

SESSION n°3: CASE STUDIES HEALTHCARE DESIGN

**Design
& Health**
International Academy for Design and Health

Milano, Italy 11-14 April 2024

Design & Health

13TH WORLD CONGRESS & EXHIBITION

REVITALIZING HEALTH BY SALUTOGENIC DESIGN

Healthy environment | Healthy people

Urban Green Space Design and Impacts

Maddalena Buffoli

Design & health Lab, DABC, Politecnico di Milano

maddalena.buffoli@polimi.it



**POLITECNICO
MILANO 1863**

DIPARTIMENTO DI ARCHITETTURA,
INGEGNERIA DELLE COSTRUZIONI
E AMBIENTE COSTRUITO

**Progettare
per la Sanità**
Organizzazione, tecnologia, architettura

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CENTRO NAZIONALE
RESEARCH E
TECNICA
OPERATIVA

What are the evidence of Urban Green Spaces benefits ?

Are all the effects investigated?



**SOCIAL
EQUITY**

**ECONOMIC
DEVELOPMENT**

**CLIMATE
CHANGE**



BIODIVERSITY



**HUMAN
HEALTH**

Urban Green Spaces & Health: Increasing of Epidemiological Studies



Review

Association between Urban Greenspace and Health: A Systematic Review of Literature

Vincenza Gianfredi ¹, Maddalena Buffoli ², Andrea Rebecchi ^{2*}, Roberto Croci ³, Aurea Oradini-Alacreu ¹, Giuseppe Stirparo ⁴, Alessio Marino ⁵, Anna Odone ⁵, Stefano Capolongo ² and Carlo Signorelli ¹

¹ School of Medicine, University Vita-Salute San Raffaele, 20132 Milan, Italy; gianfredi.vincenza@hsr.it (V.G.); croci.roberto@hsr.it (R.C.); oradini.aurea@hsr.it (A.O.-A.); stirparo.giuseppe@hsr.it (G.S.); marino.alessio@hsr.it (A.M.); cagnone@hsr.it (C.S.)
² Architecture, Built Environment and Construction Engineering Department, Politecnico di Milano, 20133 Milan, Italy; maddalena.buffoli@polimi.it (M.B.); stefano.capolongo@polimi.it (S.C.)
³ Department of Public Health, Experimental and Forensic Medicine, University of Pavia, 20138 Milan, Italy; anna.odone@unipv.it
⁴ Correspondence: andrea.rebecchi@polimi.it

Abstract: The current review aimed to explore the association between urban greenspaces and health indicators. In particular, our aims were to analyze the association between publicly accessible urban greenspaces exposure and two selected health outcomes (objectively measured physical activity (PA) and mental health outcomes (MH)). Two electronic databases—PubMed/Medline and Excerpta Medica dataBASE (EMBASE)—were searched from 1 January 2000 to 30 September 2020. Only articles in English were considered. Out of 356 retrieved articles, a total of 34 papers were included in our review. Of those, 15 assessed the association between urban greenspace and PA and 19 dealt with MH. Almost all the included studies found a positive association between urban greenspace and both PA and MH, while a few demonstrated a non-effect or a negative effect on MH outcomes. However, only guaranteeing access is not enough. Indeed, important elements are maintenance, renovation, closeness to residential areas, planning of interactive activities, and perceived security aspects. Overall, despite some methodological limitations of the included studies, the results have shown almost univocally that urban greenspaces harbour potentially beneficial effects on physical and mental health and well-being.

Keywords: physical activity; mental health; depression; anxiety; stress; green areas; green infrastructures; urban greenery; urban health; non-communicable diseases

1. Introduction

Nowadays, humans live in a predominantly urban world. Between 1990 and 2000, the number of people living in urban areas rose by 25% [1]. Worldwide forecasts estimate that 6 out of 10 people will live in cities by 2030, a figure that will reach 8 out of 10 by 2050 [2]. This progressive increase has led the scientific community to explore and assess the urban environment's salutogenic effects [3]. On the one hand, urbanization has improved populations' health status, thanks to better career and education opportunities, and increased access to essential healthcare services [4,5]. On the other hand, rapidly growing cities pose new public health threats. Among those is the increase in social inequalities and lifestyle-related risk factors, such as lack of physical activity and unbalanced dietary habits [6,7], pollution and traffic, and the environmental degradation of natural areas [8], which, in turn, increase the incidence of a vast spectrum of diseases and conditions [9,10]. Overcrowding exacerbates the risks of communicable diseases (CD), as shown by the COVID-19 pandemic [11–13]. Urbanicity might also represent a risk factor for chronic non-communicable diseases (NCD) and other leading causes of death and disability, such

