



CLAIRO CONFERENCE: LIVABLE AND CLIMATE RESILIENT EUROPEAN CITIES

# The role of green spaces in physical and mental health: contributes to Health Cities planning

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# 1. Looking at impacts of urban green spaces on health and well-being

# Urban green spaces: a brief for action, WHO

Picture 1: **roadside greenery** and **vegetation barriers** along streets or rail tracks;

Picture 2: **small urban green spaces** (such as gardens or pocket parks) and playgrounds;

Picture 3: **green roofs and facades**;

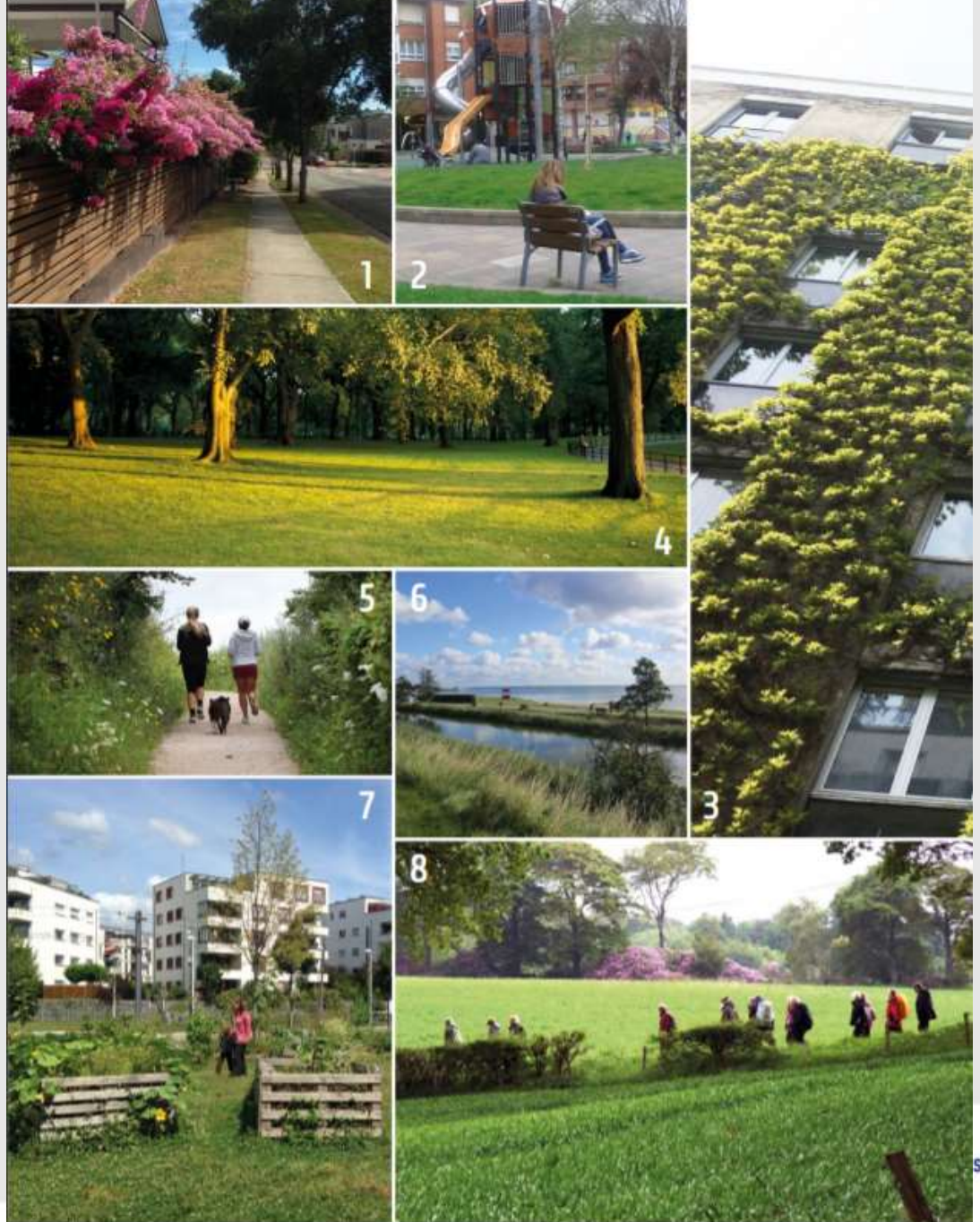
Picture 4: **parks** and urban meadows;

Picture 5: **greenways and corridors** (such as green trails for walking/cycling);

Picture 6: coastal, riverside or lakeside trails, linking **green with blue spaces**;

Picture 7: **recreational and urban gardening facilities** (such as community gardens, sport and play areas and school grounds);

Picture 8: facilitated access to **urban woodlands, forests and natural wildlife areas**.



# A causal model of the impacts of urban green spaces on health and well-being



Source: developed from a figure created by A. Roué-Le Gall in Milvoy & Roué-Le Gall (2015), in WHO (2017). Urban green spaces: a brief for action, Copenhagen: WHO - Regional Office for Europe, p.





## Improved functioning of the immune system and physical condition

- Children with the highest exposure to specific allergens and bacteria during their first year were least likely to have recurrent wheeze and allergic sensitization
- Enhanced physical activity, improved fitness and reduced obesity
- Several studies in various countries have demonstrated that recreational walking, increased physical activity and reduced sedentary time were associated with access to, and use of, green spaces in working age adults, children and senior citizens



Egorov, A. I., Mudu, P., Braubach, M., Martuzzi, M. (2016)



## Mental health benefits

There are two main theories that attempt to explain this:

- a) Psycho-physiological **stress reduction** theory proposes that contact with nature (e.g. views of natural settings) can have a positive effect for those with high levels of stress, by shifting them to a more positive emotional state (Ulrich, 1983; Ulrich et al., 1991)
- b) **Attention Restoration** Theory suggests that involuntary attention given to interesting and rich stimuli in natural settings helps to improve performance in cognitively demanding tasks (Kaplan and Kaplan, 1989)



