

## Teachers Training Workshop

Belgrade, June 16-17, 2022

### Session 4: Activities review

# R1 Result of the systematic literature review

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## Scope of R1

Result Description (including: needs analysis, target groups, elements of innovation, expected impact and transferability potential)

This result is a catalogue of research and experiences that address the issue of health and climate change in urban areas. The result will include both scientific research projects, and experiences carried on in cities at European and international level, by including those developed by project partners, that link the topic of health to climate change and involve communities in designing/creating environments favourable to health. This catalogue will focus on: - a transdisciplinary approach to urban health and climate change; - design solutions for urban areas, aimed at adapting to climate change; - design solutions that can be replicated in the various European cities that deal with the regeneration of the existing city. Professors and researchers involved in the teachers training workshop will finalize it and use it as a base for the development of upcoming studies. The collection will be the main element for professors in the local workshops to illustrate to students the effects of climate change on the built environment and the possible design solutions to protect urban health problems. Moreover, it will be spread out in the project website, Erasmus+ platform and other channels to make it available to interested stakeholders, and in particular to public administrations, universities and research groups at local, national and European level. As a result, the dissemination of the result will: - increase awareness among professors and researchers regarding the importance of a transdisciplinary approach to urban health; - increase students' ability to understand the importance of dealing with experiences developed in different contexts and in different disciplines; - provide students with a sample of design solutions that can be used in their urban regeneration projects; - enable the public administrations involved (associated partners) to become aware of the experiences of other cities.

Outcome Scope

Outcome focus

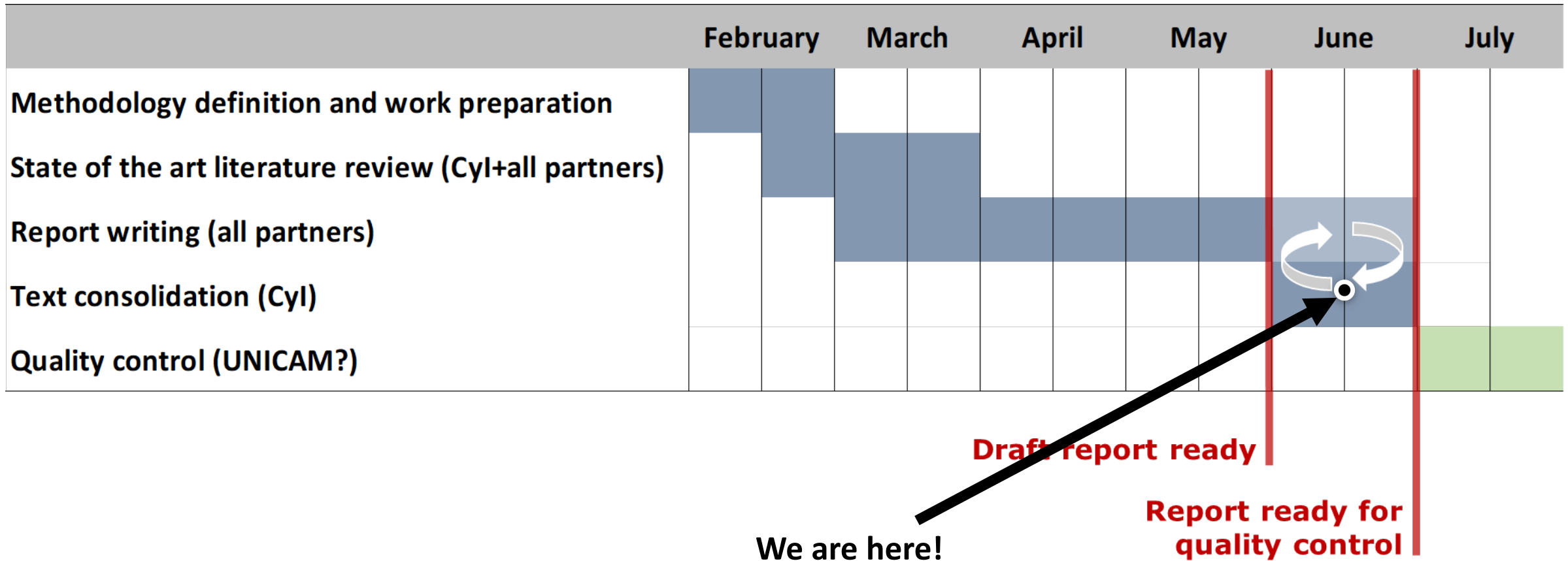
Output

Dissemination

Expected impact

Research on mitigation and adaptation strategies of climate change effects on human health in urban areas

# Timeline of R1



# First draft



## Mitigation and adaptation strategies of climate change effects on human health in urban areas (R1)

Task leaders: Cyprus Institute (.....)

