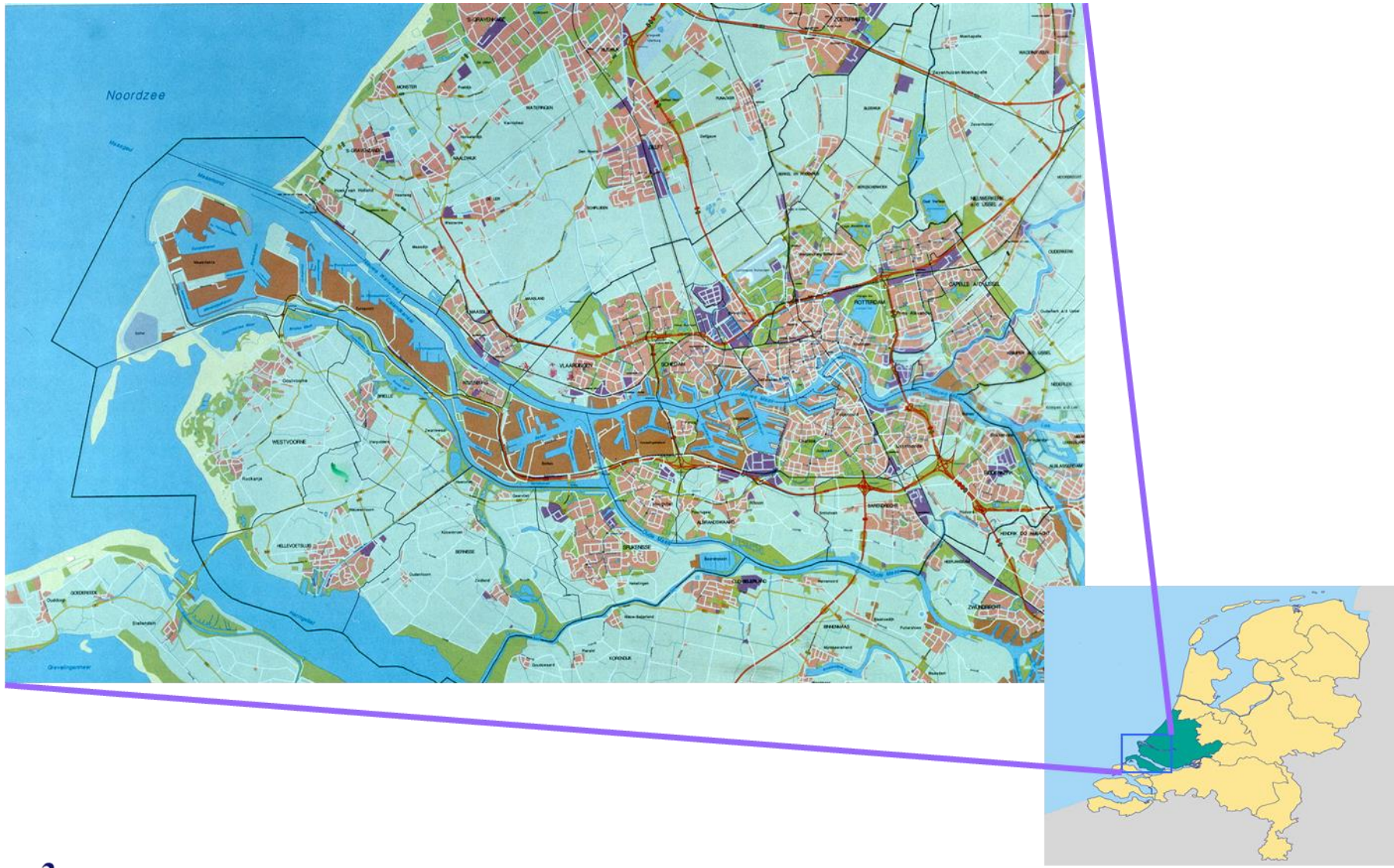


Citizen science projects on air quality



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DCMR EPA WORKS ON:

GRANTING PERMITS, SUPERVISION AND ENFORCEMENT

- Permits, supervision and enforcement pursuant to the Dutch Environmental Management Act