Green space activities



Hospitals location

Egorov, A. I., Mudu, P., Braubach, M., Martuzzi, M. (2016), p. 4



## Improved social capital/social relations/social cohesion with impact in the sense of community

Green space can play an important role in **fostering social interactions** and promoting a sense of community

“Vries et al. (2013) found an association between the **quantity and, even more strongly, the quality of streetscape greenery and perceived social cohesion at the neighbourhood scale.**

It improve the Sense of community, with a **focus on trust, shared norms and values, positive and friendly relationships, and feelings of being accepted and belonging**



In the example we also combine physical activity and environmental protection



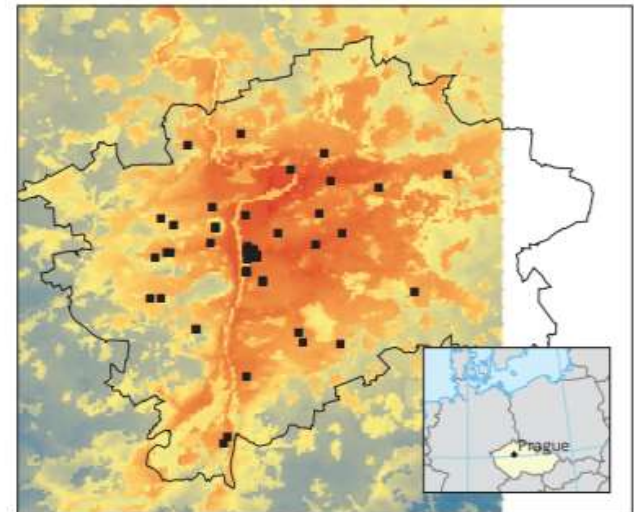
## Relation with physical environment

- Reduction of air pollution;
- Noise;
- Heat islands;
- Flooding & water quality;
- Wildlife & habitats



<https://www.eea.europa.eu/publications/urban-adaptation-in-europe>

**Map 2.8** Location of hospitals in relation to urban heat island intensity in Prague, Czechia



Reference data: ©ESRI

**Location of hospitals in relation to urban heat island intensity in Prague, Czechia**

Difference in temperature in relation to city average (°C)



■ Hospitals

□ City boundary





## 2. Factors that could influence the level of impact in health

## SCALE or/and GEOGRAPHICAL LOCATION

Highlight the importance of being in:

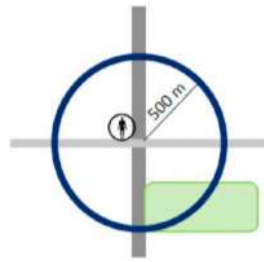
- Central
- Suburban
- Periurban Territories

And:

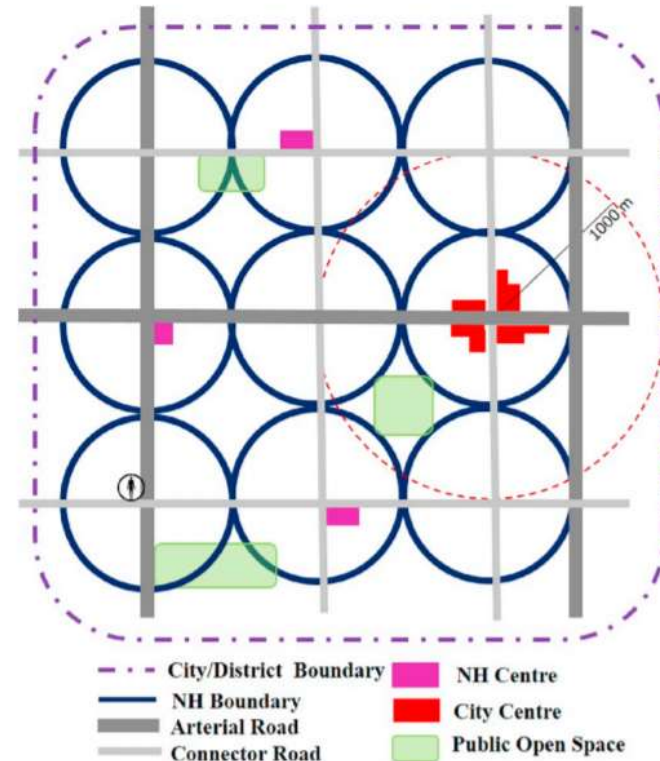
- more dense
- less dense territories



**Body Scale:** Immediate surrounding of the Human body (e.g. 10-100 m)



**Neighbourhood (NH) Scale:** Often administrative zones, such as wards, output areas, Zipcode area or buffer based (e.g. 500m) boundary from home or from neighbourhood centre.



**City or District Scale:** Wider geographic area . Larger administrative boundary comprising several local administrative zones such as wards, or neighbourhoods.

**Fig. 1.** Conceptualising spatial scales used in urban greenspace and health research, three scales usually considered: Body, Neighbourhood, and city/district. (City scale diagram is adopted and modified from the [Western Australian Planning Commission, 2015](#)).