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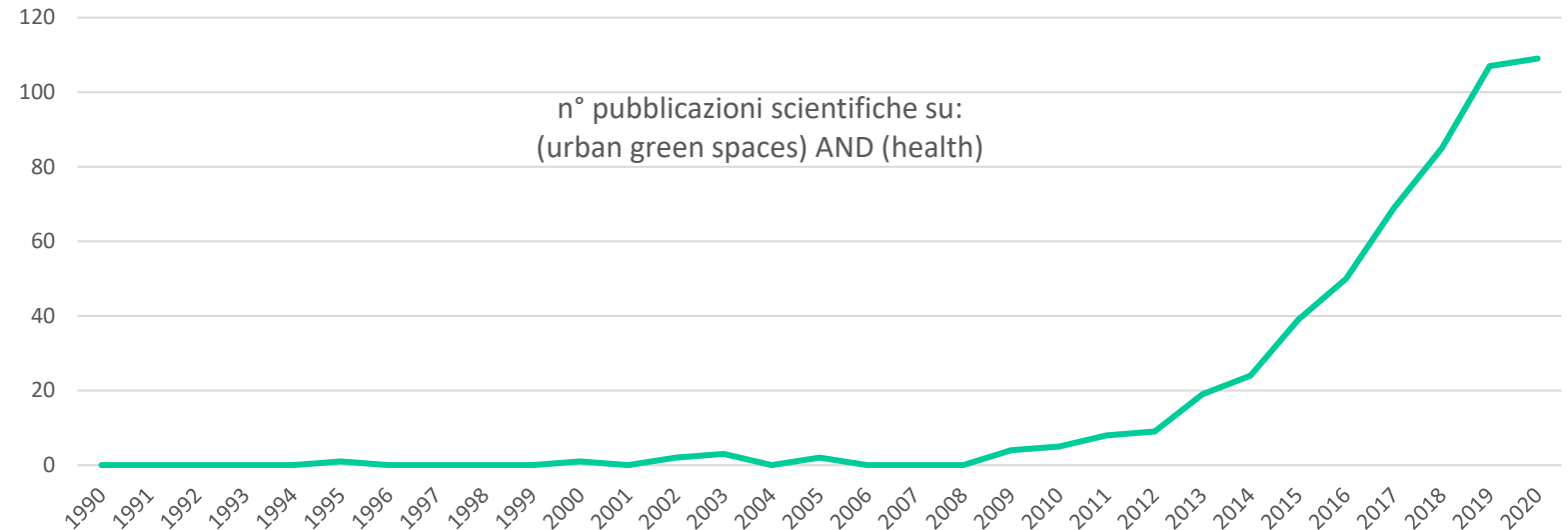
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Int. J. Environ. Res. Public Health **2021**, *18*, 5137. <https://doi.org/10.3390/ijerph18105137>