Contributors: Università degli studi di Camerino (.....)

Consiglio Nazionale delle Ricerche (.....)

Univerzitet u Beogradu (.....)

Iscte - Instituto Universitario de Lisboa (.....)

Supported by Erasmus+

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# Report structure

## I. Climate change and its relation to urban health – a transdisciplinary issue

- a. Introduction
- b. Mitigation and adaptation strategies in literature

## II. Methodology

- a. Systematic literature review
- b. Bibliometric analysis

## III. Scientific landscape and emerging themes

## IV. Discussion

- a. Strengths: Positive contribution of the paper in improving human health in cities

- b. Weaknesses: Negative impacts identified by the paper affecting human health in cities
- c. Opportunities: Potential opportunities identified by the paper in improving human health in cities
- d. Threats: Existing threats identified by the paper endangering human health in cities

## V. Cities reimaged: Results of the ‘CCUHRE–Climate Change & Urban Resilience’ research project

- a. Thermal stress in Ascoli Piceno city
- b. Reimagining Ascoli Piceno city

## VI. Conclusions

## VII. Bibliography

# I. Climate change and its relation to urban health – a transdisciplinary issue

## a. Introduction

Climate change history, cities and scope of the Cli-CC.HE project

## b. Mitigation strategies in literature

Low-energy, sustainable, and resilient buildings and neighbourhoods

Energy conservation / Energy efficiency / Renewable energy deployment / Demand-response management or Smart building control

Circular economy

Material efficiency / Low-carbon materials / Carbon capture / Urban design, land-use planning

Sustainable mobility

Modal shift / Shared mobility / Mobility services / Traffic optimisation / High-efficient, low-emission, smaller vehicles

# I. Climate change and its relation to urban health – a transdisciplinary issue

## c. Adaptation strategies in literature

### Technology-based strategies

Resilient energy installations / Water and wastewater adaptive management / Pluvial and coastal flood protection/ Climate-proof transportation and infrastructure

### Ecosystem-based strategies

Green roofs and walls / Green spaces / River or forest restoration in urban areas

### Community-based strategies

Stakeholder engagement in urban adaptation / Education and capacity building / Health and livelihoods

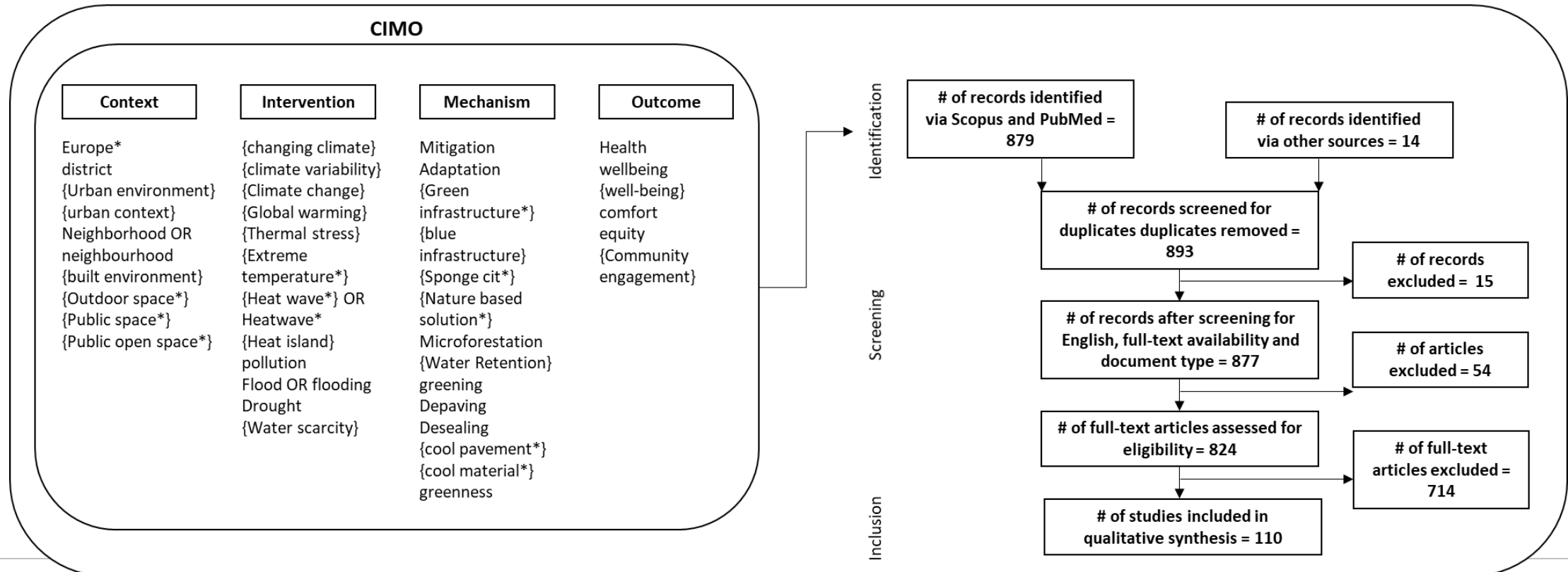
### Policy-based strategies

Emergency risk reduction / Insurance / Urban planning and zoning regulation / Design guidelines