MONITORING AND (DATA) KNOWLEDGE

- Expertise in the area's of air, noise, energy, safety and soil

CONSULTANCY

- National and international advice to improve the quality of the environment

EMERGENCY AND RESPONSE AND INFORMATION CENTRE

- Incidents and information centre



DCMR REGIONAL EPA

~ 500 fte

28 persons at the Bureau of Air Quality and Energy

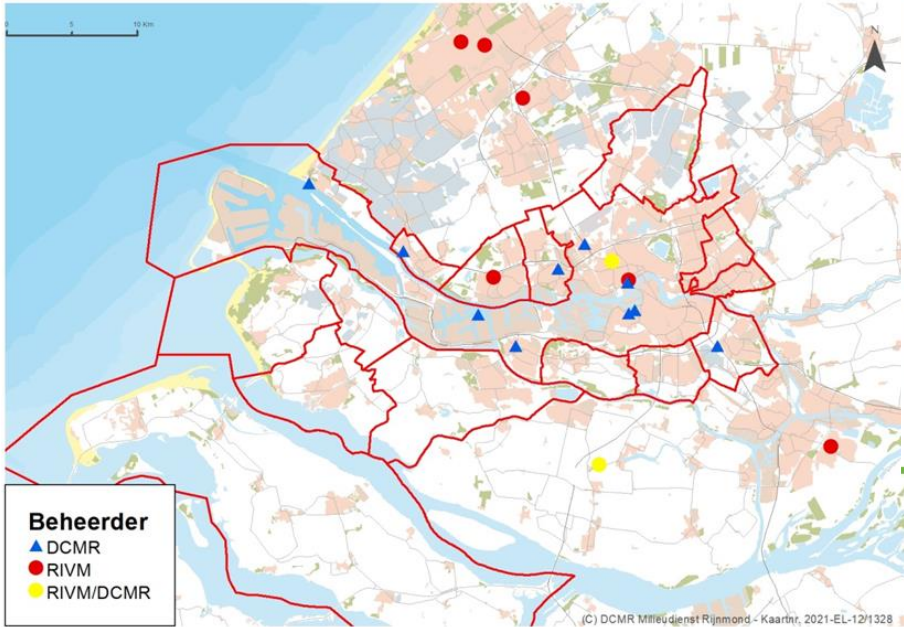
Main activities on air quality

1. Measuring & monitoring;
2. Modelling;
3. Advising
 - Support of licensing and inspection
 - Regional governments spatial planning, air quality action plans
 - Communication with the public

Only ambient air quality (not indoor)



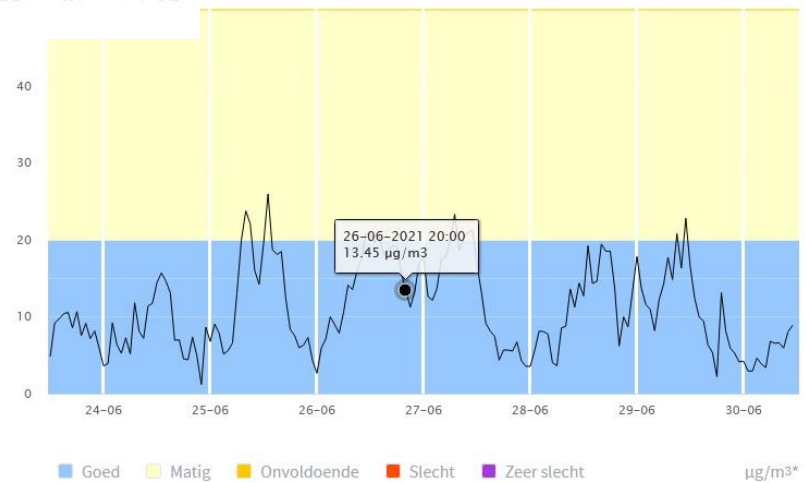
FIXED AIR QUALITY MONITORING NETWORK DCMR



Check the site:
www.luchtmeetnet.nl

Selecteer periode

▼ Laatste 7 dagen ▼ Toon selectie



Most relevant air quality components:

- NO₂/Nox main source: traffic and combustion processes;
- PM₁₀ Particles with a max diameter of 0,01 mm;
- PM_{2.5} Particles with a max diameter of 0,0025 mm;
- Soot Main source: diesel fuelled traffic;
- Ozone 'Secondary pollution', reacts in the air under influence of other components and sun light.