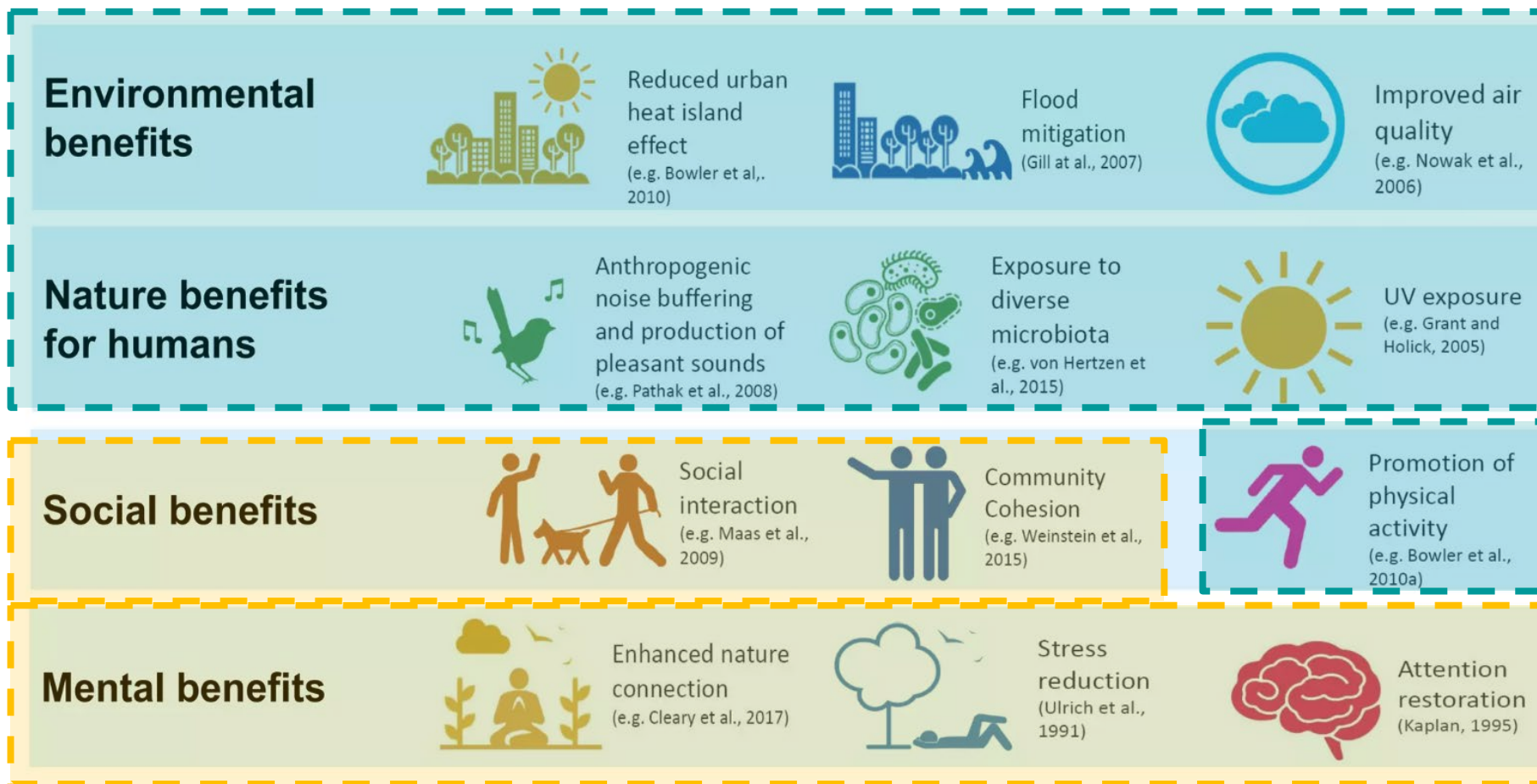
www.mdpi.com/journal/ijerph



- **Recent Increase in scientific research** to assess the health impacts of UGS (Urban Green Spaces).
- **Several aspects still need to be explored:** for example, the effects on mental health, inequalities and inclusion, safety, cultural implications, etc.
- **Some established aspects:** proximity to UGS and increased physical activity...
- **The design** of UGS (lighting, maintenance, services) influences the frequency of the area and activities carried out, but evidence-based research needs to be conducted.
- The most **impactful associations** occur with the promotion and involvement of local communities.

Urban Green Spaces & Health: Study results

- Some effects have been investigated through both scientific research and quantitative mathematical calculations (particularly for environmental effects). It is now quantifiable the predictive effect of an urban greening operation on the large (IAQ, water runoff, canopy cover)
- Others (particularly social and mental ones) are more complex and difficult to quantify and investigate



Study in Japan

The association **between greenery, physical activity, and health** is well-established and confirmed by all studies, valid for all ages (children, adolescents, adults, elderly).