## II. Methodology

### a. Systematic literature review

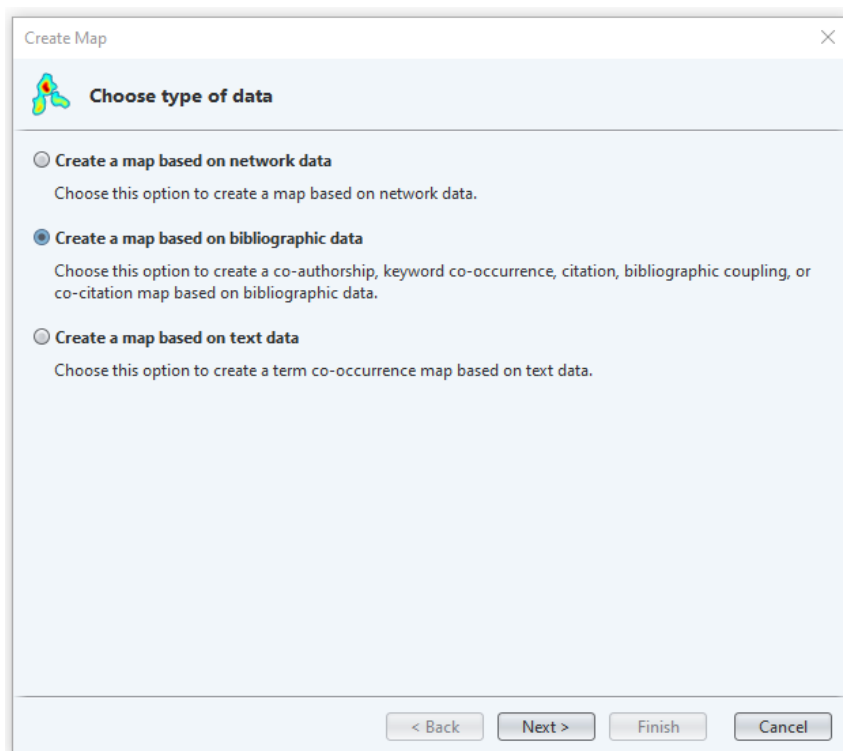
#### Prisma





## II. Methodology

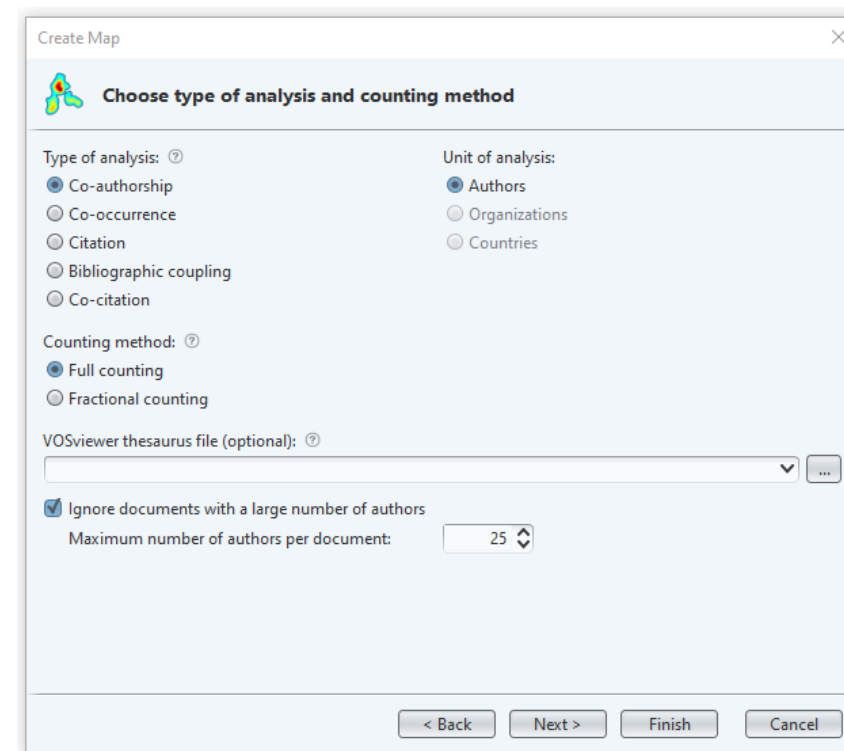
### b. Bibliometric analysis



The screenshot shows the 'Create Map' dialog box with the title 'Choose type of data'. It contains three radio button options:

- Create a map based on network data**  
Choose this option to create a map based on network data.
- Create a map based on bibliographic data**  
Choose this option to create a co-authorship, keyword co-occurrence, citation, bibliographic coupling, or co-citation map based on bibliographic data.
- Create a map based on text data**  
Choose this option to create a term co-occurrence map based on text data.