## POPULATION CHARACTERISTICS

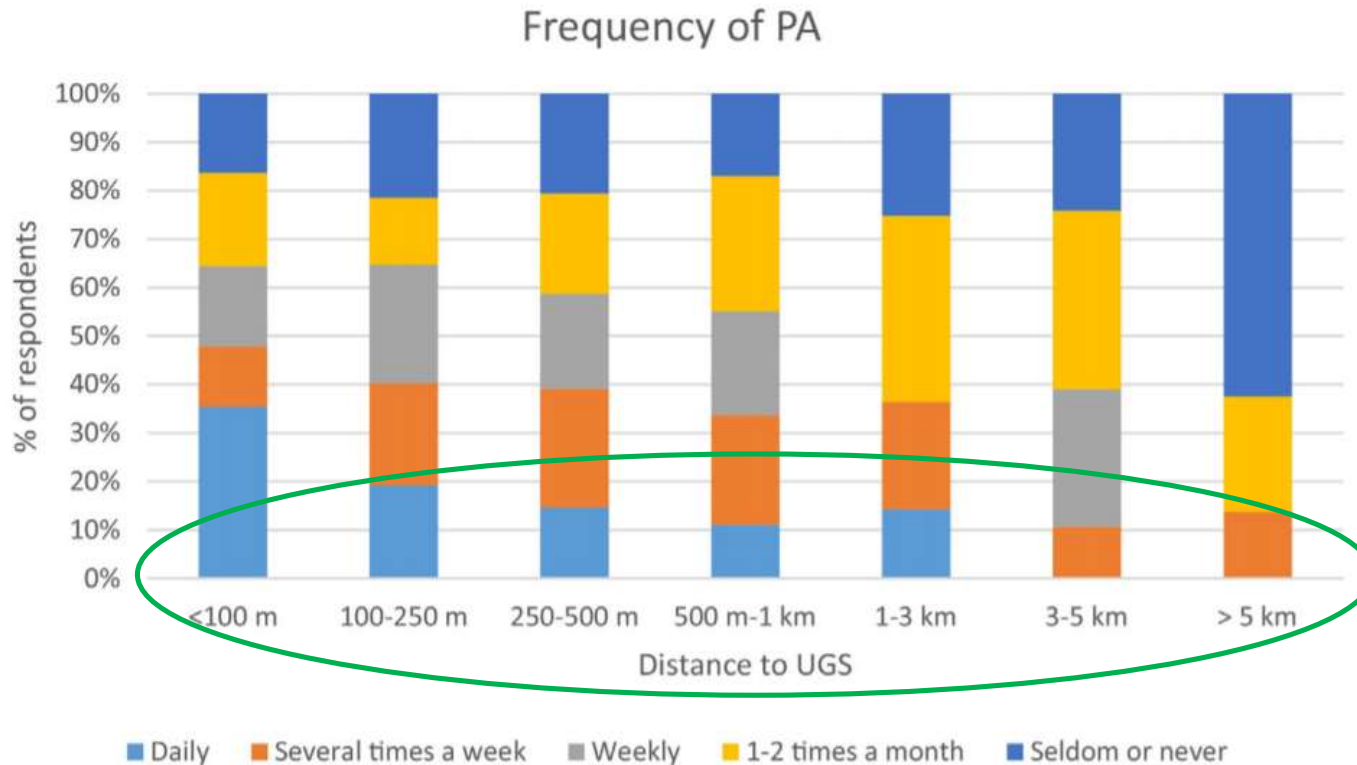
- Age and gender;
- Disability;
- Instruction;
- Socio-economic conditions (like employment and income)



That leads to the territory.  
The impact of green spaces are distinct in  
Socio-environmental favourable areas or vulnerable  
areas



# Some Factors that could influence the impact in health



**Fig. 2.** Distance to UGS versus frequency of PA, in percent of the respondents.

Proximity  
Neighbour  
influence

Turkish city of Aydın

Akpınar, A. (2016), How is quality of urban green spaces associated with physical activity and health?, Urban Forestry & Urban Greening 16 (2016) 76–83





### 3. Policy examples



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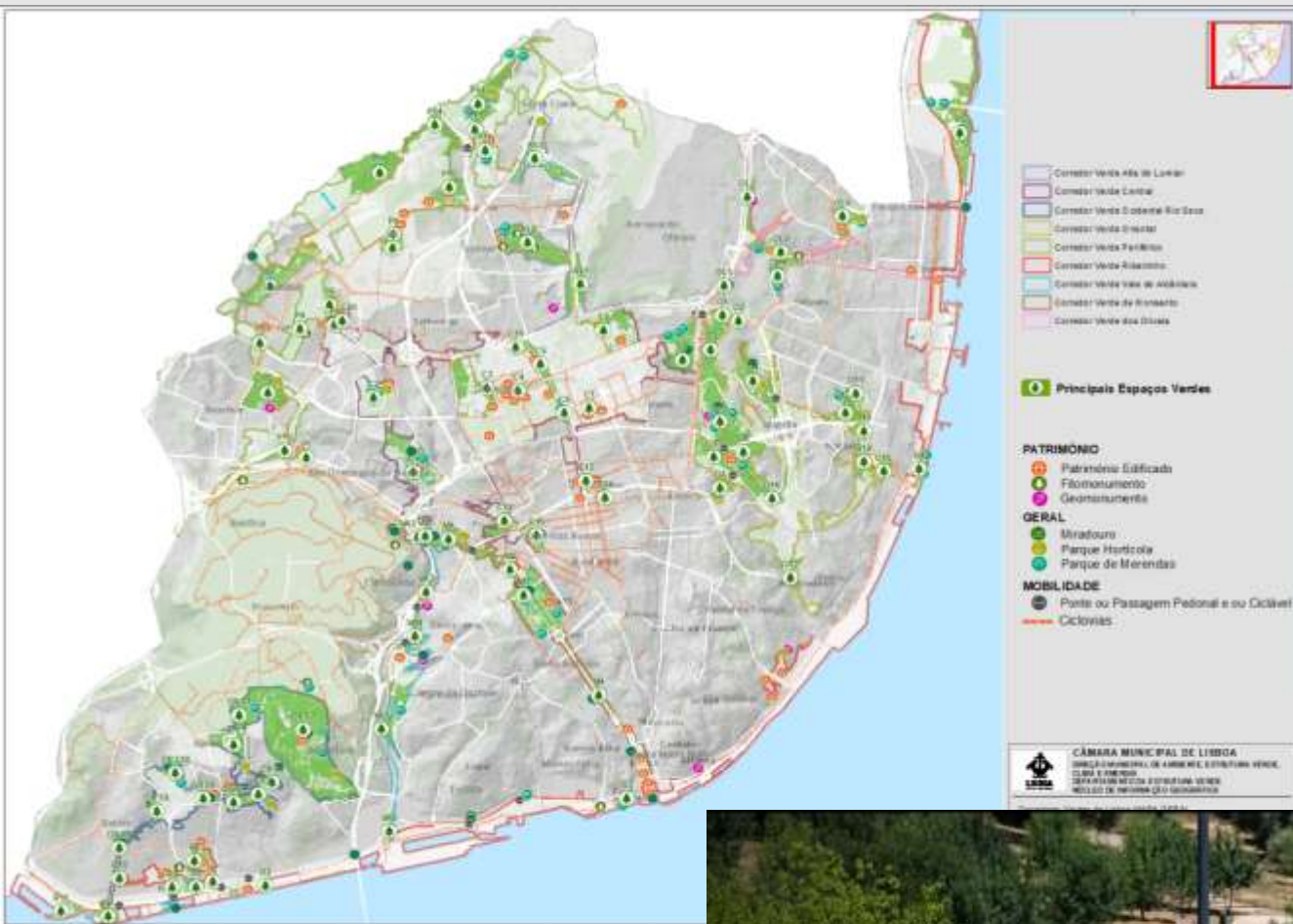