913

RESEARCH REPORT

Urban residential environments and senior citizens' longevity in megacity areas: the importance of walkable green spaces

T Takano, K Nakamura, M Watanabe

J Epidemiol Community Health 2002;**56**:913–918

Study objectives: To study the association between greenery filled public areas that are nearby a residence and easy to walk in and the longevity of senior citizens in a densely populated, developed megacity.

Design: Cohort study.

Methods: The authors analysed the five year survival of 3144 people born in 1903, 1908, 1913, or 1918 who consented to a follow up survey from the records of registered Tokyo citizens in relation to baseline residential environment characteristics in 1992.

Main results: The survival of 2211 and the death of 897 (98.9% follow up) were confirmed. The probability of five year survival of the senior citizens studied increased in accordance with the space for taking a stroll near the residence ($p<0.01$), parks and tree lined streets near the residence ($p<0.05$), and their preference to continue to live in their current community ($p<0.01$). The principal component analysis from the baseline residential environment characteristics identified two environment related factors: the factor of walkable green streets and spaces near the residence and the factor of a positive attitude to a person's own community. After controlling the effects of the residents' age, sex, marital status, and socioeconomic status, the factor of walkable green streets and spaces near the residence showed significant predictive value for the survival of the urban senior citizens over the following five years ($p<0.01$).

Conclusions: Living in areas with walkable green spaces positively influenced the longevity of urban senior citizens independent of their age, sex, marital status, baseline functional status, and socioeconomic status. Greenery filled public areas that are nearby and easy to walk in should be further emphasised in urban planning for the development and re-development of densely populated areas in a megacity. Close collaboration should be undertaken among the health, construction, civil engineering, planning, and other concerned sectors in the context of the healthy urban policy, so as to promote the health of senior citizens.

See end of article for authors' affiliations

Correspondence to:
Professor T Takano, Health Promotion/International Health, Division of Public Health, Graduate School of Tokyo Medical and Dental University, Yushima 1-5-45, Bunkyo-ku, Tokyo 113-8519, Japan; takano.hlth@tmd.ac.jp

Accepted for publication
15 May 2002

Cohort study Sample: 3144 elderly residents

The 5-year survival probability was found to be associated with:

- Available space for walking ($P<0.01$)
- Number of parks and tree-lined streets near the residence ($P<0.05$)
- Hours of sun exposure at home ($P<0.01$)



Literature review

more physical activity, mental health , nature exposure, less NCD,

International Journal of
Environmental Research
and Public Health

Review

Association between Urban Greenspace and Health: A Systematic Review of Literature

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¹ School of Medicine, University Vita-Salute San Raffaele, 20132 Milan, Italy; gianfredi.vincenza@hsr.it (V.G.); croci.roberto@hsr.it (R.C.); oradini.aurea@hsr.it (A.O.-A.); stirparo.giuseppe@hsr.it (G.S.); marino.alessio@hsr.it (A.M.); c.signorelli@hsr.it (C.S.)

² Architecture, Built Environment and Construction Engineering Department, Politecnico di Milano, 20133 Milan, Italy; maddalena.buffoli@polimi.it (M.B.); stefano.capolongo@polimi.it (S.C.)

³ Department of Public Health, Experimental and Forensic Medicine, University of Pavia, 20158 Milan, Italy; anna.odone@unipv.it

* Correspondence: andrea.rebecchi@polimi.it

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Contents lists available at [ScienceDirect](#)

Urban Forestry & Urban Greening

journal homepage: www.elsevier.com/locate/ufug

Effects of the COVID-19 pandemic on the use and perceptions of urban green space: An international exploratory study

Francesca Ugolini ^{a,*}, Luciano Massetti ^a, Pedro Calaza-Martínez ^b, Paloma Cariñanos ^c,
Cynnamon Dobbs ^d, Silvija Krajter Ostoić ^e, Ana Marija Marin ^e, David Pearlmutter ^{f,a},
Hadas Saaroni ^g, Ingrida Šaulienė ^h, Maja Simoneti ⁱ, Andrej Verlič ^j, Dijana Vuletić ^e,
Giovanni Sanesi ^k

Overview

- Physical and mental illnesses associated with sedentary urban lifestyles are an increasing economic and social cost.
- Areas with more accessible green space are associated with better mental and physical health.
- The risk of mortality caused by cardiovascular disease is lower in residential areas that have higher levels of 'greenness'.
- There is evidence that exposure to nature could be used as part of the treatment for some conditions.
- There are challenges to providing green spaces, such as how to make parks easily accessible and how to fund both their creation and maintenance.