At the bottom, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

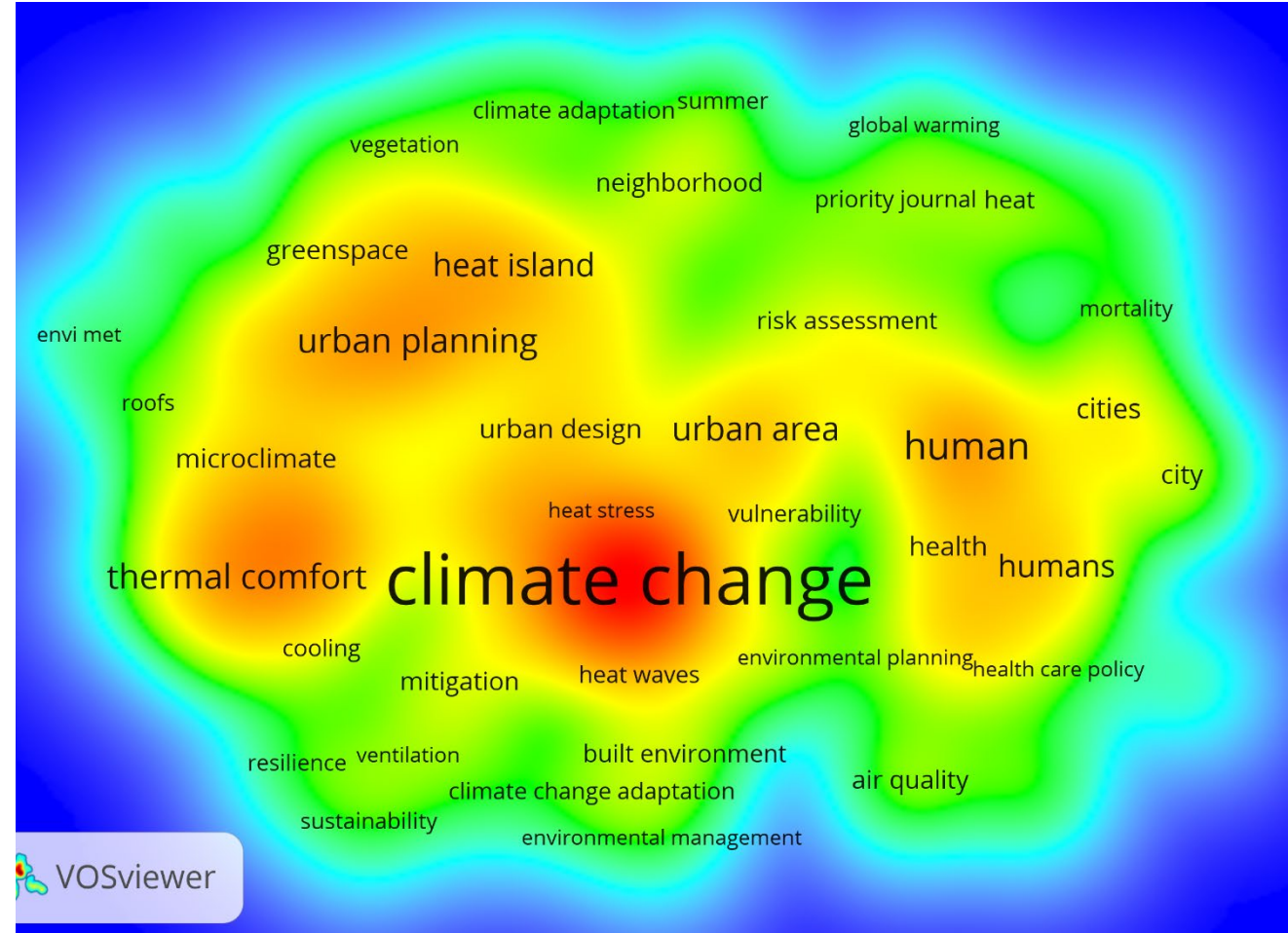
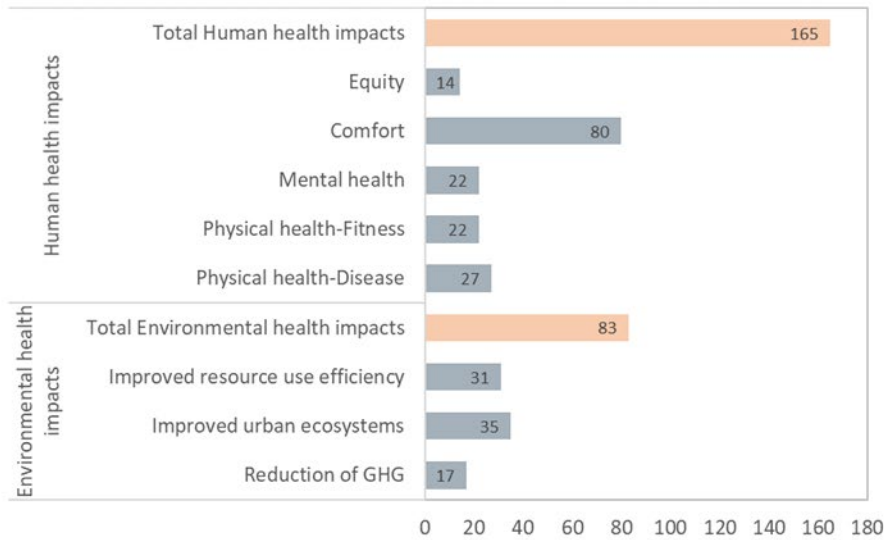
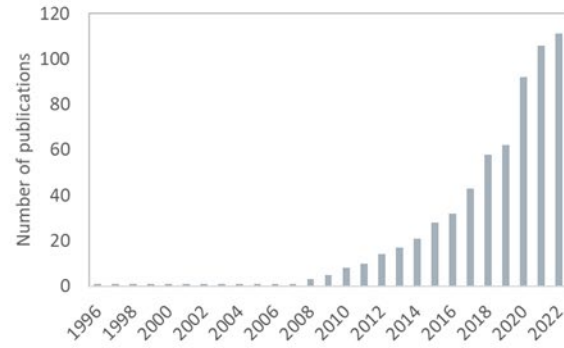
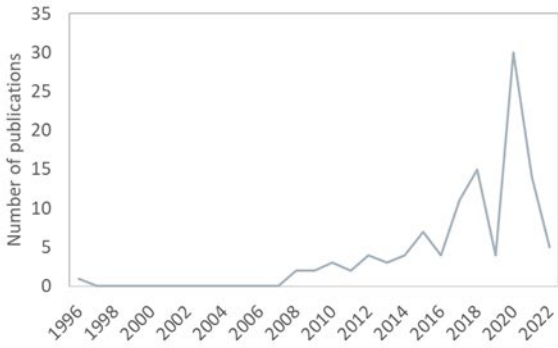


