

Modelling the impacts of citizens-led scenarios in European urban areas

Vera Rodrigues¹, Kevin Oliveira¹, Sílvia Coelho¹, Sandra Rafael¹, Joana Ferreira¹, Ana Patrícia Fernandes¹, Johnny Reis¹, Ana Isabel Miranda¹, Carlos Borrego¹, Kris Vanherle², Iason Diafas³, Angreine Kewo⁴, Carlo Trozzi⁵, Joana Soares⁶, Jo Barnes⁷, Enda Hayes⁷, Laura Fogg-Rogers⁷, Margarida Sardo⁷, Sophie Laggan⁷, Stephan Slingerland⁸, Hans Bolscher⁸, Myriam Lopes¹

1 — Department of Environment and Planning & CESAM, University of Aveiro

2 — Transport & Mobility Leuven, Belgium

3 — Planbureau voor de Leefomgeving, Netherlands

4 — Danmarks Tekniske Universitet, Denmark

5 — TECHNE Consulting, SRL, Italy

6 — Norsk Institutt for Luftforskning, Norway

7 — University of the West of England, Bristol, United Kingdom

8 — Trinomics BV, Netherlands

FIGURE 1

Engagements throughout the ClairCity project: a total of 8302 people from ClairCity cities and regions directly engaged with the project over its duration. More information on ClairCity can be found at the website www.claircity.eu.



ClairCity is a research project funded by the EU Horizon 2020 programme, which aims to improve future air quality and carbon policies in European cities by initiating new modes of engaging citizens, stakeholders and policymakers. Six partner cities directly shaped the project: Amsterdam in the Netherlands; Bristol in the UK; Ljubljana in Slovenia; Sosnowiec in Poland; the Aveiro region in Portugal and the Liguria region in Italy. ClairCity assessed environmental, health and economic impacts, through a quantification framework. This framework consists of an integrated urban module based on household and dwelling characteristics, atmospheric emissions, air quality patterns, health-related impacts and costs, and carbon footprint estimates. The ClairCity framework contributed to

apportion air pollution not only by technology, but also by citizens' behaviour, considering the baseline as well as future scenarios translating the expectations of citizens and local experts. For the Aveiro region, a final Unified Policy Scenario was designed, leading to a maximum reduction of the nitrogen dioxide (NO₂) concentrations of 87%, and a maximum reduction of only 17% of the fine particulate matter (PM_{2.5}) in the air, in 2050. The slight decrease of the PM_{2.5} concentrations is associated with the fact that citizens have not come up with one single energy/ heating measure. Although residential heating is a main source of PM_{2.5} emissions, this is not perceived as an air pollution source by citizens in the Region.

Furthermore, in each ClairCity pilot, the air quality will distinctly improve in the future depending on the distinct levels of ambition set to the citizens-led scenarios. Three cities targeted the pollutants with the highest health impact on their population, namely Amsterdam (NO₂), as well as Bristol and Sosnowiec (PM_{2.5}), while Aveiro Region and Liguria are mostly targeting the pollutant with the least health impact (NO₂).