



Documentation on activities and outcomes in CS actions, 1st report

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Documentation on activities and outcomes in CS actions, 1st report

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v1.0	23.12.2019	Xavier Basagaña	ISGlobal	Final version with consortium input

STATEMENT OF ORIGINALITY

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.



Summary

CitiesS-Health is a citizen science project with the objective to implement participatory research methods through the entire scientific process in studying the effects of urban environmental pollution on health. The work is taking place in five cities: Barcelona, Lucca, Kaunas, Ljubljana and Amsterdam. This report presents the activities conducted in each of the locations. It contains a narrative section with an overall description of the progress made, and a detailed breakdown of key activities that shape the pilot work that makes citizen science come alive in each city.



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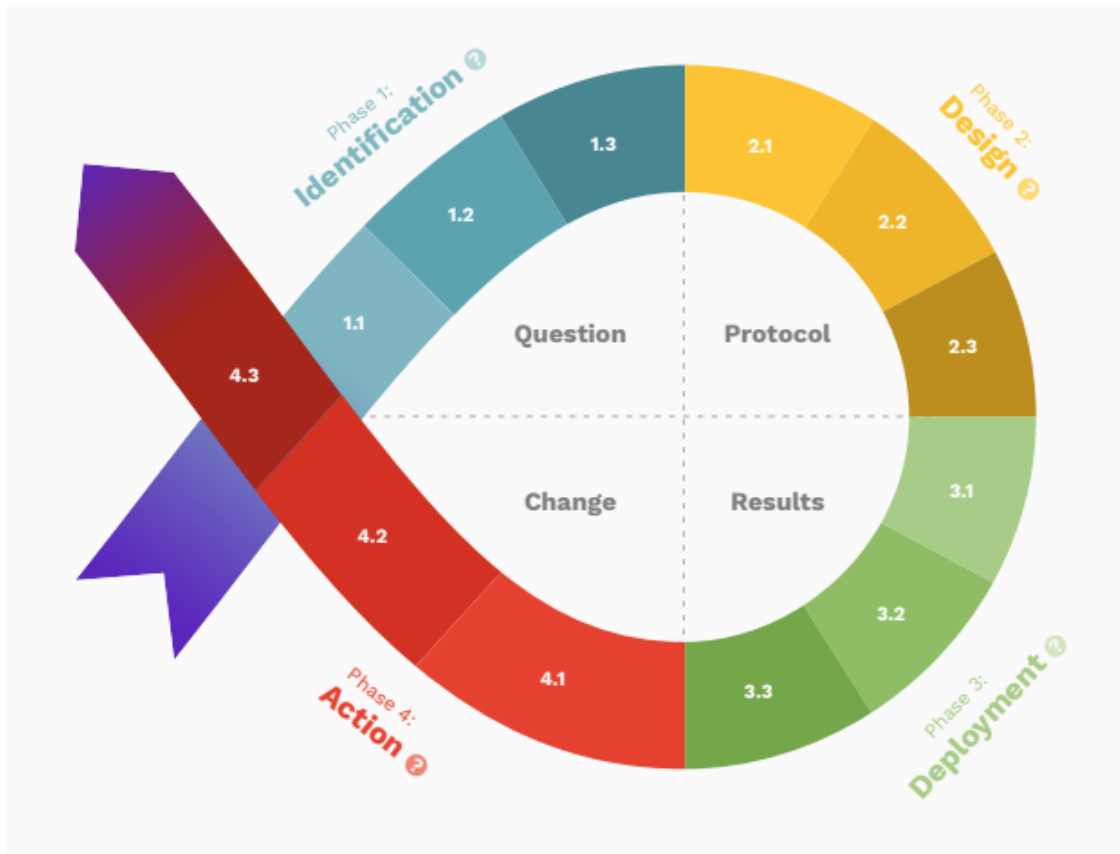


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Introduction

As stated in the proposal, CitieS-Health takes the Bristol Approach as the methodology to engage citizens in the co-design, implementation and dissemination of results from scientific research, focusing on urban environmental pollution and health concerns. This methodology needed some adjustments for its application to the environmental epidemiology field. Section 2 details the updated methodology that has been refined during this year. Section 3 then details the different activities conducted during the first year, January-December 2019, in each one of the five pilot studies involved in the CitieS-Health project. The main text offers an overview of the main activities, while in the Appendix we provide detailed tables with relevant details of each action (e.g. number of citizens who participated or involvement of stakeholders). Most of the actions conducted during this first year belong to the Identification phase, which deals with reaching out to individuals and groups interested in co-exploring areas of concern that lead to possible research questions, mapping actors and other collectives that can be involved, and boil down the identified issues into a research question to be dealt in the next phases of the project in the coming two years.

Methodology



The CitieS-Health pilots are designed and planned using the project’s bespoke methodological framework, which builds on The Bristol Approach¹, a well established framework for the orchestration of participatory citizen science and sensing interventions. In order to respond to the specific characteristics and needs of participatory citizen science in the field of epidemiology, we have adapted The Bristol Approach’s phases and developed a more nuanced protocol that aims to provide a step by step guide to 1) assist pilot leaders in the process of planning the activities in a cohesive manner, 2) provide a lingua franca for consortium partners to plan and discuss interventions in a consistent manner, and 3) to aid the analysis and some level of comparison across pilot results.

¹ Balestrini, M., Rogers, Y., Hassan, C., Creus, J., King, M., & Marshall, P. (2017, May). A city in common: a framework to orchestrate large-scale citizen engagement around urban issues. In Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (pp. 2282-2294). ACM.



Following, we briefly introduce the phases comprised in the framework and the activities that are recommended within each phase, in order to help the reader make sense of the pilot descriptions that are provided in chapter 3.

2.1. Identification phase

2.1.1 Identify health & environmental citizens' concerns

The process starts with the identification of the health and environmental issue that is of more concern to citizens. Surveys, interviews, rapid ethnography and stakeholders mapping are methods often used in this phase to gain a deeper understanding of the problem at stake.

2.1.2 Translate the selected concern into a research question

The aim of this phase is to translate the concern previously identified into a research question that will be answered over the course of the project. This phase generally includes co-creation workshops, in-depth interviews, public votations and literature reviews. It is worth noting that it could be difficult for lay people to translate a worry into a research question. It is the role of the project team to facilitate this process by providing guidance on scientific methods and knowledge on the topic at stake, ensuring that the questions co-created are feasible (e.g. they can be answered considering budget, time or other constraints) and novel (e.g. they have not been already answered by the academic community or they bring a new perspective on current knowledge).

2.1.3 Build community and recruit participants

While the first two phases are often developed on a large scale, this phase aims to identify and get in contact with specific communities, organisations and stakeholders that are affected by the selected issue and who might be interested in collaborating towards a solution. This may include narrow down participation to specific groups of citizens depending on the research question selected (e.g. children, elderly, people affected by a particular pathology or conducting a specific activity). This phase is key to building the first group of participants who will be actively involved in the next activities and are key to spread the project and recruit more participants.

2.2. Design phase

2.2.1 Co-design data collection protocol

This includes the co-design of the data collection protocol through which participants will collect evidence to answer the research question selected. The results of this process is the data collection protocol, which includes information



such as the experimental variables, the type of data to be collected and the methods and tools to collect them. The role of the research team is to provide lay participants with knowledge about scientific methods and experimental design, including a list of available tools for collecting data, with their advantages and disadvantages. Participants can propose new tools not known by the scientists (e.g. new wearables or apps), and could also provide a great contribution in the definition of strategies to launch and disseminate the data collection campaign.

2.2.2 Make supply or co-design data collection tools and sensors

This step includes the preparation of the tools that will be used to collect the data previously defined. These tools can be of different types, such as surveys, sensors (e.g. air quality, noise sensors), apps or medical tools to collect health parameters. Participants are involved in this phase in order to ensure that the tools are easy to use and respond to their expectations.

2.2.3 Co-design governance protocol

In Cityes-Health, citizens are engaged not as mere assistants to researchers, but mainly as partners who play a central role in identifying research priorities. To this end, over the course of the pilot, we will provide participants with the opportunity to discuss and make decisions over key aspects of research. The result of this process is a governance protocol which includes information such as the roles, rights and duties of all involved parties, the conditions under which the data can be used within the framework of the project, how the impact of the pilot should be evaluated, as well as other aspects that will arise from conversations with participants.

2.3. Deploy

2.3.1 Launch the data collection campaign

This phase starts with the deployment of the data collection strategy co-designed in the previous phase. A public campaign can be launched with the aim to raise awareness about the study and recruit more participants. Participants could help to spread the campaign and recruit more participants. Depending on the kind of experiment defined, the data collection phase may last various months or just a few weeks or even days.

2.3.2 (Continuous) Analysis of the data collected

In public meetings, researchers will present the data collected and initial results of the analysis. Such results will be discussed and further enriched with participants in order to add their insights and situated knowledge.



2.3.3 Collective impact assessment

This is the time to assess the impact that the pilot has achieved. In the previous phase, pilot leaders have defined with participants how to do that (see governance protocol). The impact assessment should cover different dimensions and levels, e.g. impact on individuals, environment, health, policies, education, etc.

2.4. Action

2.4.1 Disseminate results

In a citizen science project the dissemination should address different publics: academic community, public authorities, civic society, and involve participants as proactive contributors. When publishing academic articles, pilot leaders should have previously discussed with participants the publication licence to be used and how their contribution will be acknowledged.

2.4.2 Co-create a citizens action

In this step, participants work together to propose courses of action. The aim is to co-create, plan and deliver actions that can generate recognition of the issue explored in the pilot experiment and possibly make an impact. These can include public-facing activities aimed at widening awareness and cross-actor policy dialogues.

2.4.3 Plan the legacy of the project

A legacy is created by looking beyond the lifetime of the project and making a plan for lasting impact. A key motivation behind this project is that the knowledge and tools resulting from the pilot experiments will be reused and uptaken by different actors of society (citizens, public authorities, other researchers) to replicate the experiments and increase the knowledge on the explored issue. To this end, citizens and researchers will conduct a reflection on what kind of legacy the project aims to leave. Examples are: policy recommendations or socio-technical infrastructure that allow other groups of citizens replicating the experiment and contributing with new data to the database and future research on the same topic. Moreover, citizens are invited to translate scientific knowledge gained through the process into useful and practical knowledge for society. The knowledge produced by citizens and researchers in this phase of the project will be shared with public administrations and policy makers in order to inform public policies and city planning.



3

Pilots

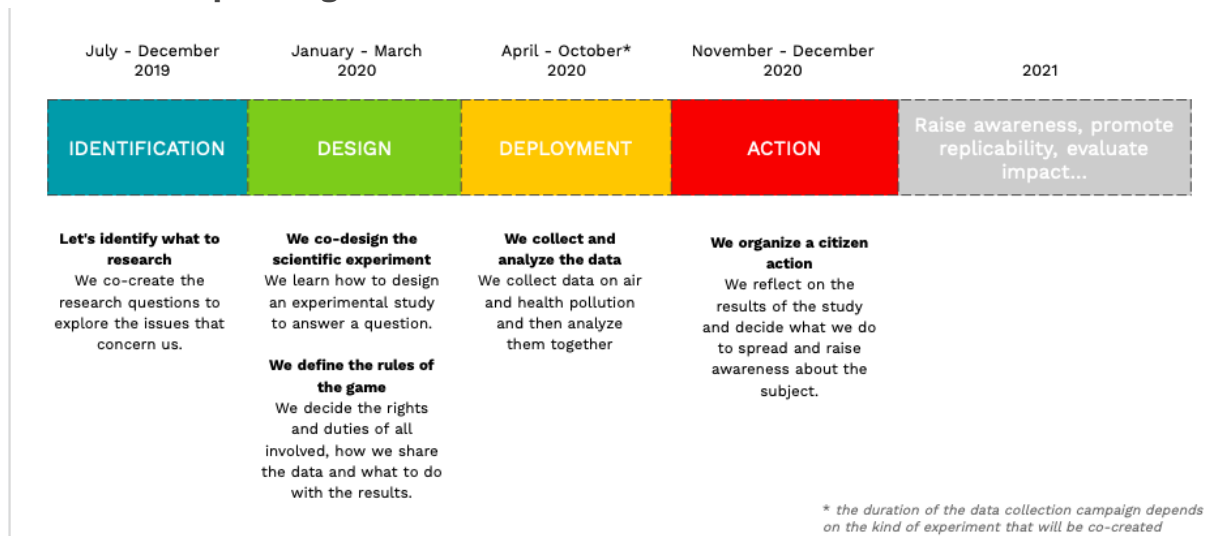
3.1 Barcelona

The topic of Barcelona (BCN) pilot is air pollution and health. The BCN pilot is co-lead by two institutions, ISGlobal and Ideas for Change, which complement each other in expertise areas, e.g. environmental epidemiology and citizen engagement, respectively. Active collaboration between the two institutions has been constant throughout the year with regular meetings, brainstorming sessions and frequent direct contacts.