The screenshot shows the 'Create Map' dialog box with the title 'Choose type of analysis and counting method'. It contains the following settings:

- Type of analysis:**  Co-authorship,  Co-occurrence,  Citation,  Bibliographic coupling,  Co-citation
- Unit of analysis:**  Authors,  Organizations,  Countries
- Counting method:**  Full counting,  Fractional counting
- VOSviewer thesaurus file (optional):** A dropdown menu with a search icon.
- Ignore documents with a large number of authors**  
Maximum number of authors per document:

At the bottom, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

### III. Scientific landscape and emerging themes



## IV. Discussion

### a. Strengths: Positive contribution of the paper in improving human health in cities

Urban geometry / road trees / gardens / pocket parks / green roofs and walls / bioclimatic control of buildings / innovative materials / participatory approach and active citizens

### b. Weaknesses: Negative impacts identified by the paper affecting human health in cities

High urban temperature / urban heat islands / heatwaves / water scarcity / flooding / air pollution / mortality and morbidity

### c. Opportunities: Potential opportunities identified by the paper in improving human health in cities

Green spaces and nature-based solutions / built environment structures and elements / technological improvements / public participation and consideration of specific social issues; / planning and strategy development / knowledge – new theoretical and methodological approaches

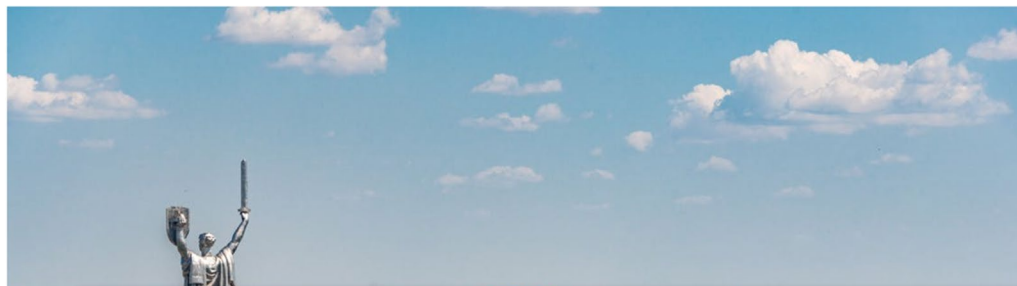
### d. Threats: Existing threats identified by the paper endangering human health in cities