Observational studies correlate the presence of greenery with:

- **Increased informal social** contacts with neighbors, also correlated with a greater **sense of security**.
- **Less aggressive behavior**, and buildings have been associated with fewer crimes.
- **Less loneliness** and a lower perception of a lack of social support (especially for the elderly, children, and people from disadvantaged classes).



Few studies exist; further research is needed.



Contents lists available at ScienceDirect

Health & Place

journal homepage: www.elsevier.com/locate/healthplace



Social contacts as a possible mechanism behind the relation between green space and health

Jolanda Maas^{a,*}, Sonja M.E. van Dillen^b, Robert A. Verheij^a, Peter P. Groenewegen^{a,c}

^a NIVEL (Netherlands Institute for Health Services Research), P.O. Box 1568, 3500 BN Utrecht, The Netherlands

^b CIZ, P.O. Box 232, NL-3970 AE Driebergen, The Netherlands

^c Department of Human Geography and Department of Sociology, Utrecht University, P.O. Box 80115, NL-3508 TC Utrecht, The Netherlands

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Loneliness

ABSTRACT

This study explored whether social contacts are an underlying mechanism behind the relationship between green space and health. We measured social contacts and health in 10,089 residents of the Netherlands and calculated the percentage of green within 1 and a 3 km radius around the postal code coordinates for each individual's address. After adjustment for socio-economic and demographic characteristics, less green space in people's living environment coincided with feelings of loneliness and with perceived shortage of social support. Loneliness and perceived shortage of social support partly mediated the relation between green space and health.

Urban Green Spaces & Health: Complex and synergistic effects

EFFECTS ON NATURE, ENVIRONMENT, CLIMATE, AND CONTEXT

HEALTH EFFECTS

URBAN GREEN SPACES

- Air: Air quality
- Noise: Acoustic quality, tranquility
- Biodiversity: Preservation, ecosystem services
- Water: Absorption, drainage, and filtration
- Soil: Deimpermeabilization and quality
- Microclimate: Urban Heat Island
- Resilience to Climate Change: Extreme events
- Places with Sun and Nature: Exposure
- Place for Physical Activity: Sports and play
- Place for Rest and Refreshment
- Socialization Space
- Accessibility and Inclusion: < Inequalities

- Decrease in cardiovascular diseases: stroke, hypertension
- Reduction in type 2 diabetes
- Decrease in chronic degenerative and tumor diseases
- Reduced obesity
- Production of vitamin D and enhanced immune system (with correlations to infant health, Alzheimer's, asthma, multiple sclerosis)
- Healthy lifestyles
- Benefits for pregnant women (and the fetus)
- Reduced mortality, risks, and inequalities due to extreme weather events, heatwaves
- Stress & Mental Health: Depression, anxiety... reduced sleep disorders
- < Crime and > sense of security
- Social cohesion and neighborhood belonging
- Personal satisfaction (home, work, life...)
- Communicative and relational skills

Urban Green Spaces > DESIGN & Health

All the Health benefits of green areas are closely linked to several aspects:

- Proximity and accessibility of the green area
- Design of the green area (tree species, paths, services and functions, furnishing elements, resilience, aesthetic aspects...)
- Management of green areas (maintenance, organization of events and activities)
- Users' involvement in the design and management phases

11. Key messages

1 Urban green spaces provide multiple benefits and constitute a necessary feature of healthy settlements.

2 The benefits of urban green spaces can be maximized through adequate planning, design and evaluation.

Intervention objectives in case studies: Focus on environmental and active lifestyle