3.1.1 Pilot progress

1. First year progress

Pilot timeline planning



Identification phase:

Actions

- **First attempts to reach to relevant communities** February - June
brainstorming sessions to narrow down relevant groups of citizens and initial contacts
- **Online Campaign** 26th of July- 20th of September
launch of an online survey to gather initial list of health concerns related to air pollution in Barcelona
- **Analysis of survey results** August - 20th of September
identify possible target groups and explore differences among neighborhoods of Barcelona



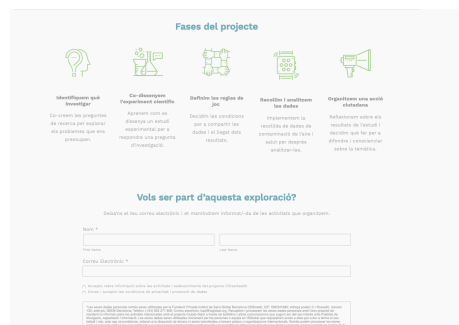
- **Offline pop-up intervention + Distribution of strawberry plants** 20th of September-[Parking Day](#) to further define and widen the concerns emerged from the survey results
- **Kick-off & presentation of survey results** 28th of September (within the framework of the [Researchers' Night](#))
Organize an event with public authorities, health bodies, experts and citizens to co-define a set of possible questions to investigate building on the results of the survey and the pop-up interventions. Prioritization of the issues/questions proposed. Gain institutional support to increase dissemination and awareness of the project.
- **Study the viability of the questions** October - November
Conduct a viability study to select the 2-4 most viable issues among the ones created in the kick-off
- **Public voting** December
We publish the list of questions resulting from the process and make a public vote to select the final question.
- **Collection of strawberry plant leaves** February

Resources and tools used until now*:

- Pilot website: www.citieshealthbcn.eu
- Survey ([ES](#) version, [CAT](#) version)
- Press release ([link](#))
- Video for promoting the campaign ([link](#))
- Twitter campaign messages ([link](#))
- Letter to stakeholders and public authorities ([link](#))
- Standardized Whatsapp message
- Strawberry campaign resources, FAQ ([link](#))
- Strawberry release ([link](#))
- Co-creation RQ canvas ([link](#))

Communication strategy

1) Communication strategy: Webpage, emails and social media



See at <https://www.citieshealthbcn.eu>

2) Crowdsourcing the research question

Survey to identify major air pollution concerns and health



Distribution of strawberry plants to measure air quality



Description of main actions

The main actions conducted during this first year are described below. A more detailed description of all actions, including all relevant outputs, can be found in the appendix at the end of the document.

★ **First attempts to reach to relevant communities**

Several brainstorming sessions between the two institutions were conducted to narrow down groups of citizens that could potentially be interested in exploring the links between pollution and health and that, at the same time, their participation in the project offered the potential to design studies that generate new scientific knowledge. The selected groups were:

- **Runners**, to assess the effects of air pollution on their performance, taking into account that several of them are already active in self-assessment with wearables;
 - **Initial contacts**: several institutions managing races in Barcelona that have access to runners who may be engaged in co-designing such study. Despite the initial interest, we never reached concrete agreements or actions
- **Pregnant women**, to assess the effects of air pollution on maternal and child health;
 - **Initial contacts and actions**: we contacted an obstetrician at one of the city hospitals. With her collaboration, we designed a first activity addressed to pregnant women in which we gave an introduction to what is known about pollution and pregnancy and then pregnant women would be able to formulate questions and issues they would like to know more. The event was advertised through different channels, e.g. at the hospital and primary care centers and through social media, but it had very low attendance. It was decided that this target population was hard to reach.
- **Asthmatics**, to assess the effects of air pollution on their symptoms.
 - **Initial actions**: we contacted a local association of asthmatics, but they were not active at the present period and this path could not be followed.



Event on air pollution and pregnancy

Lessons learned and decisions taken

The lack of progress in those first attempts was attributed to the low visibility of the project. In addition, the top-down approach in selecting the communities of interest may be biased by researchers' perceptions. In order to solve that, we designed a large communication campaign, both online and offline, aimed to raise interest in the project. A detailed pilot strategy targeting the entire population was then designed to increase awareness on the pilot goals and planned activities.

★ The Strawberry Campaign

Goals: To create a map of air pollution levels in different neighborhoods of Barcelona by using strawberry plants. Based on Environmental ecology and applied microbiology, strawberry can be used to detect the magnetisable particles, like iron, and on the basis of their concentration estimate the air quality to which the plant was exposed during its growth. The higher the magnetic signal, the more fine dust. ([example](#))

Citizens living in different neighborhoods in Barcelona will host a strawberry plant during 3 months, then they will send a plant leave to have it analysed. Thanks to the leaves sent by different citizens across the whole city area, we will build a collaborative city map of air contamination.

The strawberry campaign contributes to build a narrative around the pilot actions. The main actions of the campaign match with activities to be conducted in the pilot. We can build on the communication of the strawberry campaign in order to expand communication and participation in the pilot.

Main actions:

Distribution of 1,000 strawberry plants in all districts of Barcelona, 20th of September-[Parking Day](#), in collaboration with another initiative, *Vigilantes del aire* (Identification phase)

Collection of strawberry plant leaves* December (Identification phase)

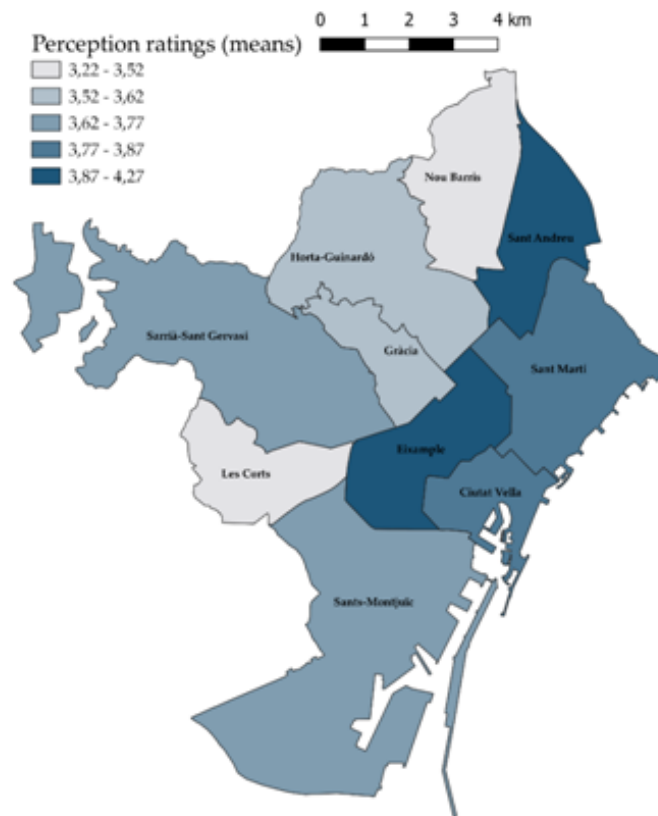
Analysis of plant leaves done by external partner February
Publication of contamination map March (start of the Deployment phase)



The campaign was very successful and got some media coverage.

★ **Online Campaign and Survey**

It consisted in a short, funny video entitled [*Everything you always wanted to know about air * but were afraid to ask*](#), which paved the way to a city-wide online survey exploring citizens' knowledge and concerns on air pollution and health. More than 600 people responded to the survey. This allowed to map concerns and increased the number of contacts. Results from the survey were used as input in the co-creation workshop to decide the research question.



Survey-derived perception of air pollution problems by district

Table: Results on one of the questions of the survey

Question	Answers	n	Percent
Q6: You would like to know how air pollution affects ...	Respiratory system	337	24.16
	Concentration and development	191	13.69
	Heart and arteries	173	12.40
	Stress	167	11.97
	Mental health	123	8.82
	Ageing	121	8.67
	Fertility / Reproductive system	75	5.38
	Allergies	70	5.02
	Digestive system	52	3.73
	Hair / Skin	42	3.01
	Sport performance	33	2.37
	Other	11	0.79
	<i>Total</i>		1395

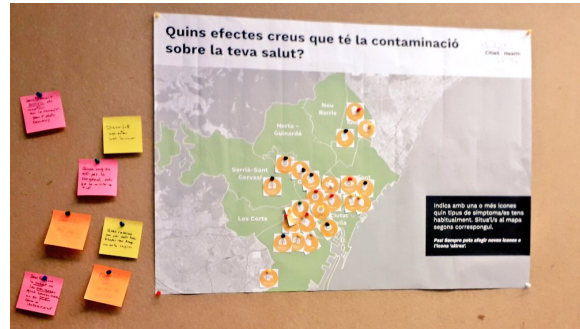
★ **First workshop for co-creating the research question**

The Barcelona pilot held a kick-off meeting in one of the largest museums in the city. All citizens who already provided their contact, plus contacts from a stakeholder map

(including local associations worried by air pollution, representatives of local administrations, journalists and NGOs), were invited to attend. Participants first learned about the survey results and then were divided into working groups for further discussions on potential research questions on the most mentioned areas in the survey: respiratory system, cognitive and mental health, and the adoption of solutions that work to reduce air pollution levels in the city.



Presentation of survey results and discussion



Symptom mapping canvas



Co-design of the possible research questions

All the material generated during the event has been used to obtain the following set of refined research questions co-created with citizens:

- Does air pollution affect stress levels or emotional state?
- Does air pollution affect attention and productivity?
- How is air pollution, noise, and green/blue spaces exposure affect mental health, each factor alone or in combination?
- How is air pollution, noise, and green/blue spaces exposure affect cardiorespiratory health, each factor alone or in combination?
- What are the cardiorespiratory health effects of using or not a protection mask?
- Using a protection mask for air pollution affects my performance when doing physical activity?



- Using a protection mask for air pollution affects my feeling of wellness when doing physical activity?
- Does air pollution affect my cardiorespiratory health when doing physical activity?

Public voting of the research question

The set of predefined questions were submitted to public voting for selecting the final one that will be addressed through the pilot study. The voting was launched on the 17th of December through an online city-wide campaign promoted through social media channels, the pilot webpage and WhatsApp messages among peers. Short promotional videos accompanied the campaign. The voting closes the 16th of January and the results will be published online. The winning question will be worked jointly with citizens and stakeholders in a set of co-creation workshops in February 2020 with the aim to define the data collection protocol for answering the question.

2. Summary and future steps

The Barcelona pilot conducted several activities during the first year. These activities have been useful to give visibility to the project and to build a community that is following our developments and participating in our events. With the lessons learnt throughout the year we have also redefined our strategy to make it more successful. The Barcelona pilot will close the Identification phase this first year with the final co-designed research question(s), and will start the Design phase in January 2020. The following activities are envisioned for the next year:

Design phase:

- **Workshop 1**
Expert's presentation on research methods and experimental design
Hands on activity: Co-creation of data collection protocol
- **Workshop 2**
Expert's presentation on ethics in research.
Hands on activity: Co-creation of governance model (recruitment criteria and methods, data governance, informed consent, impact assessment criteria, etc.)
- **Workshop 3 co-creation of the data collection campaign**
 - Recruitment strategy
 - Preparing onboarding materials
 - Media dissemination
 - Mapping communities to be targeted in the campaign

Deployment phase:

- **Data Collection Campaign + Results of the strawberry campaign (March - July 2020)**
to be defined
- **Data Analysis (July - September 2020)**
to be defined



Action phase

- **Workshop to co-design civic action**
to be defined
- **Workshop for policy recommendation**
to be defined
- **Reflection: Impact evaluation post-pilot**
to be defined

Based on the Barcelona pilot experience, a recommendation for the future can be to open up the process early to the whole population, with strong efforts on communication to achieve a large number of participants, to see what topics and interest groups emerge that can help shaping the project.



3.2 Ljubljana

The topic of the Ljubljana pilot is noise and health. Exposure to noise is becoming more and more important environmental stressor, and people increasingly perceive the quality of sound environment as a paramount aspect of their general quality of life.² Previous research showed that more than a third of the citizens of Ljubljana are seriously disturbed by noise, and only a quarter of them are satisfied with noise levels in their living environment. Most of the noise pressure comes from the traffic, both road traffic and railway.

In recent years with the closure of the city center for traffic and the regulation of some road bypasses, the noise in some densely populated neighbourhoods has decreased, however, the frequency of traffic is constantly increasing and so are the noise level. The most critical are residential areas where buildings are built close to the main roads or rail corridors and that cannot be protected by noise barriers.

As part of the strategic noise mapping it was estimated that in 2012/2013 school year out of ~20.000 pupils in primary schools and ~13.000 children in kindergartens, approximately 50% attend classes in buildings where road traffic noise exceeds recommended guideline values set by WHO at least in the most exposed façade. However, it should be noted that these are assessments based on modelled values only, supported with limited number of measurements, and some experts emphasise that actual noise levels might be even greater than predicted. Moreover, in addition to external sources, most of the schools in Slovenia report problems with noise generated indoors, mostly in the dining room, corridors, gym, lobby and classrooms.

3.2.1 Pilot progress

1. First year progress

Identification phase:

So far noise related research in Ljubljana was oriented towards impact assessments using modelling tools and awareness raising campaigns. What is lacking is evaluation of environmental status using measurements, as well as studies relating exposure to noise with human health and well-being.