Urban health / overheating / poor air quality / high electricity demand / sociodemographic factors / high sky view factors and poor thermal comfort / mortality / lack of citizen participation in policy making / urbanization / flooding / high housing needs / equity

## Info Boxes

### Box 1: Urban health

The term urban health generally refers to the development of pathways and tools for preventing and counteracting the effects of climate change on health with the aim of promoting conscious and sustainable processes of urban regeneration. Creating more sustainable built environments and developing actions that can positively influence human health and quality of life can promote healthier environments and lifestyles and create healthy environments and resilient cities and societies. Planning influence the way in which we use and access resources, land use models, urban form and urban space design, biodiversity and nature, and investment in transport, all of which may be important determinants of health and equity.

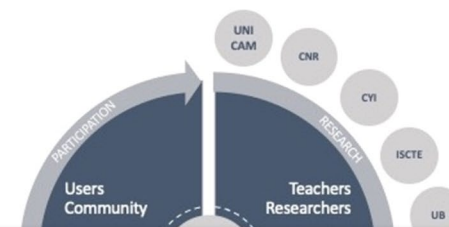


### Box 2: IPCC's main definitions and terms

Climate change: "a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use. Note that the Framework Convention on Climate Change (UNFCCC) in its Article 1 defines climate change as (a) change of climate which is attributed directly or

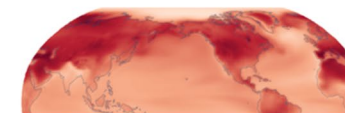
### Box 3: Living labs, co-participation and co-design

Living labs are almost synonymous with co-participation, either within co-design experiences or within co-implication. It implies an actual participation of the people involved in projects, beyond researchers or other project executors (from the academy, state institutions or private institutions).



### Box 4: climate modelling: from global to local

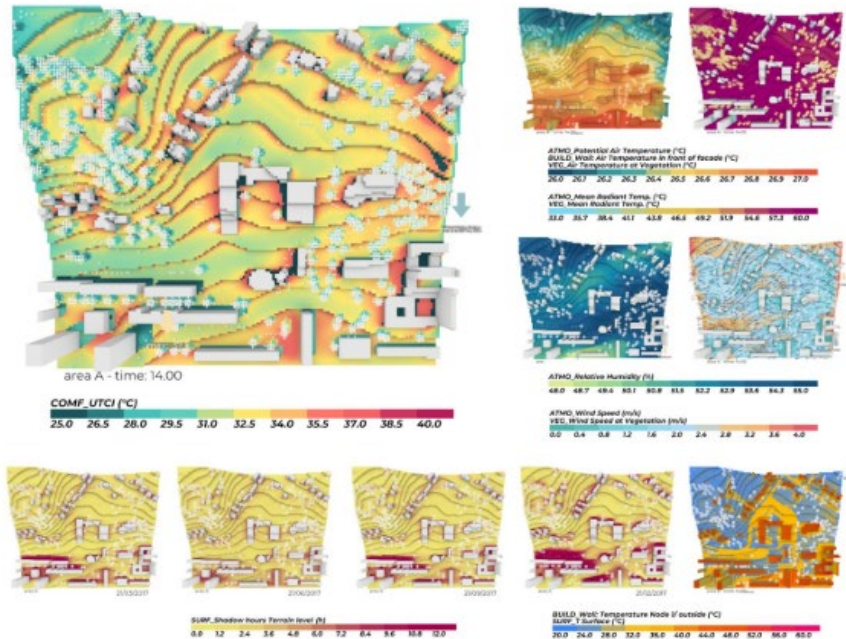
The development of climate models for numerical simulation of the atmosphere and oceans was one of the great scientific triumphs of the twentieth century. These models are mathematical constructions representing climate processes, written in code that run in powerful computer systems in order to simulate the Earth's climate system and help understand past and future climate change. Temperature change projections under anthropogenic climate change such as the one depicted below (Illustration 1) are based on results from global climate model (GCM) simulations.