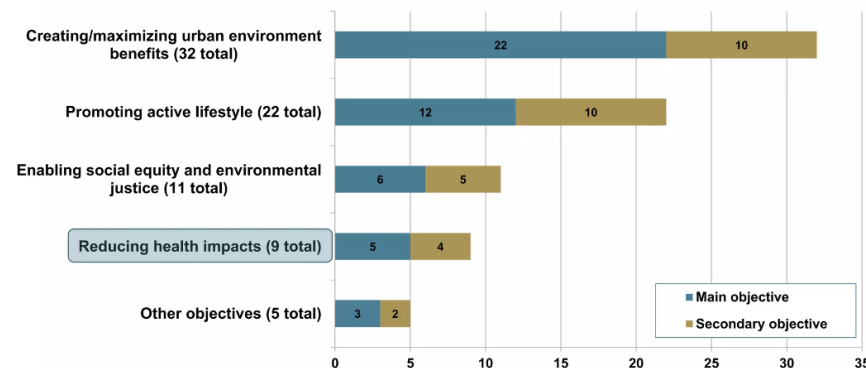


Figure 1. A causal model of the impacts of urban green spaces on health and well-being

Source: developed from 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.8

Urban Green Spaces > DESIGN & Health

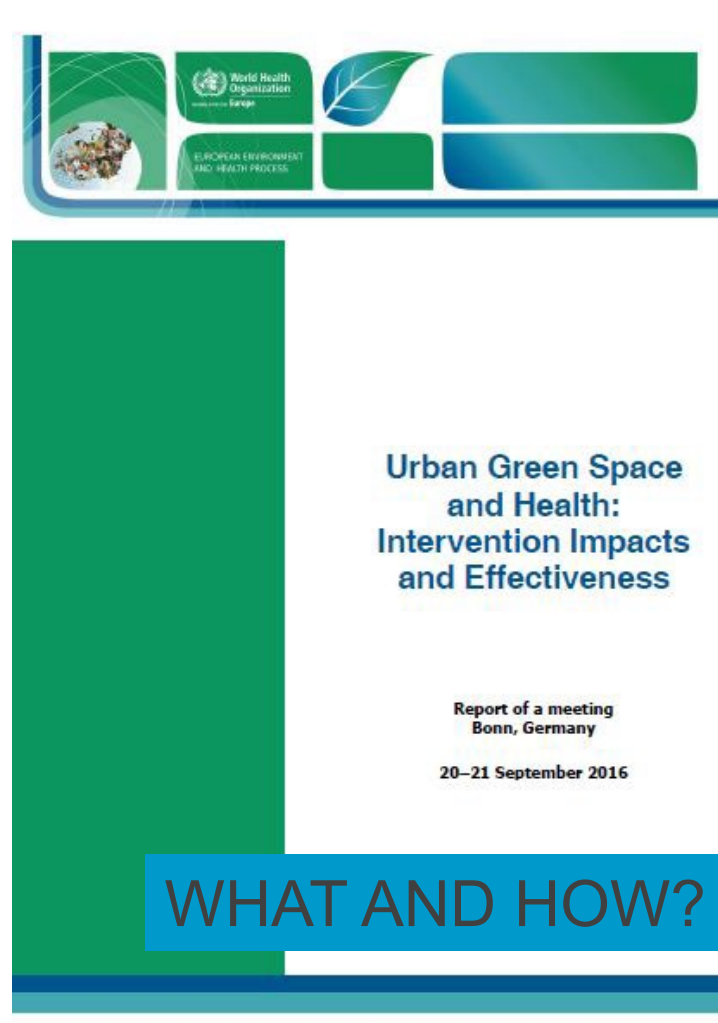
Urban Green Space and Health: a review of evidence.
WHO, 2016

Revisione sistematica di **casì studio** su interventi di spazi verdi
Revisione di **valutazione dell'impatto ambientale / valutazione dell'impatto sulla salute**



Urban Green Space and Health: Intervention Impacts and Effectiveness. **WHO, 2016**

Incontro esperti europei su spazio verde e pianificazione urbana (prof M. Buffoli, Polimi)



Urban Green Space Interventions and Health
WHO, 2017

Individuazione di quali strategie dell'interventi sul verde hanno sono risultate più efficaci per i benefici ambientali, sanitari ed equità derivanti dagli spazi verdi urbani.



Can we make our cities healthier just improving UGS surface?

“Italian **Urban Green Space** Management”

Analysis in the 109 Italian provincial capitals

RESEARCH QUESTION:

Have the systems for the management, protection and planning of green areas been adopted? Are Italian cities getting greener?



