



CitieS-Health

Citizen Science for Urban Environment and Health

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Horizon 2020

Science
with and for Society



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Air pollution and health

Utrecht, Netherlands
Biomass burning and health

Ljubljana, Slovenia
Noise and health

Lucca, Italy
Industry pollution and health

Kaunas, Lithuania
**Physical activity, urbanism
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CitieS-Health Overview

1. What is the problem?
2. Proposed project
3. Key success factors for carrying out the project
4. Specific objectives
5. Citizen science pilot studies
6. Project timeline

1. What is the problem?

Urban environmental pollution

- **75%** of population of the EU has chosen urban areas as their place to live
- Major **contributor** to the burden of disease worldwide
- Almost **20%** of natural all-cause mortality could be prevented each year if cities complied with **international recommendations for performance of physical activity, exposure to air pollution, noise, heat, and access to green space**
- **Knowledge gaps** about the underlying mechanisms and characteristics of exposures

1. What is the problem?

Citizens' involvement in research

Notwithstanding **increasing awareness** about issues like air pollution, many of the connections between our urban environment and our health remain **little understood**

Traditional and current approach in environmental health research that relies on **top-down approaches** is **insufficient** for generating impact of the gathered scientific evidence and uptake of results in society



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2. Proposed project: CitieS-Health

Main idea which underlies the
whole project 

Surveys show that citizens are increasingly concerned about the consequences of environmental exposures on their own health, and are engaged in data collection and activism efforts around problems such as urban mobility and air and noise pollution. These concerns, along with the availability of affordable crowd-sensing and data processing technologies that allow citizens to measure environmental and health parameters, make environmental epidemiology studies an ideal, yet underexplored opportunity to develop citizen science projects. **Enabling collaboration between researchers and citizens to generate solid, unbiased scientific evidence of local relevance can reduce existing information gaps. It can empower people to contribute to novel and bottom-up research agendas, interventions and co-creation of public policies.**

2. Proposed project: CitieS-Health

- Main objective is to **develop participatory citizen science projects** in 5 European cities about urban environmental exposures and their relationship with health
 - ➔ **our citizen science model aims at the maximum collaboration level:** citizens will participate together with researchers in defining research questions, designing and implementing studies, analysing and interpreting data, communicating results.
- Create a **toolkit** for the development and promotion of citizen science projects in urban environmental exposures and health issues

2. Proposed project: CitieS-Health

- Provide guidelines in order to **harmonize the traditional ethics principles** and procedures of scientific research with the new role of citizens in the research project
 - ➔ **participants as “citizen scientists”**.
- Co-design a set of **governance principles** and procedures to allow participants control over project data and outcomes.
- **Improve** the capacities of citizens to explore, measure and address unanswered health questions related to environmental exposures of urban residents, while advancing research, raising awareness and contributing to decision making based on scientific information.

3. Key success factors for carrying out the project

Availability of affordable and open technologies that allow citizens and researchers to collect and analyse large databases

Citizen's increasing willingness to participate in collaborative research, co-creating and sharing knowledge and expertise

The importance of environmental exposures on health in urban contexts

Digital technologies that allow multidisciplinary collaborations for this kind of citizen projects

Increased awareness about environmental issues and wellbeing

4. Specific Objectives

[01]

Put citizens' concerns at the center of the environmental epidemiology research agenda by developing citizen science projects that give answers to citizens' questions

[02]

Advance the state of the art in environmental epidemiology by building on the capacities of citizens and their insights

4. Specific Objectives

[03]

Develop methods, tools and insights that enable to easily scale-up and **replicate citizen science projects that lie at the intersection of epidemiology and citizen sensing**, thus opening science to people from all backgrounds

[04]

Address ethical challenges that emerge in these new kind of research projects, **fostering a sharing between ethical standards of research and citizens' ethics points of view**

4. Specific Objectives

[05]

Evaluate the model of citizen science and **its impacts on society, economy and science itself**

[06]

Raise public awareness on the effects of urban pollution in health by translating scientific knowledge gained throughout the process into useful and practical knowledge for society