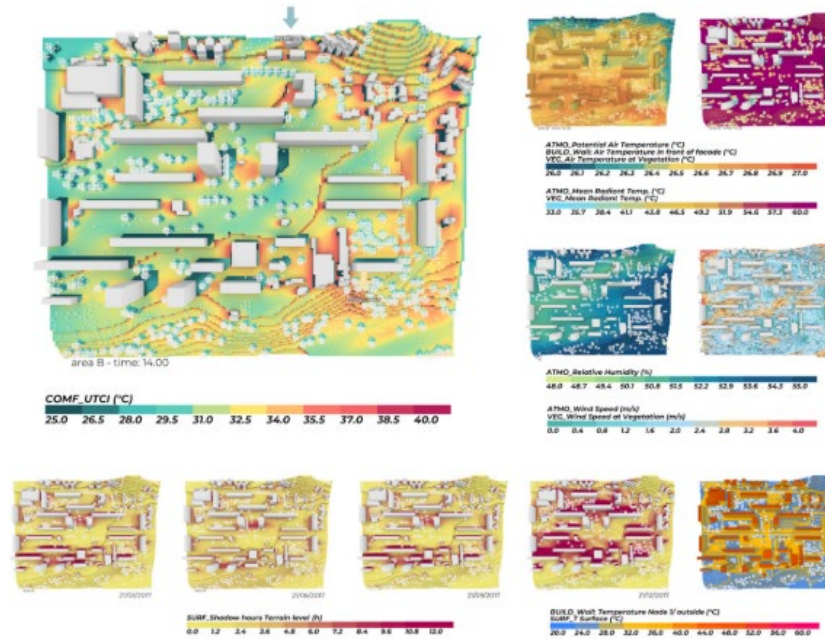
# V. Cities reimaged: Results of the 'CCUHRE–Climate Change & Urban Resilience' research project