TECHNICAL DEVELOPMENT OF SENSORS

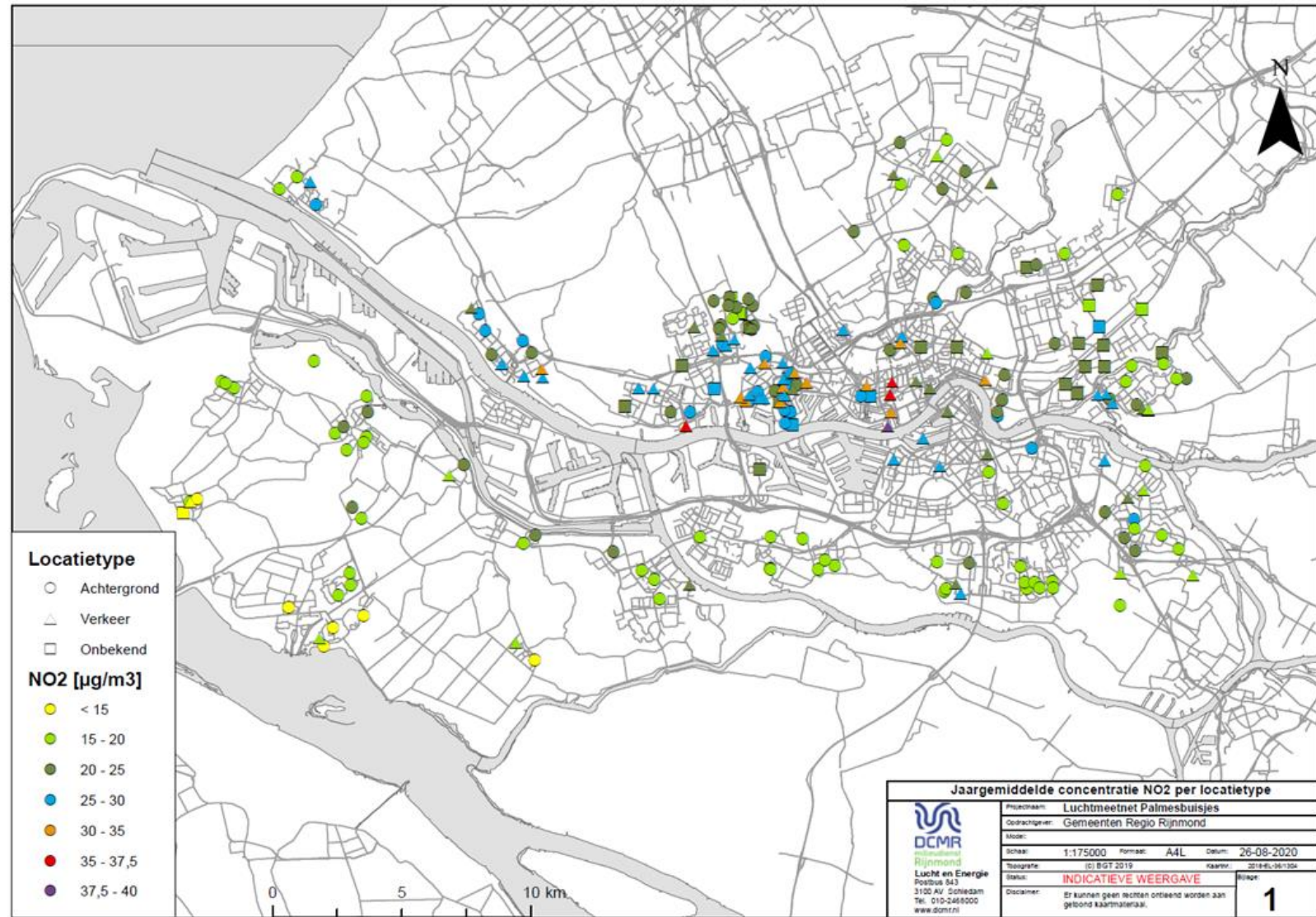
→ More possibilities for civilians to measure the AQ for themselves; and an increasing number of people are interested to do so:

- Because they are curious and they can;
- Because they mistrust the AQ models from the government;
- Because the government does not measure in their backyard;
- Because they love to explore technical possibilities of sensors;
- And many other reasons.

Some types of sensors are rather good; others are really bad. You have to know what you are using!

Sensor measurements will always be of interest for the public. DCMR supports these projects and initiates them as well.





2019: CITIZEN SCIENCE PROJECT WITH PALMES TUBES

PROJECT DEVELOPMENT “PALMES TUBES”

Participants measure NO₂ at a location of their own choice.
They change the tube every four weeks.
The tubes are being sent and collected by mail; and analysed in the laboratory.
Results are distributed by mail.

After 13 measuring rounds of four weeks each, a yearly averaged concentration is achieved.

Results

Participants very positive on the possibility of measuring at a location of their own choice; and trust the DCMR EPA; and the results of the measurements;

Most people are less worried about their local air quality because they have seen their own measurement results.

There is a high interest to continue measuring and measure other air quality components with sensors.