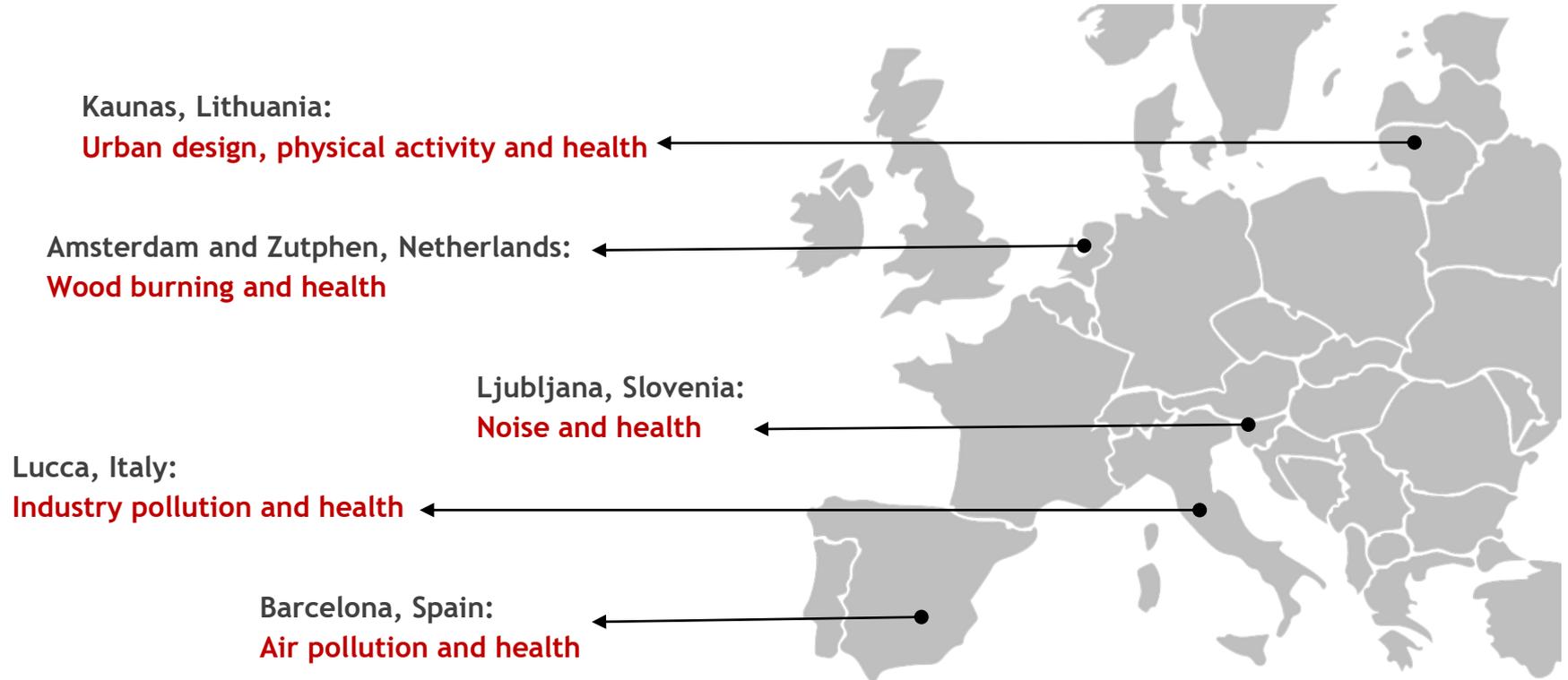


5. Citizen science pilot studies

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- CitieS-Health is based on **five citizen science interventions** that will both benefit from and inform the development of the CitieS-Health toolkit and provide opportunities for new research and policy recommendations.
- Make **horizontal** (research, industry, public authorities and civil society) and **vertical** (citizens and grassroots organizations to policymakers), **multi-site integration** of all the CitieS-Health dimensions, through all our proposed actions.
- This multiple integration will provide a **holistic foundation to build a "commons" in citizen science projects useful for different research areas.**

5. Citizen science pilot studies



5. Citizen science pilot studies – Specific characteristics

a) Scientific activity: **Research project**

b) Research Field: **Environmental Epidemiology** (public health research)

c) Type of research approach: **Participatory Citizen Science**

d) Type of governance: **Participatory governance carried out by both researchers and citizens**

Level of citizens' involvement: **Citizens' participation is maximum**, i.e. citizens equally contribute together with researchers in all phases of framing and implementing the studies

 **Co-created projects**

5. Citizen science pilot studies – Specific characteristics

➡ **Citizens' active role in the scientific investigations:**

- as **collaborators** together with researchers in framing a research study;
- as **active participants** performing several scientific activities in a research project approved from an Ethics Committee

In addition, the five pilots aims to develop procedures towards

➡ a **co-responsibility/sharing of responsibilities** between professional researchers and citizen scientists.

Subjects involved in framing and implementing the studies:

- **researchers** belonging to research institutes, universities; small and medium sized enterprises – SMEs
- **citizens** (associations and individual citizens)
- **public authorities** (mayors/municipalities; local health units and regional health authorities)

5. Citizen science pilot studies – Specific characteristics

e) Type of intervention/investigation: **collecting, processing, analysing and using data** (and also **biological samples** in the Lucca pilot)

Type of data/samples which will be collected, processed, analysed and used:

- **personal data** (contact details) and **sensitive data** (**health parameters** obtained by non-invasive techniques and characteristics that can be related to health, including demographic and socioeconomic data, information on lifestyle/diet, physical activity, occupational history);
- human biological samples (**blood samples**), only in the Italian project;
- **environmental data** (concentrations of pollutants, noise level, air quality, urban characteristics of residential place).

5. Citizen science pilot studies – Specific characteristics

f) Ethics review/approval:

Ethics review and approval by a Medical Ethics Committee is mandatory

considered that the five pilot studies involve the collection, process and use of identified/identifiable health data (and human biological material in the Lucca study).

➡ This means that the pilots fall under the **research involving human subjects**.

Ethics review and approval by a Research Ethics Committee is recommended

considered that the five pilot studies aim also to engage subject in doing the research (design, conduct, analyse, interpret and support societal uptake of the results).



6. Project timeline

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2019	2020	2021
<p>Identification of citizens' environmental and health concerns in 5 pilot cities.</p> <p>Co-creation and sharing between researchers and citizens of research questions.</p> <p>Debates on ethics in citizen science and co-definition of governance principles through which the study is managed by citizens.</p>	<p>Co-Design of the study protocol (and related information sheet and informed consent form).</p> <p>Ethics approval from Ethics Committee.</p> <p>Recruitment participants, and start and implement of the co-designed study for answering the research questions.</p>	<p>Co-organization of citizen actions to address the findings of the research.</p> <p>Articulate new communities with methods and tools to replicate the citizen science experience.</p>



Thank you for attention!