## a. Thermal stress in Ascoli Piceno city

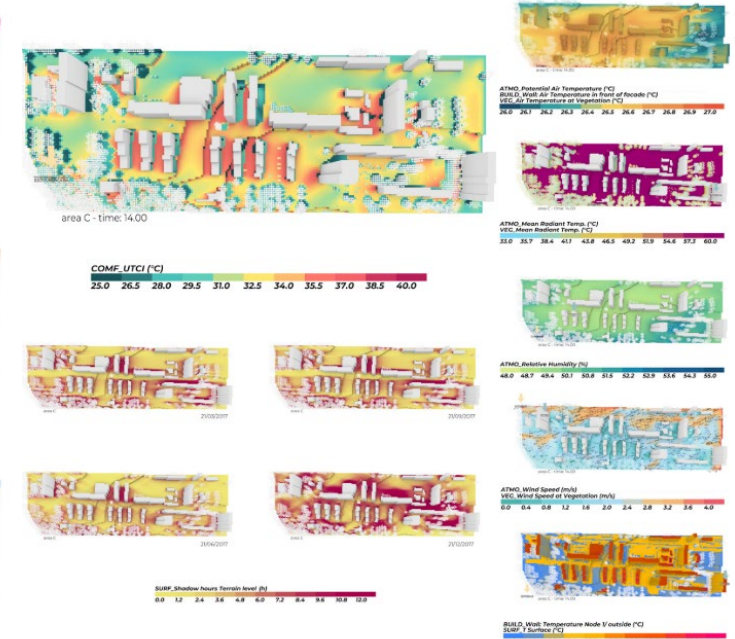
ENVI-met results for area A at 14:00



ENVI-met results for area B at 14:00

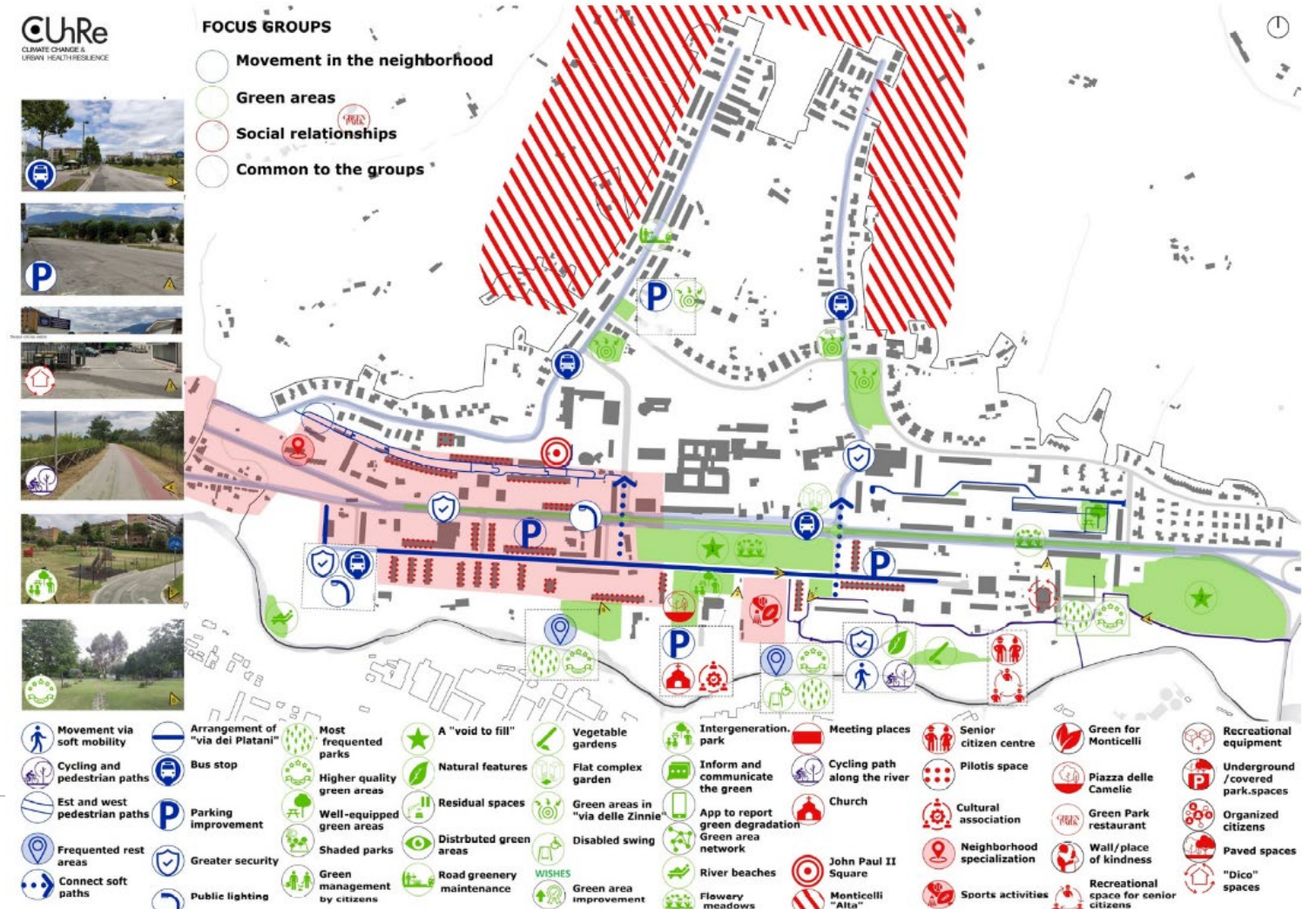


ENVI-met results for area C at 14:00



# V. Cities reimaged: Results of the 'CCUHRE—Climate Change & Urban Resilience' research project

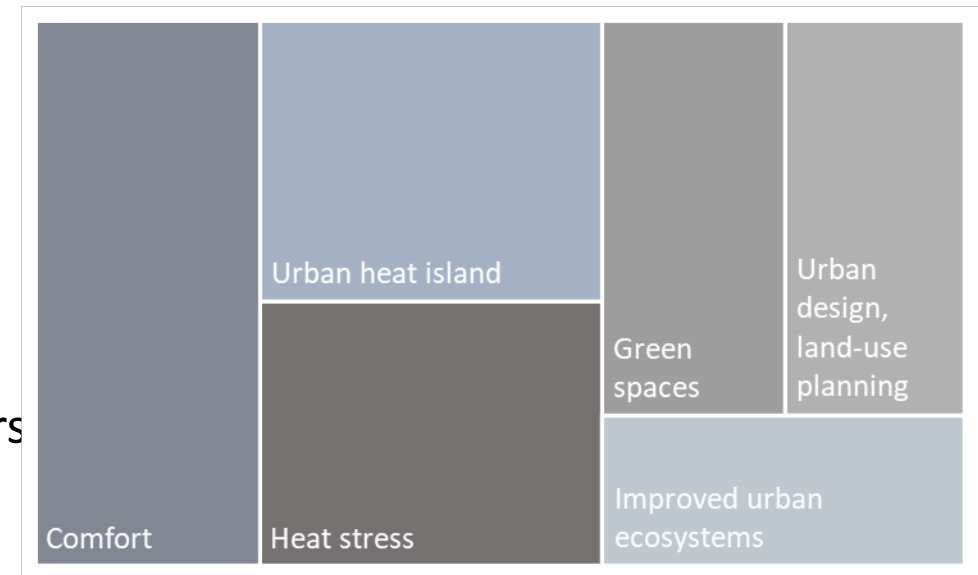
## b. Reimagining Ascoli Piceno city



## VI. Conclusions

- vast majority of research output studying all the elements of our research question was only published over the past 4 years;
- research focus is on climate change, human health and comfort and urban design;
- topics relating to social aspects, such as community or participatory processes, are not listed as top keywords;
- emphasis is given on climate change-induced anthropogenic hazards such as urban heat islands and pollution;
- top mitigation strategy: urban design and land-use planning;
- top adaptation strategy: green spaces;
- SWOT analysis: different perspectives of common denominators e.g. vegetation as opportunity and threat;
- participatory approach and citizen action highlighted.

Specific elements most frequently observed in each sub-category of mitigation and adaptation strategies



## Further suggestions

Missing elements?

Presentation of data methods?

Cohesive narrative?

Quality control?

