# Gazett'air | July 2021 | n°3

**Fine particulate matter** (PM2.5) is the air pollutant driving the most significant **health problems** and premature mortality.

Between 2009 and 2018, there has been an average **reduction of 22%** in annual mean concentrations of PM2.5 measured at air quality monitoring stations across Europe.

Despite these improvements to the air quality in Europe, PM concentrations **still exceed EU limit** values and, in large parts of Europe, WHO air quality guidelines.
*European Environment Agency*

The European Urban Innovative Action funding supports several initiatives for better air quality throughout Europe, in Czech Republic, Finland, France, Italy and the Netherlands (see Gazett'Air 1).

Since 2020, 3 new projects were launched in Belgium, Bulgaria and Italy. They were invited to join the UIA Air Quality Club, to add value to mutual learning and capitalisation, and benefit from the prior experiences of the 5 projects launched in 2018.

## WHY?

**TO LEARN FROM EACH OTHER**

**TO CO-CONSTRUCT SOLUTIONS**

**TO DEMONSTRATE OUR IMPACT**

**TO WORK ON REPLICABILITY**

On 18 June 2021, a UIA Air Quality Club session was held online to enable the 3 new projects to introduce themselves, their ambition and the challenges they foresee in implementing their vision. Similar to the 5 other projects, their partnerships include cities, public agencies, universities, innovative companies, associations etc. This exchange session was also the opportunity for them to identify synergies with the other projects and possibly save time by directly learning from their experience, whether in terms of technology or issues faced.

In this Gazett'Air 3, you will find a short description of the 3 new UIA Air Quality projects, and get an idea of the common interests identified.

## — GOAL —

Improving air quality by making cargo bikes a credible alternative to cars and vans, via facilitated information and access to cargo bikes for citizens and local businesses, through a user-oriented and nudging-based approach.

## — CONTEXT —

**63%** NO2 emissions come from **transport**

**69%** of journeys made by car in the Brussels Capital Region are **less than 10 km long**

**50%** of **deliveries** could be made with a **cargo bike**

**75%** of **private journeys** could be done with a **cargo bike**

**2%** of cyclists in the Brussels Capital Region currently use a cargo bike

**1.Raising awareness** about air quality and congestion and informing about activities part of the project or already existing.

**2.Training and testing**

- Citizens are offered training to ride safely and in confidence, then testing of a cargo bike or longtail for 2 weeks (starting spring 2021 with great success)
- Professionals are also targeted, with significant demand from all types of business sizes and sectors : 20% large companies, 20% SMEs and 60% microcompanies, and the main sector surprisingly being construction !

**3.Finding a cargo bike**

- Possibility to rent a cargo bike but finding places to set up the service is challenging so this service should be available starting fall 2021.
- Grants for professionals to buy cargo bikes and trailers starting summer 2021.

**4.Secured dedicated parking** by identifying high potential areas and developing 200-300 parking spaces off-street… which is a major challenge but really needed.

**5.Measuring and evaluating**

- Measuring behavioural change by directly involving users to refine the solutions, better meet their needs and measure the impact on air quality.
- Measuring users' exposure to air pollution, to point out the different exposure levels depending on transport mode and itinerary. This is done with a portable aethalometer distributed to each participant testing a cargo bike for 2 weeks, which measures black carbon exposure.
- Measuring avoided emissions, but also avoided external costs (congestion, road safety…)

## — GOAL —

Using AI and algorithms to introduce on-demand electric public transport in suburban areas, replacing traditional routes and timetables based on big data. This type of public transport is the first pilot in the EU. The project concept relies on 3 components : AI + Regulations + Behavioural Change

## — CONTEXT —

**10%** population increase for the last 10 years, resulting in **urban congestion**

**25%** of cars are older than 20 years, producing **51% of PM2.5** emissions

**Unpredictable transport demand** and **underserved suburban areas**

**4** new urban transport services to be introduced resulting in PM and **CO2 reduction**

# 1.Artificial Intelligence

Through the use of a mobile app + AI + machine learning, the goal is to generate flexible timetables and routes in 3 suburban areas, leading to the metro. This innovation has the potential to improve air quality but also the efficiency of public transportation.

# 2.Regulations

Creation of low emission zones and green corridors starting January 2022, and implementation of a congestion charge (regulation to be passed so that the municipality, which owns the roads, may charge for their use).

# 3.Behavioural Change

  - Incentives for public/active transport users, and maybe for private individuals that donate their data (upon request from the EU as an experiment, however  that needs regulation due to privacy matters : INNOAIR Artificial Intelligence uses numerous public data sources, but also donated private data such as AirBG, which is a network of over 7500 citizen-owned AQ sensors in Sofia).

  - Activities, entertainment and community work including arts and social events to raise awareness, explain regulations and balance foreseen restrictions.

**4** **main outcomes to be assessed :**

**Effect on emissions**          **Effect on number of car rides**          **Effect on citizen behaviour**          **Cost/benefit analysis of the investments and regulations**

## — GOAL —

Turning "dark-high-emission zones" into "green-augmented-healthy zones" using a set of innovative tools including a network of air quality sensors, incentivized soft commuting and nature-based solutions.

## — CONTEXT —

**200 µmol/m3** : NO2 concentration in Emilia Romagna, among the world's highest concentrations

**5th** worst and **1st** worst in Italy : Ferrara's score for cancer mortality and acute myocardial infarction (2012-2016)

**450m/km2** : low bike lanes/surface ratio compared to cities nearby (Reggio Emilia >1000m/km2)

**622 cars/1000 inhabitants** : higher motorization rate than national average

**1.Better public monitoring and decision ability** through a multi-source data collection and a new network of IoT sensors.

**2.Reducing air pollution**

Using mitigation and incentive strategies that include nature-based solutions and alternative sustainable transport systems.

**3.Increasing green areas**

Especially in critical spots including train/bus stations, city center, along the cycling network, congested roads and other relevant aggregation points.

**4.Raising awareness**

On the environmental/health issues related to air pollution and seeking their active participation in a co-design and co-creation process.

**5.Inducing behavioural change** among citizens using gamification methods and rewarding mechanisms.

For more information, you can visit the website of each project, or their page on the UIA website, or contact k.elarnaouty@avitem.org