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Région de développement durable



## Lisbon Green Capital 2020





## 1) Lisbon city green corridors





Jardim Fernando Pessoa

## b) Green spaces and leisure



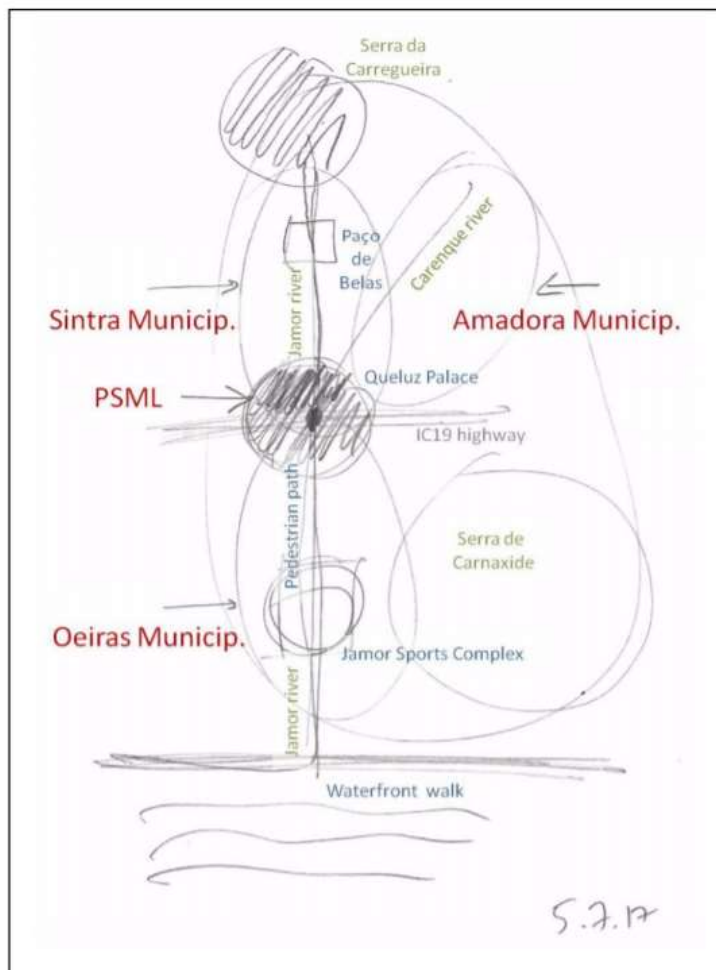
Parque Merendas Cruz das Oliveiras

<https://www.lisboa.pt/cidade/ambiente/estrutura-ecologica/espacos-verdes-e-lazer>