Overall, three general groups of communities were contacted and engaged as yet (see Figure below). Most of the community building and engagement activities was devoted schools, where three subgroups of participants are expected to be part of the project: pupils/students, teachers and other staff employed within the schools,

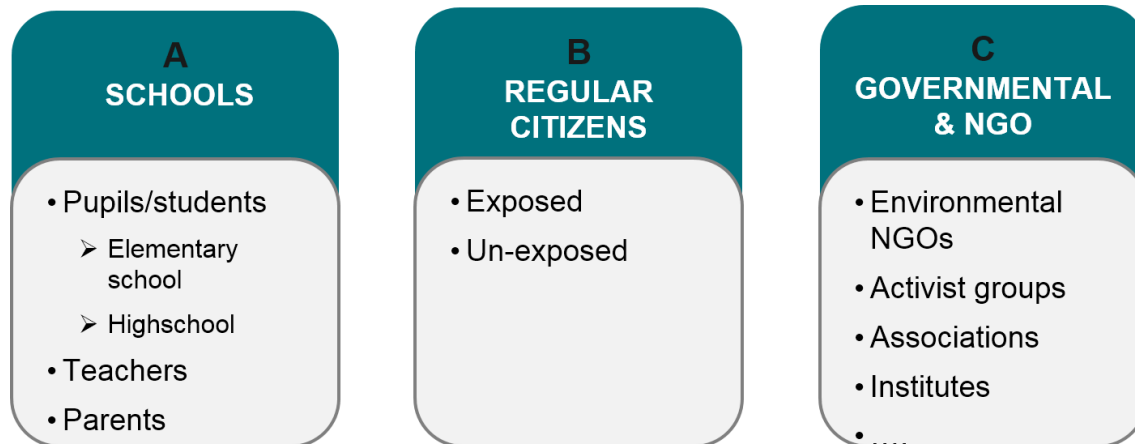
² 1. Perceptions of air quality in Ljubljana - Katja Vintar Mally, PhD. Department of Geography, University of Ljubljana. Aškerčeva

2. Cigale, D. & Lampič, B., 2005. Hrup kot okoljski problem. Geografski obzornik, 2(52), str.19–23

3. Slovenian Environmental Agency, environmental indicators, http://kazalci.arso.gov.si/?data=indicator&ind_id=727

4. NIPH report, 2016. Noise and health in elementary schools, <http://www.nijz.si/sl/publikacije/hrup-in-zdravje-v-osnovnih-solah>

and parents of pupils/students. Up to now, in two of the schools, one elementary and one high school, activities were initiated, while other schools were identified and will be approached early in the beginning of 2020. Two other groups are regular citizens interested in environmental pollution issues and governmental organisations including NGOs.



Actions

- **Meeting with the National Institute of Public Health** 17th May
Ljubljana Cities-Health team met with colleagues from National Institute of Public Health of the Republic of Slovenia to discuss synergies and collaboration opportunities in health and citizen Science.
- **School visits** June - December The Ljubljana team conducted several visits at schools, including the organization of a Science Day with the theme of noise and health, a visit in collaboration with guests from University of Delhi, and a visit to meet with teachers. The main aim was to raise awareness and generate interest in participating in the project.
- **Meeting with DOPPS-Birdlife Slovenia** December General introductory meeting where we discussed with the director of DOPPS the possibility of collaboration and synergies between the Cities-Health and DOPPS nature conservation organisation.
- **Co-creation session to frame research questions** December Session with teachers and other school staff to define the research questions that participants of the project will address.

Resources and tools used until now*:

- Slides with Pilot outline and previous activities related to noise and health
- Smartphone app to measure noise
- Treasure hunt activity
- Questionnaire regarding noise and sound topics
- Poster with sticky notes
- Presentation on general environmental pressures in urban systems with focus on comparison between Ljubljana and New Delhi
- Presentation with potential tools to be used
- Drawings by children



Communication strategy

Webpage, emails, social media

Description of main actions

The main actions conducted during this first year are described below. A more detailed description of all actions, including all relevant outputs, can be found in the appendix at the end of the document.

★ Co-creation of research questions

A session with teachers and other staff working at Spodnja Šiška elementary school was organized to frame research questions that participants of the project will address. The session included a presentation giving an overview of the available tools and their application that could potentially be used in the project. In a dialog with participants, we discussed which were the most pressing concerns regarding noise pollution and health, both in the school environment as well as in general living environment.

The so far raised and explored research questions can be grouped into two general categories which partly overlap:

Questions within school environments:

- What are the main sources of noise in and around the school?
- Which are the vehicles that drive past school that make the most noise, and what does this mean for our well-being and health?
- How is noise distributed throughout the day and in the room?
- How does noise / sound affect our well-being (e.g. concentration, stress level etc.) and how does it affect the learning process and success?
- How this is reflected in the relevant health parameters (e.g. heart rate, ECG, stress level)?
- What can we do to reduce noise in school spaces?
- How does the sound expand with respect to the features of the room? (e.g. volume, materials...)?

General living environment research questions:

- Where and when are we most exposed to noise, polluted air, other stresses ..?
- How do environmental stressors affect our health and well-being?
- How does noise affects an individual's sleep (by source and location)?
- How much of a person's daily stress can be attributed to noise?
- How is well-being affected by the combination of the individual's activity and the surrounding parameters?



Co-creation event

2. Summary and future steps

Several activities were conducted during this year, which helped to raise awareness, to shape the research pilot and to build a community that will be involved in the project. Key research questions have been identified with the citizens. The following activities are envisioned for the next year:

Design phase:

In the design phase, citizens together with scientists will co-design the final study protocol. In light of the research questions identified so far, the following technologies and means of data collections are foreseen:

- use of (pre-calibrated) smartphone applications to measure noise levels in the area of interest
- use of both portable and static sound level monitors for continuous measurement of sound levels in predefined environments/locations
- use of portable health devices and gadgets (physical activity sensors and similar devices that enable measurement of heart-rate, blood pressure, ECG, sleep etc.) to get an insight into exposure-response relationships.
- use of smartphone applications for direct or indirect measurement/assessment of health parameters such as heart rate (HR), heart rate variability (HRV), sleep and daily activity and cognitive function
- use of non-ICT depended tools such as questionnaires, health tools, time-activity diaries, ecological momentary assessment to support interpretation of data gathered using the above mentioned tools and approaches.

Deployment phase:



In line with the above mentioned research questions identified and planned tools to be used, data gathered will comprise the following:

- sound levels in different environments/locations including indoors and outdoors
- heart rate (HR), heart rate variability (HRV), sleep, daily activity, cognitive function, ECG
- perception of various sounds/noises
- time-activity diaries



3.3 Lucca

CitieS-Health, as a Citizen Science project (science with and for the citizens), encourages the active involvement of the population in the collection of scientific data and relevant information to detect, describe and analyse their health status accurately. The Serchio Valley (Lucca) is the area chosen for the Italian study, named "Aria di ricerca in Valle del Serchio". More precisely, the study area includes the eight municipalities of Barga, Borgo a Mozzano, Coreglia Antelminelli, Fabbriche di Vergemoli, Fosciandora, Galliciano, Molazzana, and Pieve a Fosciana.

The Serchio Valley is an area known to have one of the highest mortality rates in the region, as documented since the first report (Vigotti et al. 2001 Atlas of Mortality in Tuscany 1971-1994. Editions Plus, University of Pisa). Until recent years, the picture was dominated by the high mortality in the Massa-Carrara, Livorno, Florence triangle, including the two routes from Florence to the sea, passing through the Arno valley on one side and in the direction of Prato Pistoia Lucca on the other side. The Pistoia mountains and the Serchio Valley were also part of this picture. Additional detail is available in Biggeri et al. 2011 <http://www.cd.biostatistica.net/> for the period from 1971 to 2006, which shows a higher than regional average mortality and prevalence of chronic degenerative diseases, for the Serchio Valley. Cardiovascular disease, chronic respiratory disease, chronic kidney disease, lung cancer, breast and uterine cancer and lymphomas were the most common diseases. The CitieS-Health pilot in this region searches to continue the research on the link between environment and health together with the community.

3.3.1 Pilot progress

1. First year progress

Identification phase:

Actions

- **Public presentation of the project and of the health profile of the Serchio Valley population** **July 1st** Public presentation to citizens to present the project and information materials, with the participation of the local residents. Nine other open meetings with citizens have taken place during the first year of the project
- **Implementing an environmental self-monitoring network** **ongoing** We implemented a citizen science initiative that became a monitoring network based on low-cost DIY sensors to measure the concentration of respirable and fine particles, PM₁₀ and PM_{2.5}
- **Public event to discuss on Ethics** **November 9th** Event with citizens to discuss on risk governance and ethical aspects and challenges of participatory research.
- **Survey on health status and environmental conditions** **November** A survey was conducted on citizens residing in the Serchio Valley aimed at finding out what citizens think about their health conditions, the situation of the environment and the relationship between the two in the Valley.
- **Event to collaboratively decide which diseases to investigate.** **December 11th** A discussion with citizens to select the health problem in which the pilot will focus.



- **Round table of mayors from the eight municipalities** December 11th Rodun table discussing about potential future scenarios in light of the epidemiological study.

Resources and tools used until now*:

- Low-cost DIY sensors to monitoring the concentration PM₁₀ and PM_{2.5}
- Self-administered survey
- Open presentations
- Local website ([link](#))
- Press releases
- Poster of events

Communication strategy

Webpage, emails, social media, open meetings with citizens and stakeholders, press releases.

Description of main actions

The main actions conducted during this first year are described below. A more detailed description of all actions, including all relevant outputs, can be found in the appendix at the end of the document.

★ Public presentation of the project and of the health profile of the Serchio Valley population

On July 1st, 2019, the first public event of the Lucca Pilot took place. Around a 100 citizens and the mayor of Barga participated in the event. A joint report with the Tuscany Regional Health Agency, a project collaborator, on the health profile of the Valley's population was presented. This report updated the previous reports mentioned above until 2017 and confirmed an excess risk for some diseases such as cardiovascular diseases (in particular coronary heart disease), respiratory diseases (especially chronic respiratory diseases), urinary system diseases (in particular chronic kidney disease) and liver cirrhosis. These results are consistent when looking at mortality and when looking at hospitalizations, both in women and men. More details can be found [here](#).

Mortality indicators showed a more unfavourable situation in the eight municipalities of the Lucca Pilot. In appraising these results, the public debate focused on the presence of heavy metal emission sources and other air and soil pollutants, and on the extent to which scientific literature supports an association with some of the abovementioned diseases.



Picture of the event

★ **Public presentation of the project and of the health profile of the Serchio Valley population**

Official air quality monitoring activities in the Serchio Valley were discontinued in the nineties and to date there are no fixed monitoring stations. Only monitoring campaigns by mobile stations were conducted by the Regional Agency for Environmental Protection of Tuscany.

Within the Lucca Pilot of the Cities-Health project we implemented a citizen science initiative which built a network of low-cost DIY sensors to monitor the concentration of respirable and fine particles, PM₁₀ and PM_{2.5}. This activity serves a dual purpose:

- A. to obtain a more detailed picture of air pollution by having many low-cost sensors, which can provide information about localized pollutant sources not easily monitored by large scale surveys
- B. to raise awareness of the problem through the active involvement of the population

The DIY network grew on the experience of the Citizen Science initiative of the CheAriaTira network – which the Cities-Health partner Epidemiologia e Prevenzione supported - www.cheariatira.it. In the Serchio Valley, there are four stations located in Castelnuovo Garfagnana, Barga, Fornaci di Barga and Bolognana. The data is also available in real-time via smartphone and is updated every 2 minutes.

★ **Exploring the meaning of research ethics in Citizen Science**



The approach used in the Lucca Pilot is a participatory one. Each phase of the research, starting with the definition of the objectives, is discussed and conducted together with the citizens.

Since decades, how to engage citizens in risk governance is widely discussed in the literature and we are well past the naïve idea of “objective” assessments performed by experts and then communicated/explained to the public. These aspects, as well as the ethical aspects and challenges of participatory research, have been addressed in many meetings with the citizens and in a public event held November 9th, 2019 dedicated mainly to research ethics. Three speakers were invited: Caterina Campani, the Mayor of Barga (one of Municipalities involved in the project); Fabrizio Rufo and Antonella Ficorilli, two experts in research ethics involved in the project. A debate among all participants was scheduled after the three speeches. Annibale Biggeri (local project manager of the project) was the moderator of the debate.



Picture of the event

★ **Survey on health status and environmental conditions**

In November, a survey was conducted on a sample of 1025 citizens residing in the Serchio Valley aimed to find out what citizens think about the health conditions, the situation of the environment and the relationship between the two in the Valley. The citizens who completed a self-administered questionnaire were contacted through the local association network, consisting of 21 associations and a dozen volunteers for the remote mountain municipality of Fabbriche di Vergemoli. All eight municipalities were involved: 546 questionnaires were distributed in the municipality of Barga and 479 in the remaining territory. This imbalance reflects the greater environmental concern in Barga due to the presence of an industrial source of pollution.



We collected 922 completed questionnaires, a 90% response rate, which we take as evidence of a high awareness of environmental issues in the territory. We were able to engage a large number of citizens' associations representing 10% of all the inhabitants of the Valley. The 1025 distributed questionnaires – and the 922 completed – means that one out of every 60 inhabitants were involved somehow.

