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CITIZEN SCIENCE – NO₂ MEASUREMENTS WITH DIFFUSION TUBES

CONTENTS

- The DCMR jubilee project
- Opinions of the participants on AQ CS
- RIVM findings on why Citizens do AQ Science – other projects
- **Discuss with you** why you do AQ CS, what you think about our findings, what we should think about next time, etc.



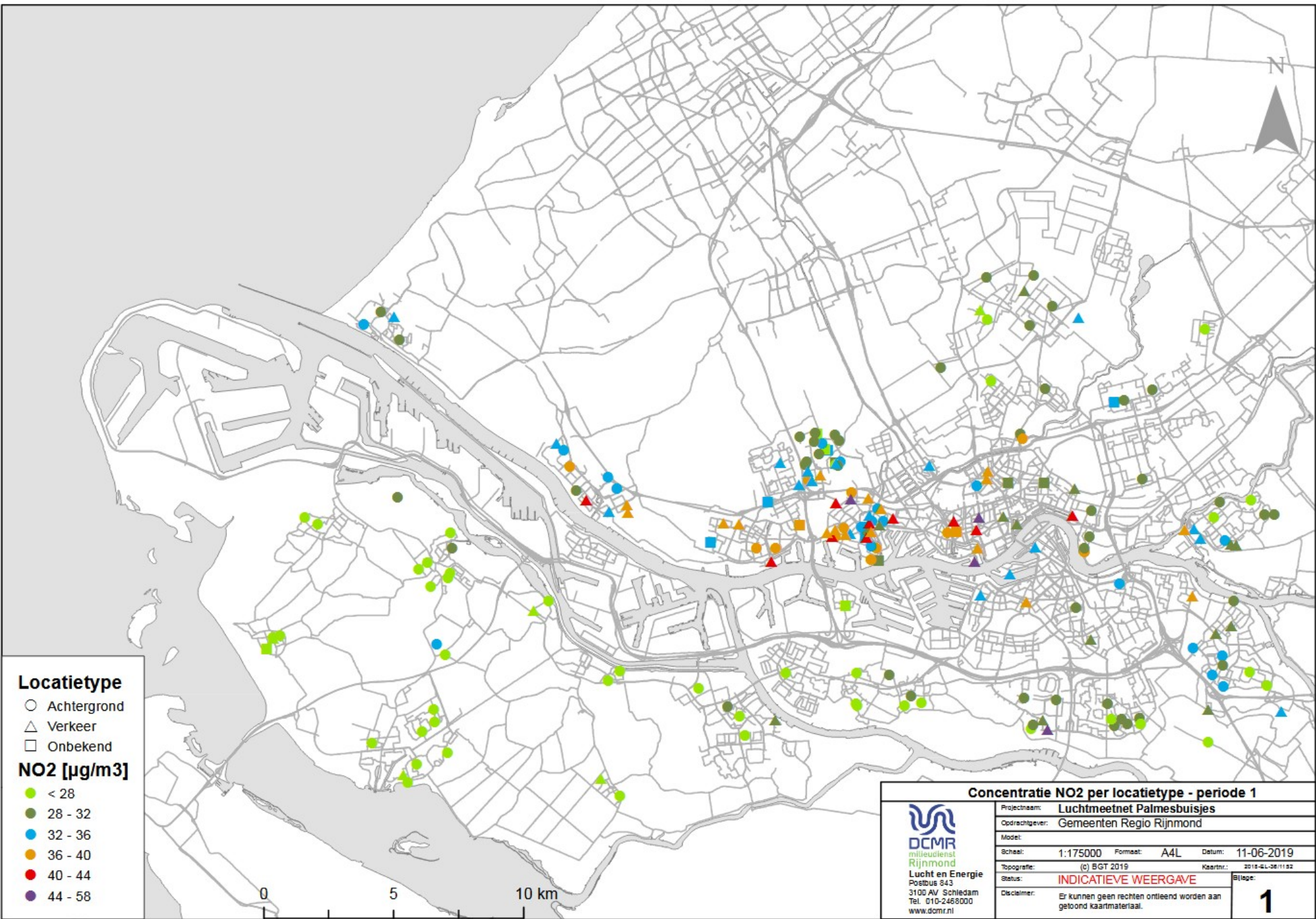


AQ NETWORK JUBILEE



- Automatic AQ monitoring started 50 years ago in Rotterdam area
- Project objective:
 - Draw attention to AQ issues and AQ monitoring
 - Cater for public wish to monitor AQ
 - Experiment with CS by EPA
 - Why do people want to monitor AQ
 - What do they want to monitor, what kind of people participate, etc.
- Test the AQ models with extra observations

January 2019,
Rather high
concentrations!