## c) Urban gardens



Source: a stakeholder

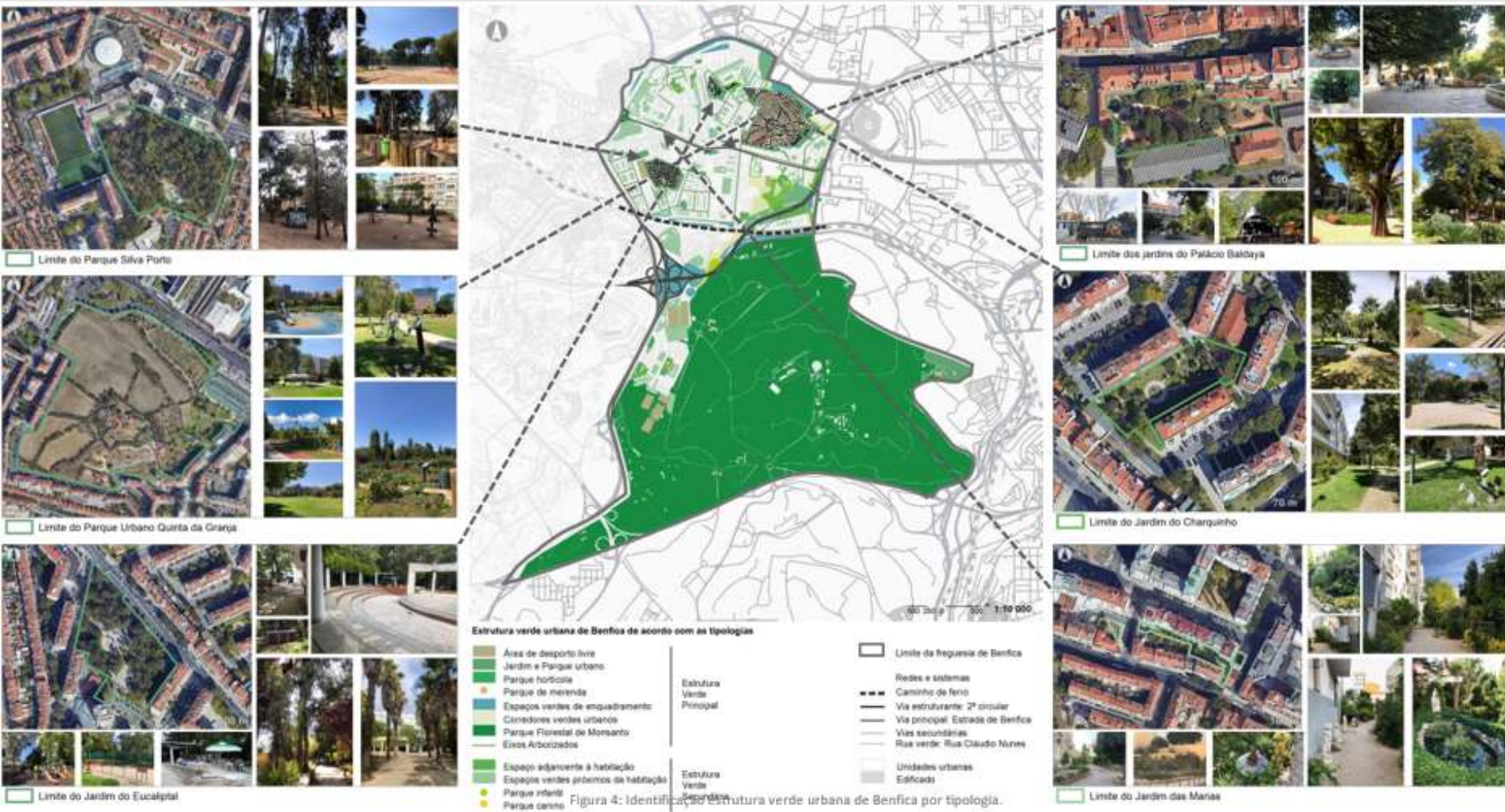


## The role of INTEGRATED PROJECTS EVA Project Green and Blue Axe – Oeiras/Amadora/Sintra Municipalities

Source: Vale et al. (2017). ReSSI – Regional strategies for sustainable and inclusive territorial development – Regional interplay and EU dialogue Targeted Analysis Annex 6 – Oeiras Case Study, Luxembourg: Espon Programme, <https://www.espon.eu/ressi>

