quality conditions and support air quality management? How accurate / reliable / suitable are they?





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Filling the Gaps Workshop

- World Bank and US EPA co-hosted a workshop in July 2017 to discuss the state of air monitoring and new technologies
 - 2 ½ day event in Washington, DC
 - Approximately 50 invitees, including representatives from government institutions, private sector, multilateral organizations, academia
- Presentations were given on:
 - Country and international organization perspectives
 - Technical experts – ground-level monitoring, satellite remote sensing, quality assurance, data management
 - Highlights of innovative projects
- Information and presentations available:
<http://www.worldbank.org/en/events/2017/07/25/filling-the-gaps-improving-measurement-of-air-quality-in-developing-countries-workshop>

White Paper/Discussion Draft



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- Provides framework to consider the spectrum of air quality technologies and recommendations for countries at different phases of AQ monitoring.
- Structure:
 - Chapter 1: Problem Statement and Overview
 - Chapter 2: Factors Influencing Air Quality Monitoring in Low and Middle Income Countries
 - Chapter 3: Technical Steps and Future Research Needs to Meet LMIC goals
 - Chapter 4: Sustainable and Successful Monitoring: The Human and Institutional Dimension
 - Chapter 5: Recommendations
- Needs review and input from user community

Document available at: <http://www.worldbank.org/en/events/2017/07/25/filling-the-gaps-improving-measurement-of-air-quality-in-developing-countries-workshop>



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Filling the Gaps Workshop

- Some key messages in the report:
 - **Measurement strategies must be selected to fit a purpose, and should be linked to air quality management goals.**
 - **A successful, sustainable monitoring strategy requires more than equipment.**
 - **The purchase price of monitoring equipment is not the full cost.**
 - **Quality assurance planning, including data management, is one of the most critical components of an air measurement strategy.**

Thank you!



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