- Appr. 225 participants at the start – appr. 180 after one year
- Gamble on pollutant and monitoring method
 - NO₂ more spatial variation ↔ PM more important - health
 - Sensor: interactive & less reliable ↔ Palmes tubes: 'dull' & reliable

WHO PARTICIPATES

- 227 participants \approx 75% response; 10% had participated in some sort of CS before
- 63% is male; 64% has university education (BSc, MSc)
- Age of participants: 67% is 50+ (31% 65+)
- **Most participants think that the air quality is bad and are concerned about their exposure**

WHAT DO THEY WANT TO MONITOR

- Over 60% had preferred to monitor something else:
 - PM, Ultrafine, Soot/Black Carbon
- Given the choice between short-term variable information (sensors) or reliable monthly averages 69% preferred reliability.
- 89% wanted to know the general air quality and where not/less concerned about daily variation, the occurrence of pollution peaks, etc.

WHY PARTICIPATE

Rank	Answer	#
1	Municipality becomes aware that AQ is an issue and that people are concerned about it	128 (76%)
2	That the government adjusts its view on AQ based on the monitoring results	104 (62 %)
3	That my neighbours and I become aware about AQ (and the things we can do about it)	74 (44%)
4	I'm just curious what the AQ is	51 (30%)

- Last results expected in a month - feed back meetings end of March
- New questionnaire: what do people think now that the results are in? Do they want to continue? How important is it, do they want to pay for it,?
- Some local authorities want to continue one way or another
- Interesting dilemma so far:

local authorities think/hope that CS mobilizes people to take their own responsibility \leftrightarrow People hope that government will start to act!

METHOD

Interviews

- Citizens ~ 2 (Maaspoort meet!, Hilligersberg)
- Local policy makers ~ 4 (Rotterdam, Schiedam, Maastricht)

Focus groups

- Agricultural, rural area ~ 15 citizens → concern: air quality and odor nuisance
- Urban area ~ 5 citizens → concern: air quality and noise



WHY DO CITIZEN SCIENTISTS ENGAGE IN MEASURING AIR QUALITY?



National Institute for Public Health
and the Environment
Ministry of Health, Welfare and Sport



“The science in citizen science is a way for me to unite people and pursue our social interest.”



“I would like to inform my local government that air quality is a concern to me.”

“I hope the local government will use my measurements to alter its policies on air quality.”

ENGAGEMENT: YIELDS OF CITIZEN SCIENCE



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Ministry of Health, Welfare and Sport

"I tell my family and friends about the sensor in my backyard. It usually is a conversation starter."

"What I hope the measurements will do? That me and my neighbours become aware of air quality and what we can do about it."



EMPOWERMENT: THE ROLE OF INSTITUTIONS



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and the Environment
Ministry of Health, Welfare and Sport

“The involvement of RIVM adds value to my project; at least my measurements are taken seriously.”

“It carries more weight if an institution like RIVM performs the data-analysis. Plus, it creates trust amongst stakeholders if RIVM is on board.”



CHALLENGES IN CITIZEN SCIENCE: ENGAGEMENT & EMPOWERMENT



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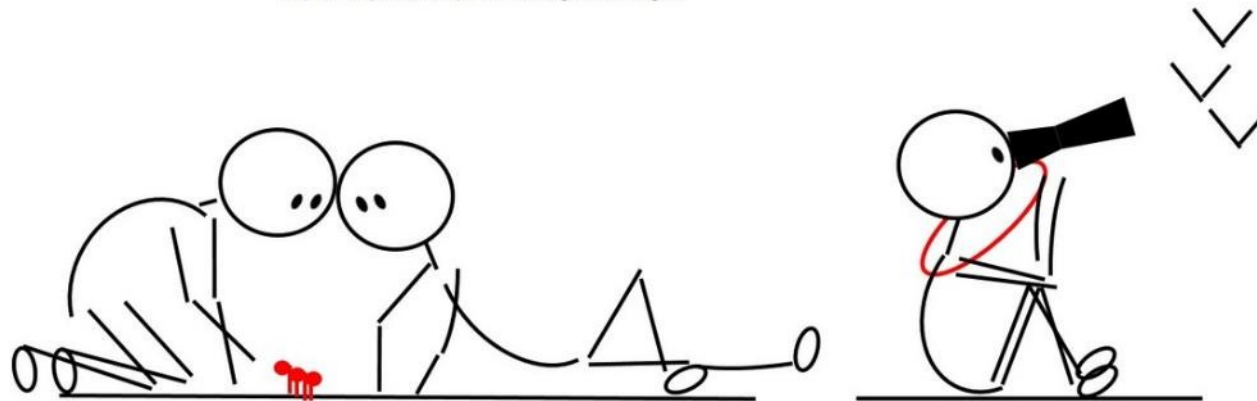
“A strategic vision on application of measurements is essential; otherwise we will lose citizen engagement.”

Local government: “We need conditions for use of citizen science measurement. When are these a useful addition to our policies?”



Story of Citizen Science

WE ALL MAKE OBSERVATIONS
WE ARE ALL CURIOUS



Caren Cooper @CoopSciScoop

-What do you expect from an authority or institution in a collaboration?

-What do you expect from fellow citizen scientists?

-What do you expect to happen after data collection?

- What do you think a project needs to succeed?
- And when is a project successful?

CONTACT



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Different levels of participation in environmental monitoring/management:

- Generate data → analyse and interpret data → take decisions → become involved in policy making

Sounds reasonable, but what if CS participants are predominantly highly educated, elderly, male participants?

- Is this a concern? Should it be a concern?