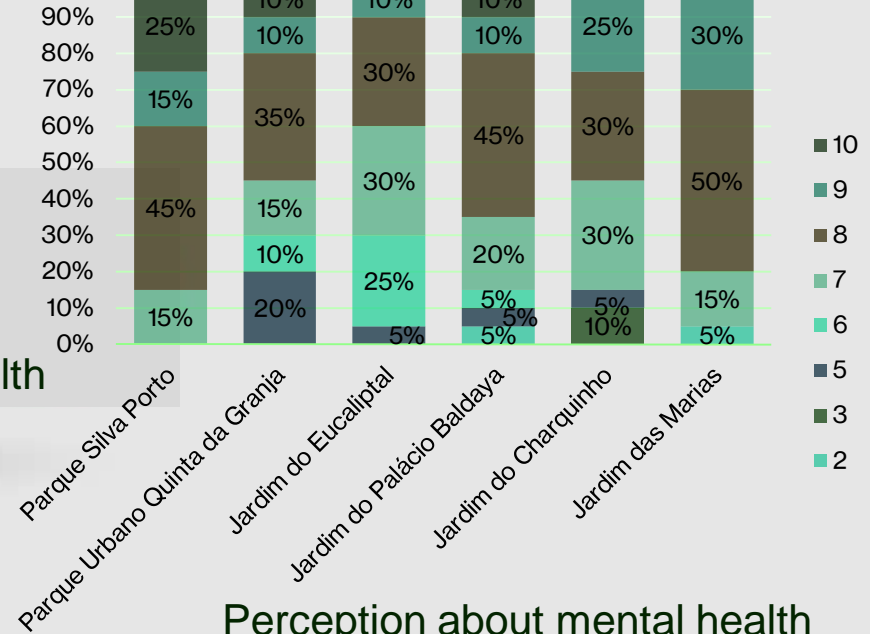


# Typology of Green Spaces in Benfica Parish – Lisbon city

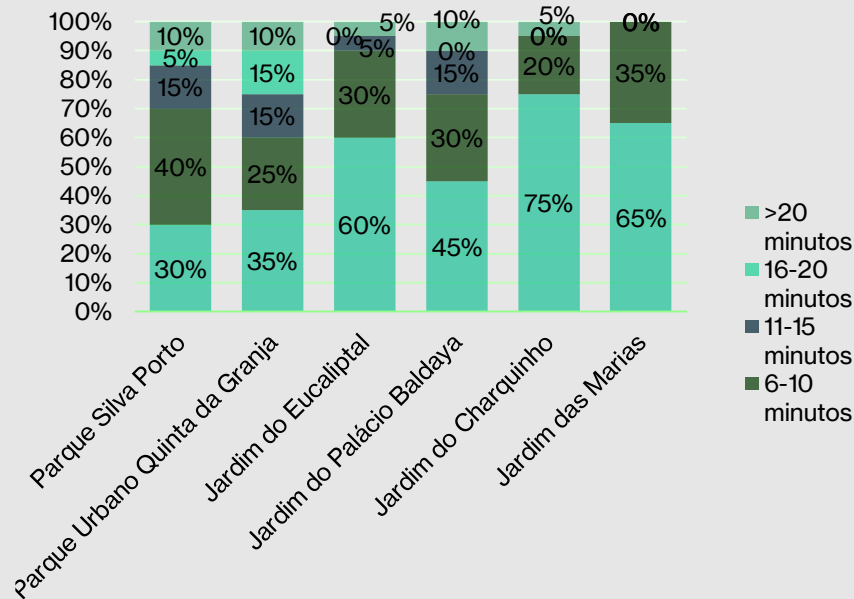


# Benfica Parish – Lisbon city

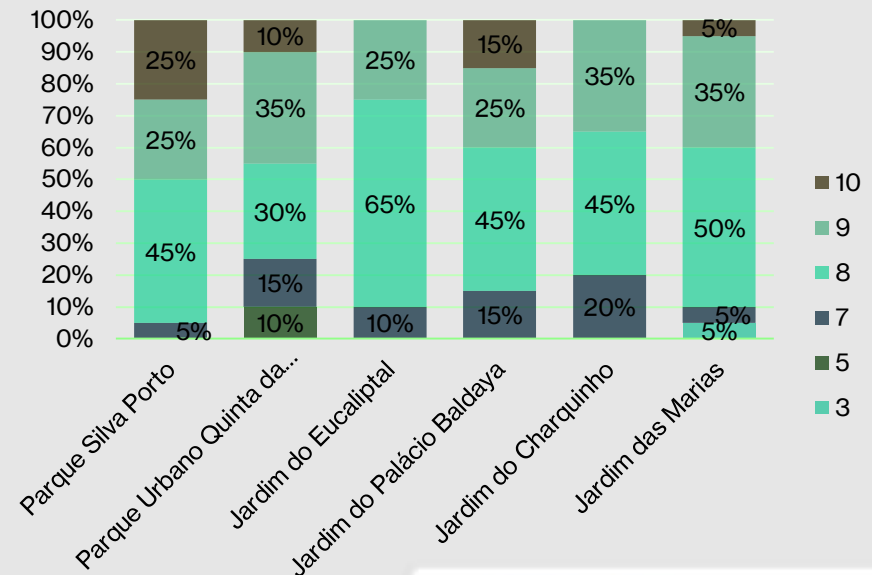
## Perception about physical health



## Time distance



## Perception about mental health





## Innovative solutions



Benfica, Lisboa, 23 Outubro de 2021



Benfica, Lisboa, 21 Nov. 2020, 10h



# eMOTIONAL Cities

Mapping the cities through the senses  
of those who make them

**Searching for evidence on how the  
built environment affects peoples'  
emotions**

**A citizen science approach  
for measuring and  
mapping emotions**



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# What we know and what we aim to know



The environment we live in – **URBAN BUILT ENVIRONMENT** – affects our mental health and well-being

•

We must understand how humans perceive their surroundings

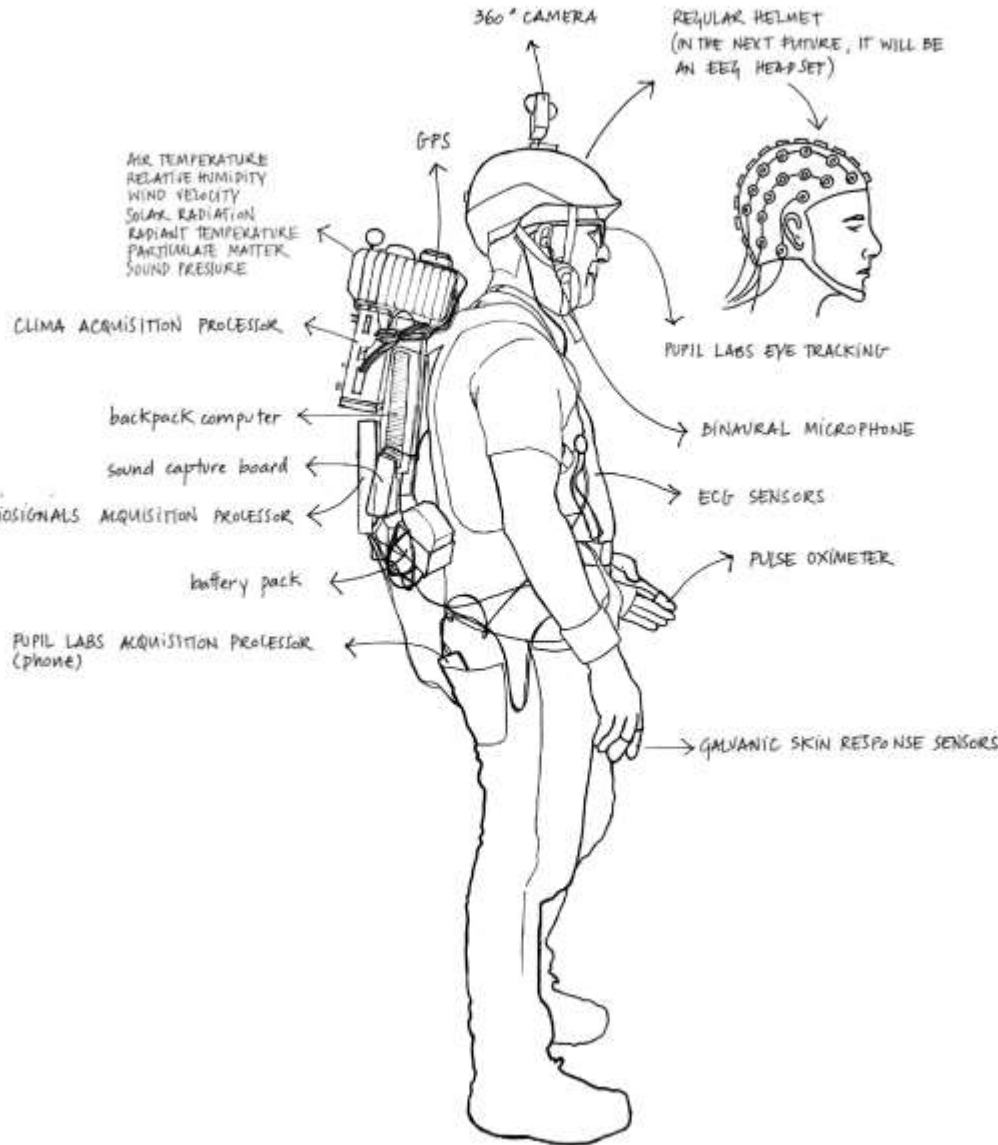
•

There is lack of **SCIENTIFIC EVIDENCE**

**IMAGINE IF WE COULD PLAN & DESIGN CITIES TO FOSTER POSITIVE EMOTIONS**



# the eMOTIONAL Cities walker



Location: Lisbon

Time: 8:00 AM Sep 12, 2021







Photo / drawing  
by Ana Bonifácio

Photos by Ana Bonifácio



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## 4. To get more impacts Challenges for governance



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# How to approach the planning?