Regarding the results of the questionnaire, the concerns expressed about health problems reveal a good knowledge of the past most frequent diseases among the Valley's population, namely malignant tumours, particularly lung cancer, and respiratory diseases. Thyroid diseases also represent a significant concern, a finding related to the many screening campaigns about endocrine diseases conducted in the past. However, the current health profile – as presented in our public event in July 2019 – is not yet well known. Indeed, we showed significant excesses above the regional average of cardiovascular diseases and kidney diseases and a relative reduction of the importance of historical excesses in the Valley, like those for malignant tumours, lung cancer and respiratory diseases when compared with the regional average.

Environmental pollution is a major concern for the responders, in particular, air pollution (72% of the respondents), followed by soil pollution (56%). Pollution is associated with the same diseases that are of most concern, malignant tumours (lung cancer with 79% of respondents who show a strong concern) and respiratory diseases.

Sixty-six percent of the respondents knew people who reside in the Serchio Valley and have a kidney disease or disorder. Fifty-two percent believe that there is a link between pollution and poor kidney function and as many as 80% know that heavy metals are toxic to the kidneys. Sixty-four percent of respondents believe there is air pollution from heavy metals, and 75% believe this is a serious problem for the Serchio Valley. Eighty-one percent of respondents believe this pollution is due to industries that use metals in their production processes.

★ **Event to collaboratively decide which diseases to investigate**

On December 11th, 2019, after presenting the survey results, the objectives of the epidemiological study were discussed. It was agreed to focus on chronic kidney diseases for the following reasons:

- It is a frequent disease among the Valley's population
- Heavy metals are toxic for the kidneys
- There is pollution from heavy metals in the Serchio Valley
- If the exposure is reduced or eliminated, the disease progression may stop or regress

Measuring the frequency of kidney disease among Serchio Valley population is therefore the first step for assessing whether or not that type of health problem is present. To this end, it is necessary to perform a urine test and a blood test. The epidemiological study will, therefore, focus on measuring renal function by examining clinical tests in a sample of 2,000 inhabitants, of which 1000 residents in Barga. By next spring, a detailed study protocol will be completed and publicly validated.



★ **Round table of mayors from the eight municipalities**

The December 11th, 2019 event ended with a round table of mayors from the eight municipalities discussing about potential scenarios in light of the epidemiological study on renal function. Although the Serchio Valley is an area characterized by and known for its considerable natural, historical, and cultural beauty, there are also significant industrial settlements present that are potential pollutants. The project depends on a strong public commitment at every stage of the epidemiological research. After defining the research objectives, it is necessary that citizens and local institutions collaboratively consider all the potential outcomes from the results of the forthcoming epidemiological study on renal function and their implications for developing health action plans. This is a crucial public phase to collectively recognize the limits of the epidemiological study and ensure transparency in decision-making processes.

This epidemiological study aims to assess the state of health of the population of the Serchio Valley', particularly renal function, and interpreting in relation to the environmental pollution that has accumulated over time.

We reflected on the following questions:

- Which results can we foresee?
- How can we interpret each set of results?
- What actions can we hypothesize?

We have defined and discussed four scenarios:

1. everything OK;
2. lights and shadows;
3. critical issues;
4. damage caused by the pollution.

The debate was then opened. Also, a study by the University of Pisa, commissioned by the municipality of Barga, was announced, which is aimed to characterize the soil and the aquifer with particular reference to heavy metal contamination.

2. Summary and future steps

The Lucca pilot has built a strong community around the project and has held several activities with them. A report on health in the area was presented, a survey on concerns was distributed and analysed, and the health problem in which the pilot will focus was decided. In the next year, we will complete a detailed study protocol, which will be publicly validated, to perform a urine test and a blood test to measure renal function. Then, it will be implemented, with the aim to reach a sample of 2,000 inhabitants, of which 1000 residents in Barga.



3.4 Kaunas

The topic of the Kaunas project is the relationship between urban design, physical activity and health. There is growing scientific recognition that urban design, physical activity and contact with urban green spaces have the potential to contribute positively to citizens' health. However, many citizens are not familiar with the impact of urban environment on health and do not use the green spaces for physical activity or recreation. Citizens' engagement in the research is an approach that develops and uses new technologies within local communities to collect and analyse data and to share knowledge. Elucidating the citizens' concerns and estimating the links between the urban environmental quality and major citizens' health concerns will enhance the participants understanding of issues that affect community health and will offer city planners suggestions for improving citizens' wellbeing.

3.4.1 Pilot progress

1. First year progress

Identification phase:

Actions

- **Radio discussion** **October 2018** Information of the radio about the upcoming Cities-Health project, and to raise awareness about the impact of environmental impact on citizens' health
- **Campaign to raise awareness** **April** Campaign to raise awareness about city planning impact on citizens health, in the form of a press release discussion between journalist and prof. Regina Grazuleviciene about city planning, physical activity and citizens' health. There were calls to citizens to participate in Kaunas pilot study. Discussions were posted on the website.
- **Open kick-off meeting** **May** Citizens meeting to discuss potential research questions.
- **Study planning meeting** **May** Kaunas Cities-health team meeting with citizens to discuss about the Ethical issues and the planning of the Kaunas Urban design and Physical activity pilot study.

Resources and tools used until now*:

- Press release discussion
- Other media appearances
- Meetings with citizens linked to scientific conferences ([link](#))
- Debates

Communication strategy

Webpage, emails, social media

Description of main actions

The main actions conducted during this first year are described below. A more detailed description of all actions, including all relevant outputs, can be found in the appendix at the end of the document.

★ **Open kick-off meeting**

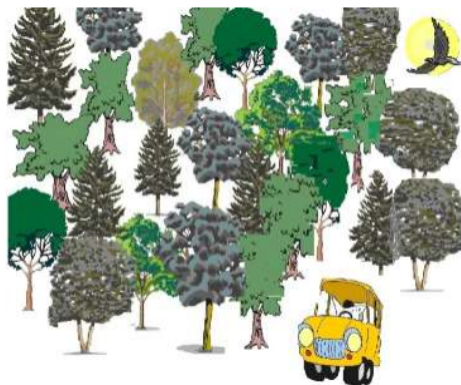
An open kick-off meeting to discuss potential Kaunas Pilot study research questions was held on May 5th. It was organized as one of the sections' of the 25th International Scientific-practice Conference HUMAN AND NATURE SAFETY 2019 in the VDU Botanic garden. The meeting was attended by around 120 people, including scientists, researchers, practitioners, journalists and citizens. The aim was to get more information about citizens' concerns on environmental issues and their health, and to translate citizens' health concerns into research questions.

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**ŽMOGAUS IR GAMTOS
SAUGA 2019**
2019 m. gegužės 8–10 d.

PROGRAMA



Akademija, 2019

With the output of the meeting, as well as with other activities with local communities from different districts, the Kaunas pilot collected the following environmental concerns in different Kaunas districts:

- traffic-related air pollution
- truck noise
- car-parking problems
- deficiency in yard green zones
- unfitted pathways for motional disabled persons
- insufficient lighting in private home block
- inaccessible community meeting premise.



In terms of the health concerns, those included:

- sleep disorders
- hypertension
- cardiac problems
- diabetes
- back pain

These were translated into the following co-created research questions:

- How does the urban design of the neighbourhood affect my health?
- How does the environmental exposures and physical activity are associated with my blood pressure?
- How my concerns of environmental issues and health data might be useful for improvement of my family and community quality of life?

Design phase:

The pilot expects to collect data on urban design, air pollution, and traffic flows, green spaces and pathways in different communities; personal health data, socio-demographic, and behaviour related to health.

In order to begin collecting data on personal citizen's concerns and to start having data on the evaluation of residence neighborhood by different communities, the Kaunas pilot started collecting information using a formalized final questionnaire (with both closed and open-ended questions) on the following issues:

- I. concerns related to environmental problems, city traffic, ambient air quality, greenness, and other issues;
- II. health-related quality of life and well-being, data related to citizens health behaviour, physical activity, chronic diseases;
- III. socio-demographic data, residence history, address;
- IV. citizens expectations and needs for health support, which will give rise to social and policy implications.

The result of the design phase: we co-designed a protocol for a cross-sectional environmental epidemiological citizen science pilot study assessing the links between environmental exposures and citizens health outcomes.

In addition to the questionnaire, environmental exposure of residential place of the participants will be estimated using maps of urban design, traffic flows, green spaces and pathways. Participants who provide consent for that will also wear a low-cost portable sensor - watch-pedometer FitBit Alta for the measurement of physical activity, sleep disorders and cardiac problems. These data will be used for the final stage of the tool-kit development and participants will have the possibility to participate in the tool development.

An Information Sheet and an Informed Consent Form were prepared to comply with the Bioethical procedures for the use of personal data. Citizens' are only involved in the study after Ethics Committee approval.



Deployment phase:

The data obtained from the first 10 participants was used for preliminary testing of the questionnaires and data gathering using sensors. The questionnaire responses of 195 participants we used to collect personal self-reported concerns and health data.

2. Summary and future steps

The Kaunas pilot conducted several activities during the first year. These activities have been useful to give visibility to the project and to build a community that is providing input for our study. So far, citizens have provided contributions on concerns that framed the research questions and contributed to the co-design of the study protocol. Preliminary data already collected is helping with the improvement of data collection tools. Some citizens will also be active in implementing the study protocol. For future work, we foresee the deployment of the interventions at a larger scale, through the dissemination and use of the pilot study protocol. We expect to engage about 600 participants by using online survey to obtain evidence-based results on associations between environmental quality, physical activity and health risk.



3.5 Amsterdam

The topic of the Dutch pilot is the relationship between woodburning and health.

3.5.1 Pilot progress

1. First year progress

Identification phase:

Actions

- **Literature and media research into civic concerns** April-July This research identified wood burning as a topic of interest in the Netherlands. The debate around whether to allow indoor wood burning has polarized into two clearly opposing groups, those in favour and those against the burning of wood.
- **Meetings with key organized stakeholders.** September These meetings were organized to partner with organizations who are already working projects with regards to woodburning and health in the Netherlands.
- **Online “call for research questions” campaign.** October-ongoing The online campaign asked citizens to contribute their questions, concerns or remarks with regards to woodburning in their area.
- **First meeting with citizens in IJburg.** 16 December 2019. This meeting was used to gauge the interest of citizens in a citizen science project in IJburg. This was also the first opportunity for researchers and interested citizens to meet and identify key concerns and questions.

Resources and tools used until now*:

- Website
- Online survey
- Flyers and posters advertising the event in IJburg
- Map of IJburg, markers, and post-its

Communication strategy

Webpage, emails, social media, flyers, posters, IJburg community communication platform, Neighbourhood WhatsApp chat groups, and EOS iedereen wetenschapper (everyone is a scientist) existing citizen scientist forum.

Description of main actions

The main actions conducted during this first year are described below. A more detailed description of all actions, including all relevant outputs, can be found in the appendix at the end of the document.

★ Meeting with organized stakeholders

Various existing stakeholders have been working on issues regarding wood burning for years. Utrecht University has met up with key stakeholders in this field and have invited them all to participate and help co-create this project with us. Within RIVM we contacted collaborators who worked within the topic *Samen meten* (measuring together), a citizen



science portal around the theme of air quality monitoring with low cost sensors. As a result, the following stakeholders are now working together with Utrecht University to help this project be as successful as it can be:

- The RIVM (National Institute for Public Health and Environment)
- GGD (Municipal Health Service) Amsterdam
- Longfonds (Lung Foundation, a lung patient organization advocating for reduction of air pollution from multiple sources including wood smoke)
- Stichting Houtrookvrij (Foundation Free from Wood smoke, a citizen association organized around the wood smoke issue).



★ Online “call for research questions” campaign

The next step was to make sure that there was an interest in wood burning directly from the general public. Thus a nationwide online “call for research questions” campaign has been launched. This campaign allows citizens to share their questions, concerns or remarks with regards to wood burning directly with us. This indicated that there was an interest from citizens to spend time and energy to conduct research in this topic of interest. This also allowed us to see what the civic concerns are with regards to woodburning, provided us with a list of possible research questions and what citizens expectations are of this project. We received more than 50 responses with widely different questions. However, online campaigns are not enough as this is restrictive to people who see the media campaign and have access to the internet. During our meeting with the GGD Amsterdam, they also indicated areas within Amsterdam where woodburning is considered a big problem. The neighbourhoods IJburg and Tuindorp were mentioned based on citizen complaints the GGD received. Steps have been put into place to organize gatherings in identified areas to also allow for offline inclusion campaigns.



Oproep voor onderzoeksvragen

CHARRED is een Nederlands burgerwetenschap project dat onderzoek wil doen naar vragen over houtverbranding die van belang zijn voor burgers. Met dit project willen we burgers graag vanaf het begin tot het eind betrekken bij het onderzoek. Dus ook met het bedenken van de onderzoeksvraag.

Heb jij een brandende vraag over houtverbranding?



Deel je vraag via onze "Oproep voor vragen" pagina.

Of door contact met ons op te nemen!