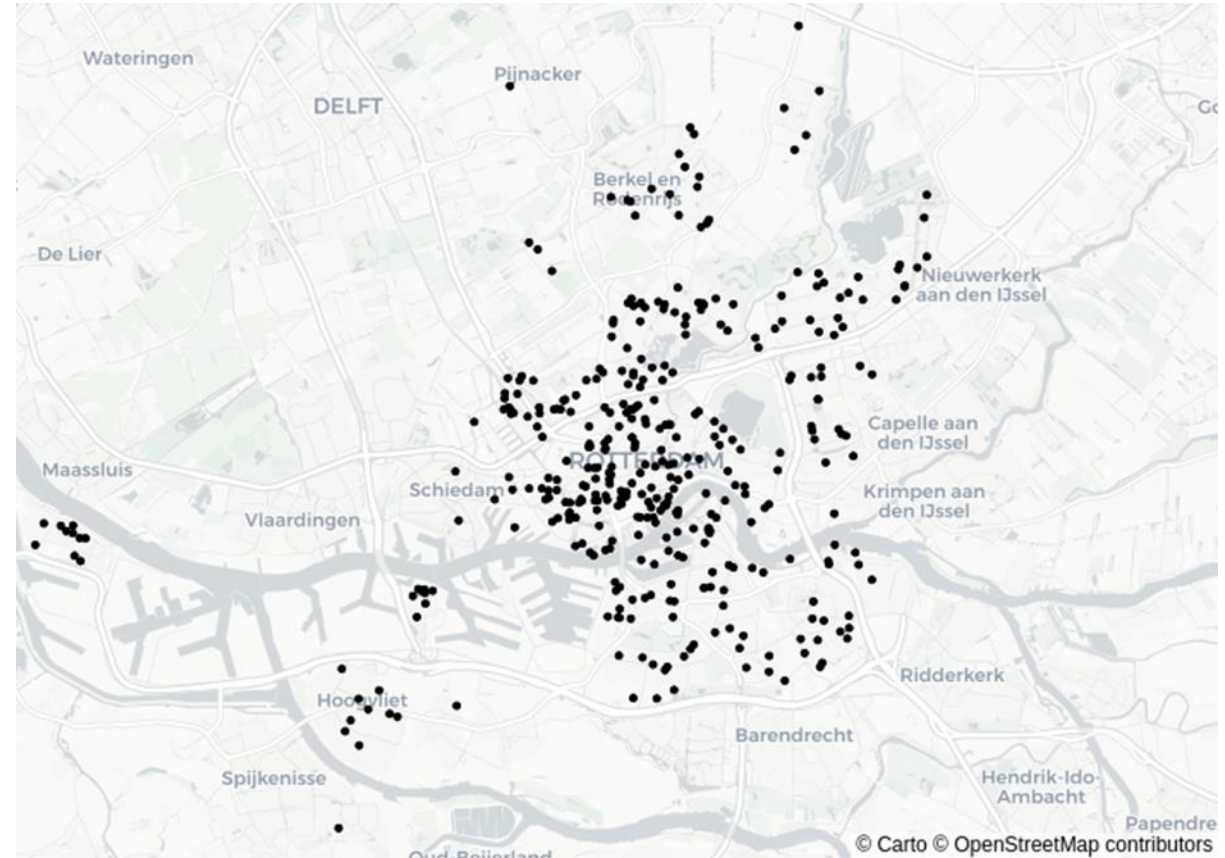
CITIZEN SCIENCE ON PM_{2.5}

Project ; The Air Club'
Organised by municipality of Rotterdam;
DCMR is supporting.

More than 500 participants;

Educational evenings online on air quality;

Several enquiries on how participants
feel about the project.



The project will end in november 2023.

THE FUTURE: COMMUNICATION

Governments are no longer air quality information monopolists and have to learn how to deal with that. We need to share **experiences**. A lot of knowledge is available.

For quality tests: Necessary to provide information on the duration of a test, seasonal influences, concentration range, intersensor variation, etc. Finalise a structure for the assessment of sensor quality.

For sensor results: how to deal with sensor results deviating from quality test results?
How to manage expectations of sensor users in a project?

Facilitating of calibrations and validations of sensors by AQ measurement groups is crucial for expectation management of sensor users.

RECOMMENDATIONS

Sensors are a cheap way to monitor the air quality, but be aware of the limitations of the sensors.

Make a detailed plan what you want to achieve with your sensor project and stick to the plan.

Find volunteers for the sensor measurements and give them control on where the measurements take place.

Be very transparent in the goal of the project and in the realistic expectations for the participants.

Answer all the questions of your volunteers and give them the opportunity to learn about the sensor measurements.

Take your volunteers always seriously and tell them openly if you encounter a monitoring problem. You are in the project all together!



THANK YOU FOR YOUR ATTENTION!

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