## Be clear about the Objectives of green space planning.

- what type and size of urban green space is being planned?
- what are its main functions to be?
- which population groups are expected to make use of it?
- who is responsible for its maintenance and management?
- might the planned urban green space be a way to upgrade a deprived area?

## Make use of the urban/local planning context and frameworks. These will ensure that planners:

- create a long-term vision of a green city within the local authority;
- integrate urban green space infrastructure needs in urban masterplans;
- consider green spaces within infrastructural projects (housing, transport, business parks, community and health facilities) and urban rehabilitation approaches;
- consider regional planning frameworks such as green corridors and networks;
- engage the local community as part of the local planning process



European Union  
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# How to approach the planning?

## Have a long-term perspective and remain flexible

Green spaces are a long-term investment: they may need some time to establish before they are fully usable, and they require long-term maintenance.

The benefits of urban green spaces may only become apparent over time.

Urban green spaces should be planned and designed in a flexible way, making functional adjustments possible to adapt to changing future demands.

## Consider green space projects to be a public health and social investment

Providing green spaces in urban settings is an investment in health, well-being and quality of life, creating places for relaxation, recreation and social interaction.

Urban green spaces are valuable settings for community organizations to host cultural or recreational events or provide space for (intercultural) gardening



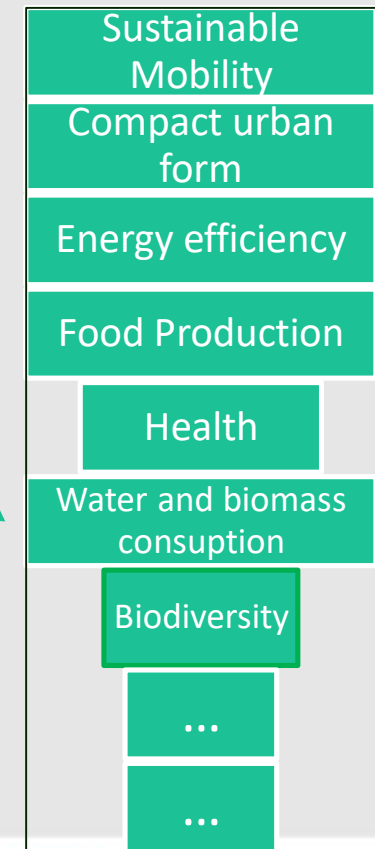
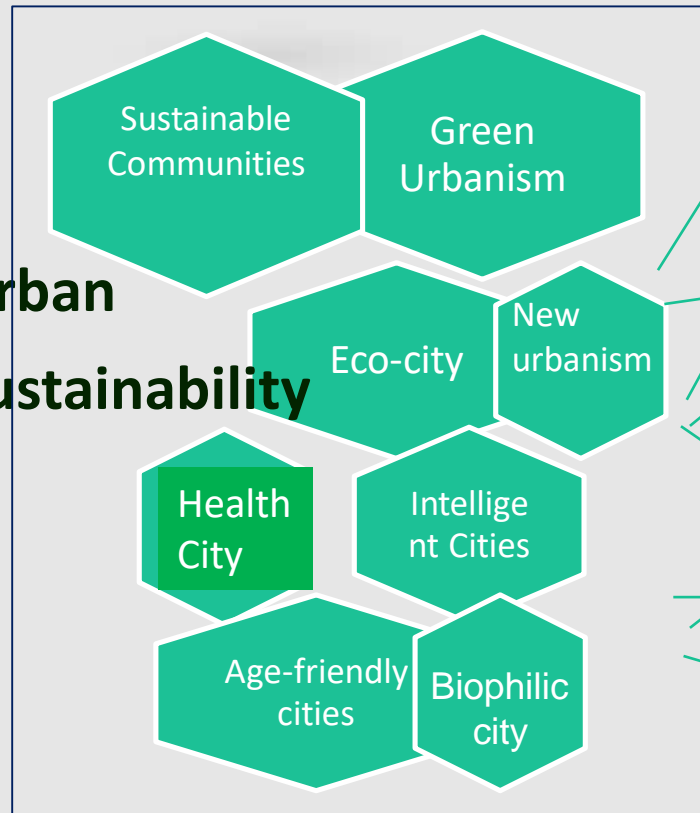
# Ensure integration of Green Spaces in an **INTERSECTORIAL** **POLICY** IN THE FRAMEWORK OF SUSTAINABILITY



**Opportunity** to involve urban green space interventions in urban planning include:

- development of new residential neighbourhoods, community facilities, business parks or transport infrastructure projects;
- regeneration projects and urban renewal initiatives;
- brownfield development and rehabilitation of industrial areas;
- urban gardening/agriculture projects;
- initiatives to enhance biodiversity.