[Oproep voor vragen](#)

Heb je geen vragen maar wil je toch betrokken zijn bij dit onderzoek?

Stuur ons dan een bericht met je contactgegevens!

Oproep voor vragen

Bedankt dat je je vraag met ons wilt delen!

De Universiteit Utrecht is bezig met het opstarten van een burgerwetenschapsproject i.v.m. het onderwerp houtverbranding. Met dit project willen we burgers graag vanaf het begin tot het eind betrekken bij het onderzoek. Dus ook met het bedenken van het onderzoeksvraag.

OK

Online survey

★ **First meeting with citizens in IJburg**

Having identified wood burning as a topical issue of interest for Dutch citizens, Utrecht University has just organized the pilots first event to start building a citizen science project within IJburg. The hope is that this event will be successful in building a foundation for the community and start framing the pilot. A follow-up meeting was agreed upon in January 2020 to select questions and frame research questions.

Communities involved:

- Utrecht University
- CitiesS-Health consortium
- GGD Amsterdam (Municipal health service Amsterdam)
- Concerned citizens not associated with a community/organization.



Flyer and pictures from the event

A list of problems and concerns, a few potential research questions were listed and the expectations of citizens were discussed, all specifically related to the residents of IJburg who participated. Also information about where their questions were of relevance in the area was recorded on a map.

2. Summary and future steps

During this first year, citizens have already started framing their concerns into research questions via our online “Call for research questions”. Though these questions are coming directly from citizens and stems from their real concerns regarding wood burning, not all of these topics are possible within this projects’ time frame. This means that a lot will still have to be done with regards to framing expectations both those of the citizens and us as researchers.

The literature review done in the identification phase of this pilot has identified a few gaps in knowledge that needs to be filled. However, this still needs to be discussed with citizens and confirmed that the knowledge gaps we have within science are also of civic interest. During our meeting with the RIVM we also had a discussion about various technologies that could be used by citizen scientists that would provide scientifically accurate data. This is an initial step in identifying some technologies that can be used. Though these need to be discussed with citizens to see what would best suit them, and which would be the best to use with regards to the final project research question that is going to be addressed.



When conducting citizen science there are a vast amount of stakeholders one can involve. After mapping various communities and stakeholders we thought would have an interest, it is interesting to make a second map to see who is actually interested in participating in such a project. This may be less or more than expected but it is helpful to realize which groups you may still be missing or did not include in your initial mapping.

All the information collected so far from the different stakeholders and communities will help in the co-design of the actual study and its deployment, to be done during 2020.



4

Conclusion

The five pilot studies of CityS-Health are advancing at a similar pace. The focus of the first year has been to create interest in the project, to contact with key stakeholders and to meet with citizens to discuss their concerns and translate them into operational research questions, which are now available for the five pilot studies. CityS-Health has built a community interested in the project in each of the five locations that will be the basis for the next steps of the project. This first year has also been important in lessons learned and has aligned all study partners, including those usually applying *traditional* research methods, in putting into practice the principles of Citizen Science.




Appendix. Details on activities during the first year

Barcelona

1. Activity: First meeting with citizens about air pollution and effects on pregnancy

Title	First meeting with citizens about air pollution and effects on pregnancy
Description of the activity	The meeting was focused on the effects of air pollution on pregnancy, and it had two parts. The first one was a short non-technical talk explaining what is known on air pollution and health, with a particular focus on the health of pregnant women. The second part was designed to know the issues of concern of the citizens around this topic and their ideas for research questions to be implemented. This first exploratory session of the CiteS-Health pilot project in Barcelona was held on May 20th in the Parque de Investigación Biomédica de Barcelona (PRBB).
Date	20 May, 2019
Target population	Pregnant women or association related with pregnant women or doctors / nurses
Number of citizens that participated	8 people
Nature of citizens – NGOs, community associations, lay citizens	Obstetricians, nurses and lay citizens
Were policymakers / government representatives involved?	In this activity we have the participation of an obstetrician, but not policymakers or government representatives.
How the activity was announced?	We created posters to be distributed by mail and social media (digital) to arrive to the interested population (pregnant women). Twitter, Facebook and website were the main channels used. The obstetrician of one of the hospitals was informing her patients about the event.
Barriers encountered and how they were solved?	The main barrier was to contact the pregnant women. We tried to solve it by contacting obstetricians. The schedule of the event was also critical for this population.

<p>Tools used during the activity (e.g. questionnaires, debates, divide in small groups...)</p>	<p>We made a general presentation about air pollution and potential effect on health on pregnant women and fetus and children. Then, we made a debate with the assistants.</p>
<p>How the activity contributed to co-creation of the pilot with citizens?</p>	<p>The activity serves to define potential participants in the Barcelona CitieS-Health pilot project and how contact them.</p>
<p>Was there any data collected?</p>	<p>In this activity we collected opinions, testimonials and suggestions for the next steps .</p>
<p>Outcomes of the activity</p>	<p>List of concerns of pregnant women on air pollution and health.</p>
<p>Lessons learned from the event / activity. What would you do differently if you do a similar event in the future?</p>	<p>Pregnant women are a difficult population to reach. Also, they are available during a short time window, which makes it difficult if the project has a longer duration. The obstetrician told us that she never received a question about air pollution and how it could affect the fetus. Thus, despite the fact that there is some knowledge around this issue, it seems it has not reached society and is not a concern in this population. More communication may be needed.</p>
<p>Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention</p>	<p>The Barcelona team discussed after the activity and decided that, even though a transfer of knowledge to this population is needed, focusing the citizen science pilot on pregnancy was not a good strategy, given the lack of concern. So, we decided to focus on approaches addressed to the entire population (which includes pregnant women).</p>
<p>How results of the activity were disseminated</p>	<p>We publish the activity at the website.</p> 



	http://citieshealth.eu/2019/06/20/air-pollution-and-pregnancy-what-do-we-know-what-would-you-like-to-know/
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2. Activity: Campaign + Online Survey: “Everything you wanted to know about the air but you were afraid to ask”

Title	Campaign: “Everything you wanted to know about the air but you were afraid to ask”
Description of the activity	Online campaign in order to raise awareness and get information about what Barcelona citizens know about air pollution and health, how they feel about it, and what they think should be investigated.
Date	August 2019
Target population	General population
Number of citizens that participated	582
Nature of citizens – NGOs, community associations, lay citizens	lay people, but also people from the administration, entities and associations related to environmental issues (Air Quality Platform, Eixample Respira, STOP accidents, etc.).
Were policymakers / government representatives involved?	Policy makers were contacted to fill in the questionnaire. Although the survey was anonymous, several of them told us that they filled in the form. Later on, city council officials contacted us to use some of the data obtained by the survey.
How the activity was announced?	The activity was announced by social media (Cities-Health Twitter and Facebook account) and by ISGlobal and Ideas for Change social media. We created a campaign on Twitter (mainly) and Facebook to ask citizens about what they want to know about air pollution and health but they were afraid to ask based on a short video related to a film of Woody Allen, with a similar name: https://www.youtube.com/watch?v=dtCXdw1inOk to ask for participation. We wrote a post announcing the activity: https://www.isglobal.org/en/healthisglobal/-/custom-blog-portlet/la-ciudadania-de-barcelona-se-implica-en-estudiar-como-nos-afecta-la-contaminacion-del-aire/422917/0 We send a press release and some media publish it: https://www.lavanguardia.com/vida/20190726/463699994798/barceloneses-participan-en-mapa-sobre-contaminacion-y-salud-de-la-ciudad.html



	Journal: La Vanguardia (26.07.2019)
Barriers encountered and how they were solved? (if they were solved)	We have a good response. People and entities shared the campaign and help us to arrive to more public. More than 400 people from the ten districts of Barcelona answered the questionnaire.
Tools used during the activity	For this activity we only use online questionnaires in order to know the main worries of the Barcelona citizens on air pollution and health.
How the activity contributed to co-creation of the pilot with citizens?	The answers will help to define the research questions for the Barcelona pilot project.
Was there any data collected?	The data collected were the answer of the questionnaire.
Outcomes of the activity (e.g. list of problems or concern, potential research questions or research questions explored)	List of concerns on air pollution, health and vulnerable collectives in Barcelona that have been used in the Barcelona kick-off. The survey “Everything you wanted to know about the air but never dared to ask” seeks to draw a picture of concerns and interests on the topic within the ten districts that comprise Barcelona. Starting in September, several activities took place throughout the city to build on the survey results and gather research questions on the topic. These questions will be analysed for viability, and then people can vote online to select the main question in which citizens will engage along with researchers as part of CitieS-Health. The project will also organise open debates on ethics, opportunities and limitations of science, data management, and research results.
Lessons learned from the event / activity. What would you do differently if you do a similar event in the future?	The Barcelona CitieS-Health team (Ideas for Change and ISGlobal) prepare the questionnaire to make people participate to find the main worries about air pollution and noise. It was very useful to divide people by district in order to compare the result of awareness with real measures of NO2. The system was ideal to be used for future participations.
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	The Barcelona CitieS-Health team met to talk about the results. We think that it was a very high participation.



How results of the activity were disseminated	The results were disseminated through the official website, Twitter and a piece of news in the Barcelona CityS-Health website (https://www.citieshealthbcn.eu/inicio-esp).
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3. Activity: Participation in the Parking Day Barcelona 2019

Title	Participation in the Parking Day Barcelona 2019
Description of the activity	Campaign called Vigilantes del Aire. More than a thousand strawberry plants will be distributed throughout Barcelona's ten districts to analyse pollution levels in each neighbourhood. These plants serve as tiny air-pollution monitoring stations. Over time, particles present in the air accumulate on the leaves of the plants. Using biomagnetic techniques, we can identify the compounds that accumulate on the leaves and perform an aggregate analysis to determine the levels of different pollutants in the city's air. Once the pollutants in each sample have been identified, the organisers will analyse the local pollution levels by street and neighbourhood throughout Barcelona and create a map showing the spatial distribution of traffic-related pollution in the city. Vigilantes del Aire is being organised in collaboration with the Ibercivis Foundation, the Pyrenean Institute for Ecology and the Spanish Foundation for Science and Technology (Spanish Ministry of Science, Innovation and Universities), in collaboration with Ideas For Change, ISGlobal and the CityS-Health.
Date	Friday, September 20th 2019 - From 9am to 6pm
Target population	General population
Number of citizens that participated	1200
Nature of citizens – NGOs, community associations, lay citizens	Lay citizens, mainly.
Were policymakers / government representatives involved?	A local politician were interested in this initiative and they want to know the results of the pollution map in Barcelona.
How the activity was announced?	The activity was announced by CityS-Health, ISGlobal and Ideas for Change Twitter account. We published the activity in ISGlobal website. We send a press



	release of the news as one of the main activities in the Parking Day Barcelona 2019. The Parking Day Barcelona organisation also disseminate the activity.
Barriers encountered and how they were solved? (if they were solved)	We distributed 1.000 strawberry plants. 100 plants by district. In some districts the distribution was very easy but in other districts we needed the help of the civic associations to distribute some plants.
Tools used during the activity	We distributed one strawberry plant per person, with a questionnaire to know: the situation of the plant, the period exposed to pollution, etc.
How the activity contributed to co-creation of the pilot with citizens?	The participation in this activity will help to create awareness in air pollution in Barcelona. People will help with their data to create a map of pollution in the city. The participant of this activity could participate in the future Barcelona pilot project because they will receive all the information about the future actions of the Barcelona pilot project.
Was there any data collected?	The plants will “collect” the air pollutants (particles) and by biomagnetism the researchers will calculate the pollution in this point.
Outcomes of the activity	The main outcome of the activity is the engagement of the Barcelona community interested in air pollution and health. This is our potential participants for the pilot projects.
Lessons learned from the event / activity. What would you do differently if you do a similar event in the future?	There was a great coordination in the Barcelona team (ISGlobal and Ideas for Change). We work the previous week to have a good distribution in the ten districts of the city. We have a good impact on media and people like to participate in the activity.
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	After the activity the Barcelona team discuss about the activity and we thought it was a good starting point to find people interested in participating in the pilot projects or to receive more information to participate in future steps of the project.
How results of the activity were disseminated	The results were disseminated by Twitter, Facebook, online (ISGlobal and CitieS-Health website and blog Health is Global). We have a lot of impact on media (TV, press, etc). Here, some impacts: https://www.isglobal.org/en/-/el-park-ing-day-2019-da-el-pistoletazo-de-salida-a-la-semana-mundial-de-accion-por-el-clima



	<p>Post: Plantas de fresa para crear un mapa de contaminación del aire de Barcelona by Raul Toran (ISGlobal) (text) and Miriam Rivera (freelance) (images) https://www.isglobal.org/healthisglobal/-/custom-blog-portlet/plantas-de-fresa-para-crear-un-mapa-de-contaminacion-del-aire-de-barcelona/422917/0 Mil plantas de fresas medirán la calidad del aire en Barcelona El País - Seres Urbanos - 27.09.2019 https://elpais.com/elpais/2019/09/20/seres_urbanos/1568996994_538645.html → The main newspaper in Spain! TV report: Una investigació sobre la contaminació a Barcelona amb col·laboració ciutadana http://ow.ly/r0Mc30pDqf0 Source: BETEVE - Laia Balasch (28.09.2019)</p>
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4. Activity: Kickoff of the Cities-Health Barcelona pilot project

Title	Kickoff of the Cities-Health Barcelona pilot project: Citizen Science, air pollution and health in the framework of the Researchers' Night
Description of the activity	<p>Activity of the Researchers' Night in CaixaFòrum Barcelona where citizens, specialists, stakeholders and research staff will be in charge to work on research questions about air pollution and their relationship with health to plan the citizen science project on this subject</p> <p>Activity organized by ISGlobal and Ideas for Change, within the framework of the H2020 Cities-Health project, with the collaboration of CaixaFòrum Barcelona - "la Caixa".</p> <p>Participants: Xavier Basagaña (ISGlobal), Florence Gignac (ISGlobal), Raul Toran (ISGlobal), Rodney Ortiz (ISGlobal), Mara Balestrini (Ideas for Change), Lucía Paz Errandonea (Ideas for Change) and Javier Creus (Ideas for Change).</p>
Date	Saturday, September 28th 2019, 10am-1pm
Target population	General public
Number of citizens that participated	40
Nature of citizens – NGOs, community associations, lay citizens	Members of associations, as Eixample Respira, lay citizens interested in participating in air pollution and health issues, etc.