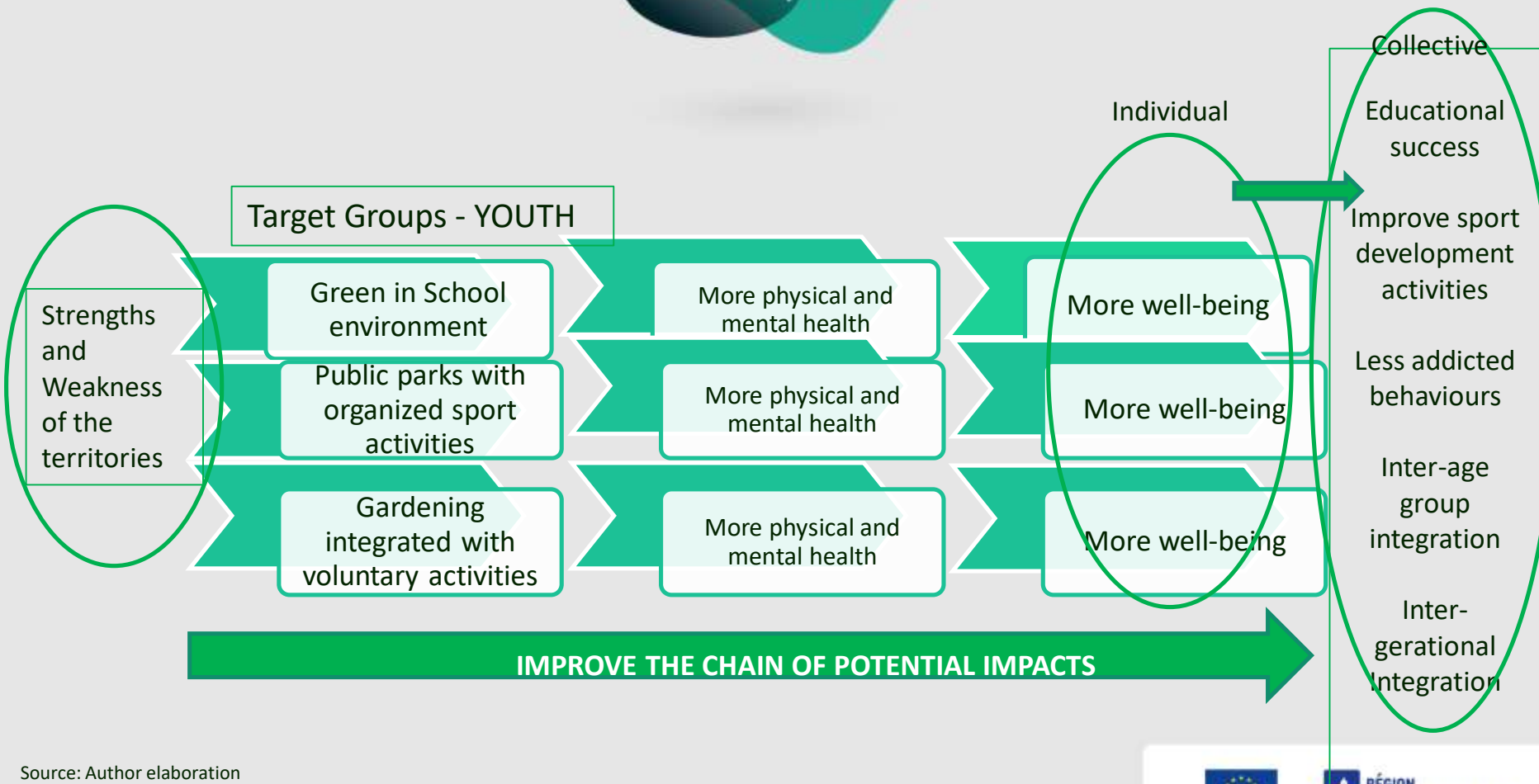
## Urban Sustainability



# TO GET MORE IMPACTS



## WHAT WE WANT TO ATTEND?



Source: Author elaboration

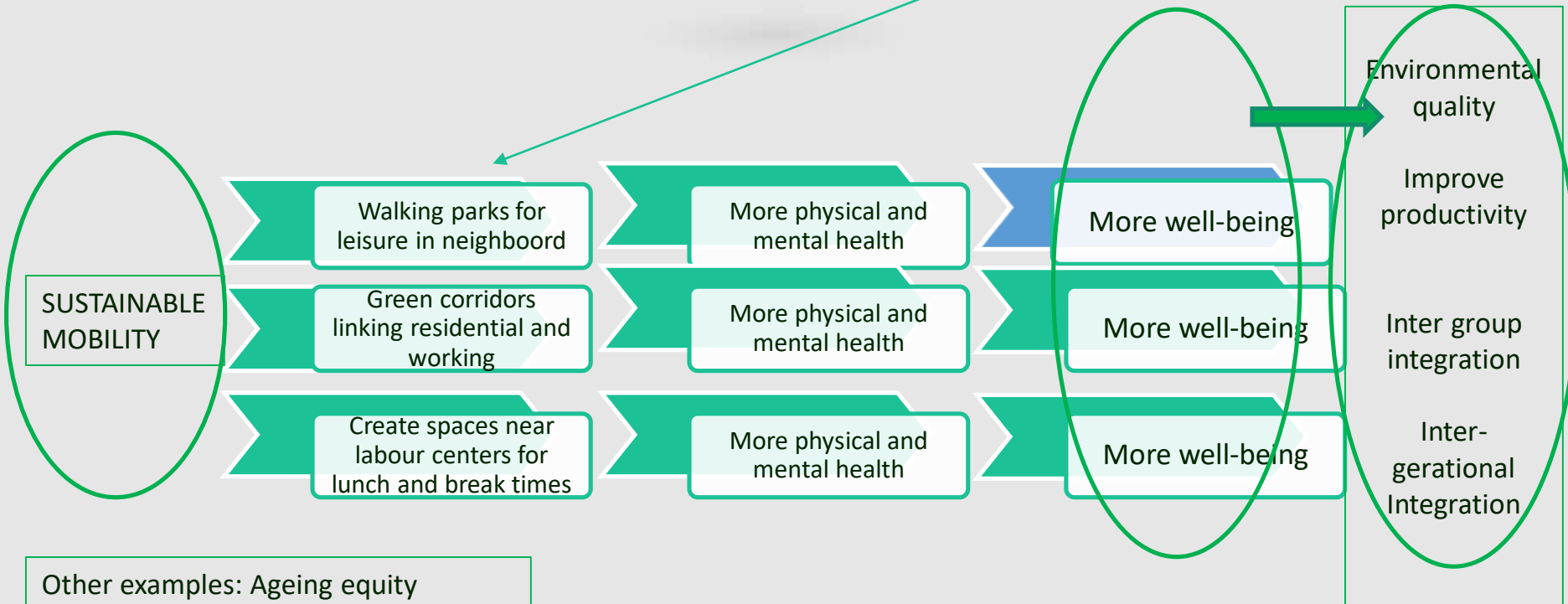
# TO GET MORE IMPACTS



## WHAT WE WANT TO ATTEND?

Individual

Collective



Other examples: Ageing equity  
Food security  
Air quality

Source: Author elaboration





Source: Author elaboration based on SDG's





# Challenges for governance

## Thanks

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