Were policymakers / government representatives involved?	A local politician from Barcelona was present in this session to participate in the kick-off meeting and to know the results of the online survey.
How the activity was announced?	During the Parking Day Barcelona, we have distributed flyers about the Kick-Off with the strawberry plants (activity #3 described previously). We also published the activity in ISGlobal website and through different social media platforms (ISGlobal Twitter account, mainly). We created a campaign on Twitter (mainly) and on Facebook to ask citizens about “Everything you wanted to know about the air but never dared to ask”. We created short video (based on a film of Woody Allen) https://www.youtube.com/watch?v=dtCXdw1inOk to ask for participation. More than 400 people in Barcelona answered the questionnaire. This event was part of the Researchers’ Night and the organisation in Barcelona made a lot of dissemination through Twitter and online: http://www.buscaciencia.cat/esdeveniments/nit-de-la-recerca-2019/
Barriers encountered and how they were solved? (if they were solved)	We thought we will have not a lot of participation in our meeting because it was on Saturday morning but we have around 40 people. We think we will have not a lot of participation, but people share the campaign on Twitter and ask others to participate in it. We launch the campaign in August (that was a barrier), where most of Barcelona citizens are in holidays but we got a very good response for them.
Tools used during the activity	Community mapping. We use online questionnaires (to find the interest of the citizens on air pollution and health) and in situ questionnaires (in order to define possible research questions).
How the activity contributed to co-creation of the pilot with citizens?	The answers are helping to create the final questions for the Barcelona pilot project.
Was there any data collected?	The answers are the data collection of this activity.
Outcomes of the activity	Potential research questions to be explored in a second phase. The citizens will choose the research questions.
Lessons learned from the event / activity. What would you do differently in case you	Ideas for Change designed an activity to make people participate with the main results of the online questionnaire in order to find the research questions of the Barcelona CitieS-Health pilot. The methodology was perfect to find the potential questions.



do a similar event in the future?	
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	The Barcelona CiteS-Health team from ISGlobal and Ideas for Change met to discuss about the answer and participation of the participants of this event and we work on the potential research questions.
How results of the activity were disseminated	Here, the video of the activity: https://www.youtube.com/watch?time_continue=26&v=zUoKizlRehs&feature=emb_logo The results were disseminated through the official website, Twitter and a piece of news in the Barcelona CiteS-Health website (https://www.citieshealthbcn.eu/inicio-esp).



Ljubljana

1. Meeting between Ljubljana Cities-Health partners and National Institute of Public Health of the Republic of Slovenia


Title	Meeting between Ljubljana Cities-Health partners and National Institute of Public Health of the Republic of Slovenia
Description of the activity	Ljubljana Cities-Health team met with colleagues from National Institute of Public Health of the Republic of Slovenia to discuss synergies and collaboration opportunities in health and citizen Science.
Date	17th May, 2019, 9:00-10:30 AM
Target population	Governmental institute
Number of citizens that participated	6
Nature of citizens – NGOs, community associations, lay citizens	Officials/experts
Were policymakers / government representatives involved? (Specify)	National Institute of Public Health (NIJZ) is a central national establishment with a main purpose to educate, protect and enhance the health of the population of the Republic of Slovenia by means of raising awareness and other preventive measures.
How the activity was announced?	Via email.
Barriers encountered and how they were solved?	None.
Tools used during the activity	PPT with the outline of the Cities-Health project and related previous activities.
How the activity contributed to co-creation of the pilot with citizens?	Identification of key issues regarding environmental noise and health topic in the area of the Municipality of Ljubljana, and common identification of potential interested communities.
Was there any data collected?	Meeting notes only.
Outcomes of the activity	List of concerns on noise pollution, health and potentially interested communities in Ljubljana. Potential research questions to be explored in a second phase.
Lessons learned from the event / activity. What would you do different if do a similar event in the future?	Confirmation of the issues identified in the project proposal phase and identification of new potential topics and communities to address, respectively.
Was there a discussion on learning, insights and recommendations for	Yes. Refer to previous answers.



future work and sustainability of the intervention	
How results of the activity were disseminated	Twitter

2. Noise and health day at Spodnja Siska elementary school in Ljubljana

Title	Noise and health day at Spodnja Siska elementary school in Ljubljana
Description of the activity	At the end of the school year, a science day was organised in cooperation with Spodnja Šiška elementary school, a supporter of the project. The day was dedicated to the theme of noise and health, a main topic of CitieS-Health being conducted in Ljubljana pilot with the aim to raise awareness regarding noise pollution and to trigger the interest of both pupils and teachers for participation in citizen science activities within our project. The event was organized in the form of a treasure hunt. Together with pupils of third-grade, we investigated sounds in the surrounding environment, measured them using a smartphone app, learned about the differences between sound and noise, and how the latter affects health.
Date	June 13th 2019 - From 8am to 1pm
Target population	Pupils and teachers
Number of citizens that participated	30
Nature of citizens – NGOs, community associations, lay citizens	Lay citizens.
Were policymakers / government representatives involved?	No.
How the activity was announced?	Via email using head of a research club at a primary school as a main contact.
Barriers encountered and how they were solved?	None.
Tools used during the activity	Smartphone app to measure noise, map of the area with locations labels where pupils had to search for the hidden clues, questionnaire regarding noise and sound topics, poster with sticky notes.
How the activity contributed to co-creation of the pilot with citizens?	The participation in this activity will help to create awareness in noise pollution in Ljubljana. Participants of this activity, pupils and teachers, could participate in future project activities.
Was there any data collected?	Sound level data were collected using the smartphone application and data were visualised using the GIS.

Outcomes of the activity	The main outcome of the activity is the empowerment of pupils and teachers in the field of noise pollution. These are our potential participants for the pilot projects.
Lessons learned from the event / activity. What would you do differently in case you do a similar event in the future?	It was evident from the feedback provided by pupils in the form of drawings and a written report that they were very much triggered by the event organised. 
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	It was a good starting point to find people interested in participating in the pilot projects.
How results of the activity were disseminated	Via departments webpage: http://environment.si/en/news/cities-health-nature-day-2019/

3. Awareness raising at elementary school

Title	Awareness raising at elementary school
Description of the activity	The OŠ Spodnja Šiška elementary school in Ljubljana has received a visit of researchers as a part of Cities-Health H2020 project and in collaboration with guests from University of Delhi. The aim of this initiative was to generate awareness among the students about their immediate environment and the need to protect it.
Date	September 26th, 2019, 9AM to 10AM
Target population	Pupils, teachers
Number of citizens that participated	Cca. 75
Nature of citizens – NGOs, community associations, lay citizens	Lay citizens
Were policymakers / government representatives involved?	No.



How the activity was announced?	Via email using head of a research club at a primary school as a main contact.
Barriers encountered and how they were solved?	More time would be needed for the experimental part/demo. However, one has to adjust to school timetable.
Tools used during the activity	Presentation on general environmental pressures in urban systems with focus on comparison between Ljubljana and New Delhi.
How the activity contributed to co-creation of the pilot with citizens?	Participants of this activity, pupils and teachers, could participate in future project activities.
Was there any data collected?	Environmental sensors (low-cost AQ sensors) were demonstrated, their principles and capabilities.
Outcomes of the activity	Interested participants for future project activities.
Lessons learned from the event / activity. What would you do differently in case you do a similar event in the future?	Pupils are very motivated if they are enrolled in a dialog, in contrast to classical ex-cathedra type of lecturing.
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	In dialog with the headmasters and teachers, an agreement was made that similar events should be organised for more pupils and tailored according to their school curriculum.
How results of the activity were disseminated	At the website: http://www.environment.si/en/news/cities-health-at-spodnja-siska-elementary

4. Meeting with DOPPS-Birdlife Slovenia

Title	Meeting with DOPPS-Birdlife Slovenia
Description of the activity	General introductory meeting where we discussed with the director of DOPPS the possibility of collaboration and synergies between the CitieS-Health and DOPPS nature conservation organisation.
Date	September 19 th , 2019, 10AM-11AM
Target population	NGO
Number of citizens that participated	1
Nature of citizens – NGOs, community associations, lay citizens	NGO
Were policymakers / government representatives involved?	No



How the activity was announced?	Via email
Barriers encountered and how they were solved?	None
Tools used during the activity	None
How the activity contributed to co-creation of the pilot with citizens?	Potential involvement of NGO staff members.
Was there any data collected?	No.
Outcomes of the activity	Specific problems and research concerns identified by DOPPS: - How does noise affect distribution and nesting habits of birds in urban environments?
Lessons learned from the event / activity. What would you do differently in case you do a similar event in the future?	-
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	-
How results of the activity were disseminated	-

5. Meeting with teachers and teachers and other staff at the school to frame research questions

Title	Meeting with teachers and teachers and other staff at the school to frame research questions
Description of the activity	Meeting was organised for teachers and other staff working at Spodnja Šiška elementary school to frame research questions that participants of the project will address. For this purpose, a presentation was prepared with an overview of potential tools and their application that could be used in these activities. In a dialog with participants, we discussed which are the most pressing concerns regarding noise pollution and health, both in



	the school environment as well as in general living environment.
Date	December 3 rd , 2019, 2PM to 4PM
Target population	Teachers and staff at school
Number of citizens that participated	10
Nature of citizens – NGOs, community associations, lay citizens	Lay citizens
Were policymakers / government representatives involved?	No
How the activity was announced?	Phone and email communication with school.
Barriers encountered and how they were solved?	None.
Tools used during the activity	PPT with an overview of potential tools to be used.
How the activity contributed to co-creation of the pilot with citizens?	Initial research questions were formulated and participants started to think and got a general idea how to address it.
Was there any data collected?	No, only exhibition of some of the low-cost sensors.
Outcomes of the activity	The following general research questions were formulated during the meeting: - Which are the predominant sources of noise (as well as air) pollution sources in my living environment? - How is noise affecting my sleep patterns? - How is a combination of stressors in individuals living environment (in the light of activities) affecting his/her well-being and health?
Lessons learned from the event / activity. What would you do differently in case you do a similar event in the future?	Participants interested not only in noise related issues but would like to address other components/stressors of their living environment, especially air pollution. Along these lines, learning about possibilities brought by new sensing technologies (e.g. portable AQ sensors as well as physical activity trackers) got a lot of attention.
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	In the light of the previous answer, JSI team discussed to extent the focus of Ljubljana from noise pollution only and to include (upon participants interest) also other aspects affecting health such as AQ and physical activity.
How results of the activity were disseminated	No.



1. Event: Public presentation of the project

Title	Event. Public presentation of the project
Description of the activity	During the public presentation event, the public information materials were distributed, and the website (https://www.ariadiricerca.it/) was presented for the first time. The event saw a wide participation of local residents with speeches by Caterina Campani (Mayor of Barga), Professor Annibale Biggeri (local project manager of the project) and Paolo Fusco (a representative of the La Libellula association).
Date	July 1, 2019.
Target population	Citizens
Number of citizens that participated	100
Nature of citizens – NGOs, community associations, lay citizens	Community associations, lay citizens
Were policymakers / government representatives involved?	Yes, there was a speech of Caterina Campani (Mayor of Barga).
How the activity was announced?	Poster of the event. Website of the Libellula association. Press release Word of mouth among citizens



Barriers encountered and how they were solved?	The date of the event was during the summer. The barrier was resolved by scheduling the event in the evening and promoting it extensively.
Tools used during the activity	Speeches with presentation slides by Caterina Campani (Mayor of Barga), Professor Annibale Biggeri (local project manager of the project) and Paolo Fusco (a representative of the La Libellula association).
How the activity contributed to co-creation of the pilot with citizens?	At the end, there was a wide debate addressed to clarify some aspects of the project. The intent was to lay the foundations for a lasting collaboration and a relation of mutual trust between the researchers, local administrators of the community and the citizens.
Was there any data collected?	Videos of the speeches and presentations are published on the project's website.
Outcomes of the activity	The activity has made it possible to get public feedback regarding the project.
Lessons learned from the event / activity. What would you do different if do a similar event in the future?	We learned that there is great interest in these issues from the local community.
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	The event ended with an open forum to clarify some aspects of the project.



How results of the activity were disseminated	Newspaper: <ul style="list-style-type: none"> • https://www.serchioindiretta.it/barga-m/item/92482-aria-parte-l-indagine-in-valle-del-serchio.html • https://www.giornaledibarga.it/2019/07/presentato-il-progetto-aria-di-ricerca-in-valle-del-serchio-321630/ • https://www.lagazzettadelserchio.it/barga/2019/07/presentato-il-progetto-aria-di-ricerca-unanalisi-sulla-salute-dei-cittadini/
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2. Event: Public event on research ethics in the era of science for and of citizens

Title	Public event on research ethics in the era of science for and of citizens
Description of the activity	Public event where three speakers were invited: Caterina Campani, the Mayor of Barga (one of Municipalities involved in the project); Fabrizio Rufo and Antonella Ficorilli, two experts in research ethics involved in the project. A debate among all participants was scheduled after the three speeches, Annibale Biggeri (local project manager of the project) was the moderator of the debate.
Date	November 9, 2019
Target population	Citizens
Number of citizens that participated	50
Nature of citizens – NGOs, community associations, lay citizens	Members of community associations, lay citizens, and also two local authorities



<p>Were policymakers / government representatives involved?</p>	<p>One of the speakers was the Mayor of Barga, and two local authorities were among the public: the Mayor of Fosciandora and the Councillor of the Environment of Gallicano. All three Municipalities are involved in the project</p>
<p>How the activity was announced? (Specify all communication channels used)</p>	<p>Poster of the event. Website of the pilot of Lucca (https://www.ariadiricerca.it/). Website of the Libellula association. Press release Word of mouth among citizens</p>
<p>Barriers encountered and how they were solved?</p>	<p>No barriers were encountered</p>
<p>Tools used during the activity</p>	<p>Slides on ethics of research and ethics in the citizen science projects, with attention to the Lucca pilot, were used by the two experts in research ethics in order to give the information in a clear way and keep the public's attention high</p> <p>Debate after the three speeches in order to clarify unclear aspects and give the chance to public to express their point of view</p>
<p>How the activity contributed to co-creation of the pilot with citizens?</p>	<p>The event gave the public the chance to learn about research ethics in general and ethics in citizen science projects in particular. This is an essential background in order to be aware and deal with the specific ethical issues involved in the Lucca pilot, and to express their own opinion, especially if it contradicts the standard ethical point of view.</p>
<p>Was there any data collected?</p>	<p>Poster, slides and video of the event published on the project's website.</p>
<p>Outcomes of the activity</p>	<p>The public showed interest in the subject of the event.</p> <p>Some concerns about how to distinguish what is truth and what is not in the context of citizen science were raised.</p>



<p>Lessons learned from the event / activity. What would you do different if do a similar event in the future?</p>	<p>Be sure that the amount of time scheduled for the event allows sufficient time for debate.</p> <p>It is preferable if no other event is scheduled after your event.</p>
<p>Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention</p>	<p>No</p>
<p>How results of the activity were disseminated</p>	<p>Articles published by local newspapers:</p> <ul style="list-style-type: none"> • https://www.lagazzettadelserchio.it/barga/2019/11/aria-di-ricerca-allisi-barga-una-serata-di-scienza-con-cittadini-e-ricercatori/ • https://www.giornaledibarga.it/2019/11/aria-di-ricerca-in-valle-del-serchio-il-progetto-va-avanti-327715/

3. Event: Public event on survey results and definition of the epidemiological objective of the research.

<p>Title</p>	<p>Public event on survey results and definition of the epidemiological objective of the research.</p>
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Description of the activity	During the first part of the event, Professor Annibale Biggeri and Dr. Bruna De Marchi presented the questionnaire results. As a result, we were able to identify the study of chronic renal diseases of Serchio Valley's population as the epidemiological objective for the research. In the second half, politicians, researchers and citizens considered the results of the analysis and implications concerning public health action plans. The University of Pisa's Professor Petrini of the Department of Geology also took part in the event. He committed to analysing the levels of water and soil contamination for the project.
Date	December 11, 2019
Target population	Citizens
Number of citizens that participated	100
Nature of citizens – NGOs, community associations, lay citizens (please provide detail)	Members of community associations, lay citizens, and politicians.
Were policymakers / government representatives involved?	Yes. The mayors of the municipalities involved in the project took part in the discussion, especially in the second half of the event. The mayor of Barga, Caterina Campani, was the selected spokesperson for all the mayors in the discussion.
How the activity was announced?	Poster of the event. Website of the Libellula association. Facebook page of La Libellula association. Press release Word of mouth among citizens
Barriers encountered and how they were solved?	No barriers were encountered



Tools used during the activity	Speeches with presentation slides by Professor Annibale Biggeri (local project manager of the project) and Doctor Bruna De Marchi (E&P collaborator).
How the activity contributed to co-creation of the pilot with citizens?	In discussion with citizens, we were able to define an objective of the epidemiological research, the study of chronic kidney disease in Serchio Valley's population.
Was there any data collected?	Poster, slides and video of the event published on the project's website.
Outcomes of the activity	The main outcome of this event was the definition of the epidemiological objective of the research.
Lessons learned from the event / activity. What would you do different if do a similar event in the future?	The wide participation of the community has shown the great interest of the citizens on their state of health.
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	No



<p>How results of the activity were disseminated</p>	<p>Articles published by local newspapers:</p> <ul style="list-style-type: none"> • https://www.giornaledibarga.it/2019/12/aria-di-ricerca-le-indagini-proseguono-verra-avviato-in-contemporanea-studio-su-inquinanti-di-acqua-e-suolo-329276/ <p>Twitter:</p> <p>https://twitter.com/GiornaleBarga/status/1205053987168366592</p>
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4. Pilot meeting: Open meetings with citizens

Title	Open meetings with citizens
Description of the activity	Several meetings took place between citizens, representatives of local citizen associations and researchers, where the study objectives and design were discussed.
Date	<ul style="list-style-type: none"> • February 7, 2019 • March 22, 2019 • April 29, 2019 • May 16, 2019 • June 20, 2019 • September 25, 2019 • October 15, 2019 • November 22, 2019 • December 3, 2019
Target population	Citizens
Number of citizens that participated	About 20 citizens for each public meeting



Nature of citizens – NGOs, community associations, lay citizens	Community associations, lay citizens
Were policymakers / government representatives involved?	Meetings were opened to the public,
How the activity was announced?	Email List in Google Groups Word of mouth among citizens
Barriers encountered and how they were solved?	One of the barriers was getting citizens involved. We resolved the issue by creating a group and involving citizens in all phases of the project.
Tools used during the activity	Debates
How the activity contributed to co-creation of the pilot with citizens?	Many issues were addressed, in particular the state of health of the Serchio Valley population through the analysis of data related to mortality and morbidity, and the key aspects of participated epidemiologic research projects. The meetings were an opportunity for discussing the most appropriate strategies for obtaining the involvement of a large number of residents and for defining the contents of information materials and the Italian website of the project.
Was there any data collected?	Drafting of short reports
Outcomes of the activity	Some of the main results of the activities are: <ul style="list-style-type: none"> · The choice of contents included in the informative material (brochure, leaflet and website) · Organization of public events on July 1 and 9 November 9, 2019. · The choice of questions included in the Environmental Health Survey



Lessons learned from the event / activity. What would you do different if do a similar event in the future?	We learned that if citizens are involved in all phases of the project, we could get excellent results.
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	Each public meeting was filled with moments of discussion and reflection, giving citizens the opportunity to reflect on how to address future phases of the project.
How results of the activity were disseminated	Results of the activity were disseminated through a variety of media like web site of the project, web site of La Libellula associations, press releases.

5. Pilot meeting: Meetings with the mayors and the members of municipal councils.

Title	Meetings with the mayors and the members of municipal councils.
Description of the activity	Meetings took place between mayors, members of municipal councils and researchers to define the research questions, to consider all the possible results and to discuss the implications in terms of action plans for health.
Date	<ul style="list-style-type: none"> • June 20, 2019 • November 22, 2019 • December 3, 2019
Target population	Policy makers



Number of citizens that participated	10
Nature of citizens – NGOs, community associations, lay citizens	Policy makers
Were policymakers / government representatives involved?	Yes
How the activity was announced?	The activity was announced via email and/or phone calls.
Barriers encountered and how they were solved?	Low participation in meetings was a potential barrier, resolved by establishing well-organized meetings.
Tools used during the activity	Debates
How the activity contributed to co-creation of the pilot with citizens?	Citizens have always been well informed about meeting content.
Was there any data collected?	Brief reports
Outcomes of the activity	Some main results of the activities are: <ul style="list-style-type: none"> · Organization of public events on July 1 and 9 November 9, 2019. · Identification of all the possible results and implications in terms of action plans for health.



Lessons learned from the event / activity. What would you do different if do a similar event in the future?	We learned that if politicians are involved in all phases of the project, we could get excellent results.
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	Each meeting was filled with moments of discussion and reflection, giving participants the opportunity to reflect on how to address future phases of the project.
How results of the activity were disseminated	Results of the activities will be disseminated in an article in which mayors will appear as authors.

6. Activity: Environmental Health Survey

Title	Environmental Health Survey
Description of the activity	Creation and distribution of an anonymous questionnaire on the knowledge of environmental health.
Date	July 1, 2019 - December 11, 2019
Target population	Citizens
Number of citizens that participated	1025 (response 922, rate 90%)
Nature of citizens – NGOs, community associations, lay citizens	Community associations, lay citizens



Were policymakers / government representatives involved?	No
How the activity was announced?	The activity was announced by the following 17 local associations: (1) Misericordia e Fratres Castelvechio Pascoli, (2) Filo di Arianna, (3) Semi di zucca, (4) Pro Loco Barga, (5) Pro Loco Filecchio, (6) Confraternita e Misericordia di Tiglio, (7) Fratres Fosciandora, (8) La Libellula, (9) Misericordia del Barghigiano, (10) Fornaci 2.0, (11) UNITRE Barga, (12) CAV e Comune di Pieve Fosciana, (13) Coldiretti, (14) Uno spazio per te, (15) Misericordia di Coreglia Antelminelli, (16) Misericordia di Borgo a Mozzano, (17) Gruppo sbandieratori di Gallicano
Barriers encountered and how they were solved?	The territory to be covered with the distribution of the questionnaires was vast. We responded to this problem by involving associations with offices in different areas of the territory in distributing the questionnaire.
Tools used during the activity	Anonymous questionnaires
How the activity contributed to co-creation of the pilot with citizens?	The activity contributed to be aware of what citizens think about the Serchio Valley population health and their perception of the state of their environment.
Was there any data collected?	Electronic and paper data collection
Outcomes of the activity	The main outcome of the activity is to define the epidemiological objective of the research based on citizens' concerns.
Lessons learned from the event / activity. What would you do different if do a similar event in the future?	We learned that we could get excellent results with a participatory process that includes citizens and associations in all phases of the project.



<p>Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention</p>	<p>The discussion will take place when we have the results of the questionnaires.</p>
<p>How results of the activity were disseminated</p>	<p>Results of the activity were disseminated in a public event that was held on December 11, 2019. The results will also be published on the project's website and published in a scientific journal.</p>



1. Information of citizens on environmental impact on health

Title	Information of citizens on environmental impact on health
Description of the activity	The radio discussion on the upcoming CITIES Health project idea of study environmental impact on citizens health (in Lithuanian)
Date	17/10/2018
Target population	General public
Number of citizens that participated	Around 200
Nature of citizens – NGOs, community associations, lay citizens	Kaunas community members
Were policymakers / government representatives involved?	Yes
How the activity was announced?	Published in news of local website
Barriers encountered and how they were solved?	NA
Tools used during the activity	In debates, we used scientifically based information from previous studies of air pollution impact on children and adult Kaunas citizens' health.
How the activity contributed to co-creation of the pilot with citizens?	Spread information on CITIES HEALTH project, increased awareness, invitation to participate in the project.
Was there any data collected?	No



Outcomes of the activity	Research questions explored
Lessons learned from the event / activity. What would you do differently in case you do a similar event in the future?	The announcement-invitation to the event should focus to the specific actual targets and communities.
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	No
How results of the activity were disseminated	Results were disseminated in news website. https://www.delfi.lt/mokslas/mokslas/vdu-mokslininkai-laimejo-horizon-2020-finansavima-tirs-miestu-aplinkos-ir-gyventoju-sveikatos-tarpusavio-rysius.d?id=79334997

2. Activity /event / pilot meeting Campaign to raise awareness about city planning impact on citizens health

Title	Campaign to raise awareness about city planning impact on citizens health
Description of the activity	Press release discussion between journalist and prof. Regina Grazuleviciene about city planning, physical activity and citizens' health. Invitation to participate in Kaunas pilot study, and discussion placed in the website.
Date	21/05/2019
Target population	General population, academic society
Number of citizens that participated	Around 300
Nature of citizens – NGOs, community associations, lay citizens	Kaunas community members



Were policymakers / government representatives involved?	Yes
How the activity was announced?	Report at the website on the discussion
Barriers encountered and how they were solved?	NA
Tools used during the activity	Kaunas different communities environmental air pollution and traffic flows maps information. Debates. Written information about the event, Kaunas Pilot project and invitation to join as a participant.
How the activity contributed to co-creation of the pilot with citizens?	Spread information on CitieS-Health Pilot project. As a result, 10 volunteers responded to press release and their concerns we used in co-creation of the pilot study. Ten citizens participated in testing sensor-pedometer FitBit Alfa.
Was there any data collected?	Collected data on environmental problems and health concerns.
Outcomes of the activity	List of citizens' concerns-problems. Environmental concerns: traffic related air pollution, truck noise, car-parking problems, deficiency in yard green zones, unfitted pathways for motional disabled persons, insufficient lighting in private home block, inaccessible community meeting premise. Health concerns: sleep disorders, hypertension, cardiac problems, diabetes, back pain, head pain
Lessons learned from the event / activity. What would you do differently in case you do a similar event in the future?	Personal invitation to the event using previous conference participants list and preliminary open-ended questionnaire are effective measures for identification of citizens' health and environmental concerns.
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	No



How results of the activity were disseminated	http://gmf.vdu.lt/naujas-horizon-2020-projektas/ https://twitter.com/CitieSHealthEU/status/1130408535873998849
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3. An open kick-off meeting to discuss potential Kaunas Pilot study research questions

Title	An open kick-off meeting to discuss potential Kaunas Pilot study research questions
Description of the activity	The citizens meeting organized as one of the sections' of the 25th International Scientific-practice Conference HUMAN AND NATURE SAFETY 2019 in the VDU Botanic garden. The meeting aim was to get more information about citizens' concerns on environmental issues and their health, and to translate citizens' health concerns into research questions
Date	09/05/2019
Target population	Scientific Community, researchers, practitioners', journalists, citizens
Number of citizens that participated	Around 120
Nature of citizens – NGOs, community associations, lay citizens	NGO, communities members
Were policymakers / government representatives involved?	Yes
How the activity was announced?	Announcement-invitation in the website, through the participants lists of previous meetings, and using online information.
Barriers encountered and how they were solved?	NA



Tools used during the activity	Debates with scientific community and participating citizens, discussion on major environmental problems. Using preliminary open-ended questionnaires collected a new data on environmental problems and health concerns.
How the activity contributed to co-creation of the pilot with citizens?	Collected concerns about residence district environmental problems and health, which used for formulation of potential research questions.
Was there any data collected?	Yes
Outcomes of the activity	Formulated potential research questions: 1) How does the urban design of neighbourhood affect my health? 2) How does the environmental exposures and physical activity are associated with my blood pressure? 3) How my concerns of environmental issues and health data might be useful for improvement of my family and community quality of life?
Lessons learned from the event / activity. What would you do differently in case you do a similar event in the future?	Spread the questionnaires' during registration to the meeting
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	Yes, discussion on education, learning and future work
How results of the activity were disseminated	Results of activity disseminated in Twitter. https://zua.vdu.lt/wp-content/uploads/2019/01/ZGS_Programa_2019.pdf

4. The Kaunas Urban design and Physical activity pilot study planning meeting

Title	The Kaunas Urban design and Physical activity pilot study planning meeting
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Description of the activity	Kaunas Cities-health team meeting with citizens to discuss about the Ethical issues and the planning of the Kaunas Urban design and Physical activity pilot study.
Date	20/05/2019
Target population	Scientists and citizens representatives
Number of citizens that participated	21
Nature of citizens – NGOs, community associations, lay citizens	Communities representatives
Were policymakers / government representatives involved?	Local government representatives
How the activity was announced?	Using e-mail addresses
Barriers encountered and how they were solved?	NA
Tools used during the activity	Debates, questionnaire information, Bioethical approve documents
How the activity contributed to co-creation of the pilot with citizens?	Agreement on baseline ethical issues for approval of the Kaunas Pilot Study Bioethical protocol
Was there any data collected?	Enlarged questionnaire, protocol



<p>Outcomes of the activity</p>	<p>Harmonized documents for the Bioethics Committee approval to conduct Biomedical research (by templates in Lithuanian):</p> <ol style="list-style-type: none"> 1. Request to Grant an Approval to Conduct Biomedical Research 2. Application Form for the Biomedical Research in Lithuania 3. Protocol of Biomedical Research 4. Protocol Summary 5. Subject Information Form and Informed Consent Form 6. Form for Ethical Assessment of Biomedical Research 7. Curriculum vitae of the investigators 8. The civil responsibility insurance policy of the principal investigator. <p>Decision to apply to Kaunas Regional Committee for Biomedical Research Ethics approval to conduct biomedical research</p>
<p>Lessons learned from the event / activity. What would you do differently in case you do a similar event in the future?</p>	<p>Personal invitation is the most effective mode of involving participants in the meeting</p>
<p>Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention</p>	<p>Yes</p>
<p>How results of the activity were disseminated</p>	<p>Activity results was published in Twitter. https://twitter.com/CitieSHealthEU/status/1130408535873998849</p> <p>As a result, received the Bioethics Committee approval to conduct biomedical research: Kaunas Regional Committee for Biomedical Research Ethics authorisation 10-06-2019 Nr.BE-2-51.</p>

Amsterdam

1. Activity /event / pilot meeting: Meeting with key organized stakeholders.

Title	<p>Meeting with organized stakeholders (RIVM, GGD Amsterdam and Longfonds).</p> 
Description of the activity	<p>The UU team met up with multiple organized stakeholders during the identification phase of the project. All of the stakeholders have an active role with regards to woodburning in the Netherlands.</p>
Date	<p>2 and 17 September</p>
Target population	<p>Organized stakeholder groups (National public health organization, municipal health organization of Amsterdam and patient community).</p>
Number of citizens that participated	<p>6 (2 officials from each stakeholder group).</p>
Nature of citizens – NGOs, community associations, lay citizens	<p>Key stakeholders within the environmental epidemiology and public health (woodburning specific).</p>
Were policymakers / government representatives involved?	<p>Yes. They were participants in the partnership discussions.</p>
How the activity was announced?	<p>Directly with the people of interest via email.</p>



Barriers encountered and how they were solved?	None.
Tools used during the activity	None.
How the activity contributed to co-creation of the pilot with citizens?	The partnerships with these organized stakeholders contributed to the co-creation because all had professional insights in the wood smoke policy issue and contact with different citizen groups (e.g. RIVM with citizens using low cost sensor; GGD with citizens complaining about wood smoke; Longfonds representing lung patients se and provided insights on how to approach this within the Netherlands. Many citizens also trust these organized stakeholders and may therefore be more interested in participating in our project.
Was there any data collected?	No, only minutes were taken.
Outcomes of the activity	These meetings provided us with ideas on how to take on this pilot within the Netherlands, the type of low cost sensors/ research grade instruments we can use in this project, the stakeholders identified areas within the Netherlands where woodburning is seen as a problem, health risks and issues were identified and possible research questions were explored.
Lessons learned from the event / activity. What would you do differently if you did a similar event in the future?	This was a very productive activity. Would recommend this to all future projects.
Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	No.



How results of the activity were disseminated	None.
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2. Activity /event / pilot meeting: An online call for questions.

Title	Online “Call for research questions” launch
Description of the activity	Along with the launch of our pilot project website, we also launched our online “call for research questions”. Via the website and a SurveyMonkey survey participants are able to send in any questions they have with regards to woodburning. We hope this will provide us more insight into what type of questions with regards to woodburning citizens have on a national scale.
Date	23/10/2019- on going.
Target population	General public- with access to the internet.
Number of citizens that participated	More than 50
Nature of citizens – NGOs, community associations, lay citizens	The online reactions came from a variety of different citizens. Citizens belonging to citizen science associations, those that belonged to anti-woodburning communities, interested citizens that love burning wood, industrial designers, and citizens that are interested in the topic that do not belong to any association.
Were policymakers / government representatives involved?	Yes, the GGD Amsterdam and RIVM were involved in the proliferation of the online “call for research questions” via their website and newsletters.
How the activity was announced?	University Utrecht Twitter, LinkedIn, Instagram and Facebook. After which it was shared by multiple active social media communities. It was further proliferated via a radio program called the “Kennis van nu” and a journalist published our project on a citizen science platform.



<p>Barriers encountered and how they were solved?</p>	<p>Very few reactions in the first few weeks. This was solved by actively posting the information in previously identified online communities we knew were interested in the topic. Also the increase in media attention for woodburning with the change in weather (colder) spiked the interest from citizens. However, the most reactions came from the online citizen scientist platform. These are all citizens who are all already active with one or multiple citizen science projects and were also interested in our project.</p>
<p>Tools used during the activity</p>	<p>Online survey platform and the pilot website.</p>
<p>How the activity contributed to co-creation of the pilot with citizens?</p>	<p>This activity is contributing to co-creation of the pilot with citizens as citizens are sending us their questions with regards to woodburning that they want researched. This directly impacts the actual question that this pilot is going to address.</p>
<p>Was there any data collected?</p>	<p>Yes. Research questions, interest in participating in this project, the amount of hours they would be willing to participate within a week, contact information and postal region.</p>
<p>Outcomes of the activity</p>	<p>A list of potential research questions, common research themes and citizen expectations.</p>
<p>Lessons learned from the event / activity. What would you do differently if you did a similar event in the future?</p>	<p>Even though we had a survey where people could send in their concerns or questions, many preferred to email or contact us via the website contact form. If a similar event is done in the future I would not make a separate survey, instead I would adjust the website contact form and have one source in which people can send their reactions.</p> <p>Another lesson is that it takes a bit of time before your online post starts to get a cascade effect of reactions. So do not try to do this within two weeks but 2-3 months.</p>



Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention	Internal research meeting discussions.
How results of the activity were disseminated	The activity is still ongoing but all respondents received an email thanking them for their contributions and the promise of keeping them updated on future activities and news surrounding the project.

3. Activity /event / pilot meeting: First meeting with citizens in IJburg.

Title	“Burger onderzoek naar houtverbranding” (Citizen’s Science research woodburning) Pilot event.
Description of the activity	First meeting with citizens of IJburg, to start a locally based pilot. This meeting was used to gauge interest in a possible citizen science project in IJburg and identify key residential concerns and questions.
Date	17 December 19:30-22:00.
Target population	Citizens within the community IJburg, Amsterdam.
Number of citizens that participated	6 citizens
Nature of citizens – NGOs, community associations, lay citizens	General public of IJburg (residents or interested parties in the area where the event was held and promoted).
Were policymakers / government representatives involved?	Yes, the GGD Amsterdam was involved in dissemination of the advertisements and gave a small talk about interest in this pilot and why it is important for them that citizens partake in this pilot.

<p>How the activity was announced?</p>	<p>Via the CHARRED website, posters placed in the community, brochures (handed out as flyers and placed next to the posters for more information), the GGD Amsterdam IJburg community email list, residential WhatsApp group chats, and on the Hallo IJburg website (Hello IJburg is a local website where residents and local businesses are able to post information about events, projects or activities happening in the neighbourhood).</p>
<p>Barriers encountered and how they were solved?</p>	<p>Something that could be considered a barrier was that we decided that people did not have to RSVP for this event. This was decided as such not to discourage any last minute citizens from the event. This was solved by preparing for various scenarios (large group, small group, active and non-active participants). We also used previously organized events to estimate how many people would come.</p>
<p>Tools used during the activity</p>	<p>A poster of IJburg, markers, post-its and the group was small enough to stay in one group and have a plenary discussion.</p>
<p>How the activity contributed to co-creation of the pilot with citizens?</p>	<p>This is the first event where we as a research institution were able to sit down with citizen and discuss their concerns with regards to woodburning. This event helped with the co-creation aspect of this pilot in both the identification and framing phases.</p>
<p>Was there any data collected?</p>	<p>The meeting was notarized and information with regards to civic areas of concern specific to IJburg were collected. All of the information collected contributed mainly contributed to the identification phase with some overlap into the framing phase.</p>
<p>Outcomes of the activity</p>	<p>A list of problems and concerns, a few potential research questions were listed and the expectations of citizens was discussed all specifically related to the residents of IJburg who participated.</p>
<p>Lessons learned from the event / activity. What would you do differently if you did a similar event in the future?</p>	<p>All of the dissemination/ promotional activities helped in attracting citizens to the event. However, the partnership with the municipal health service of Amsterdam (GGD Amsterdam) was a key partner in getting into contact with citizens. For future events we will make sure to keep them informed and distribute promotional to them for further distribution.</p>



<p>Was there a discussion on learning, insights and recommendations for future work and sustainability of the intervention</p>	<p>There was a discussion about the sustainability of the project with regards to how much time citizens would have to invest, and how long it would take before they would receive something beneficial from the project. This was an important discussion to have with citizens and to ease their minds that they were free to participate as intensely or mildly as they wished.</p>
<p>How results of the activity were disseminated</p>	<p>All participants will receive a summary report from the activity. The summary will initially be sent to the participants for further contribution to the summary. Once they have given their approval of the summary report will be made available on the local pilot website (CHARRED website).</p>