Project "Italian Urban Green Space Management"

OBJECTIVE. Assessment of the state of adoption of management, protection and planning systems for urban green areas. Quantitative analysis of 2021 data on 109 Italian provincial capitals and metropolitan cities



green census

Caratteristiche del territorio
Mappatura aree verdi e alberi: Dati GIS
incentrato sugli elementi da tutelare



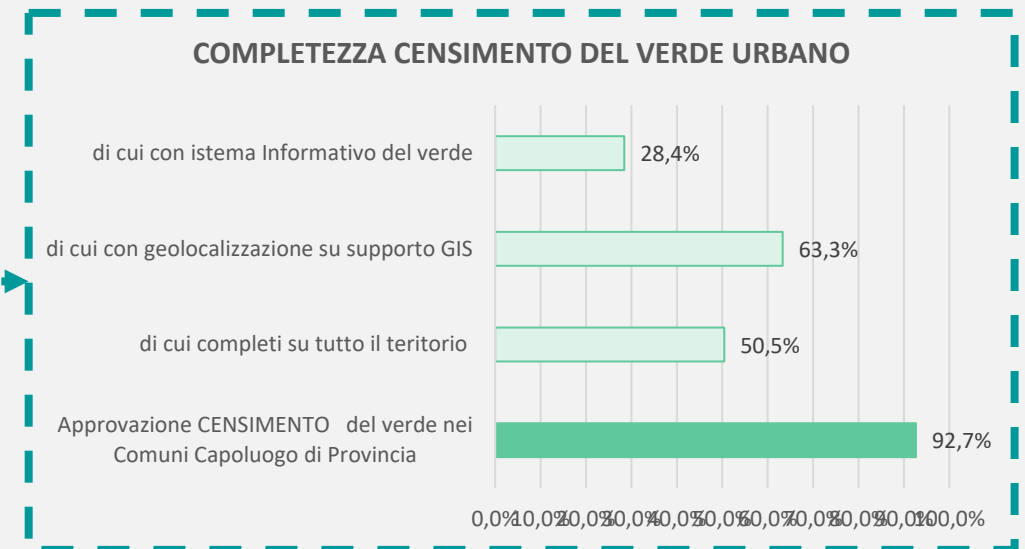
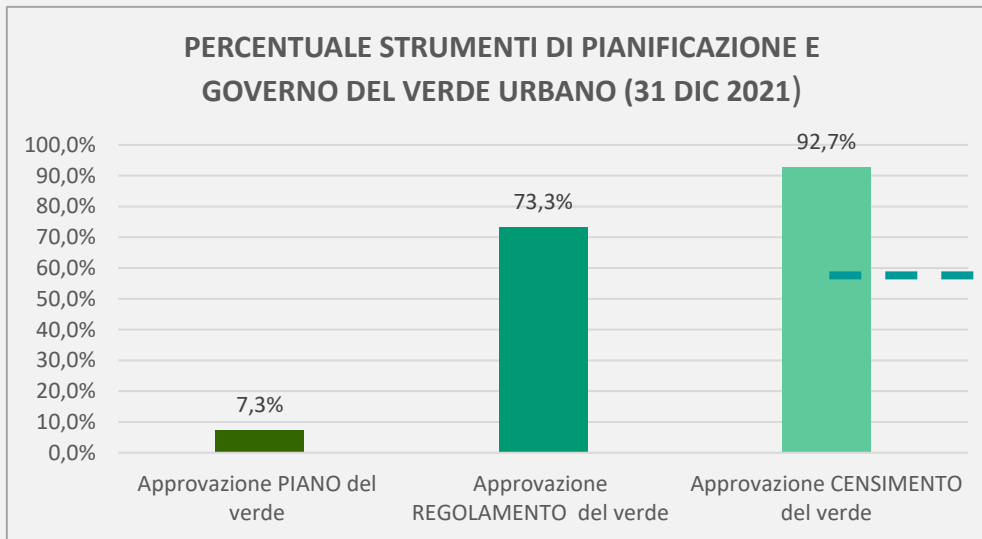
green regulation

Norme per la tutela, la salvaguardia, la gestione, la fruizione e la manutenzione del Verde Pubblico e Privato

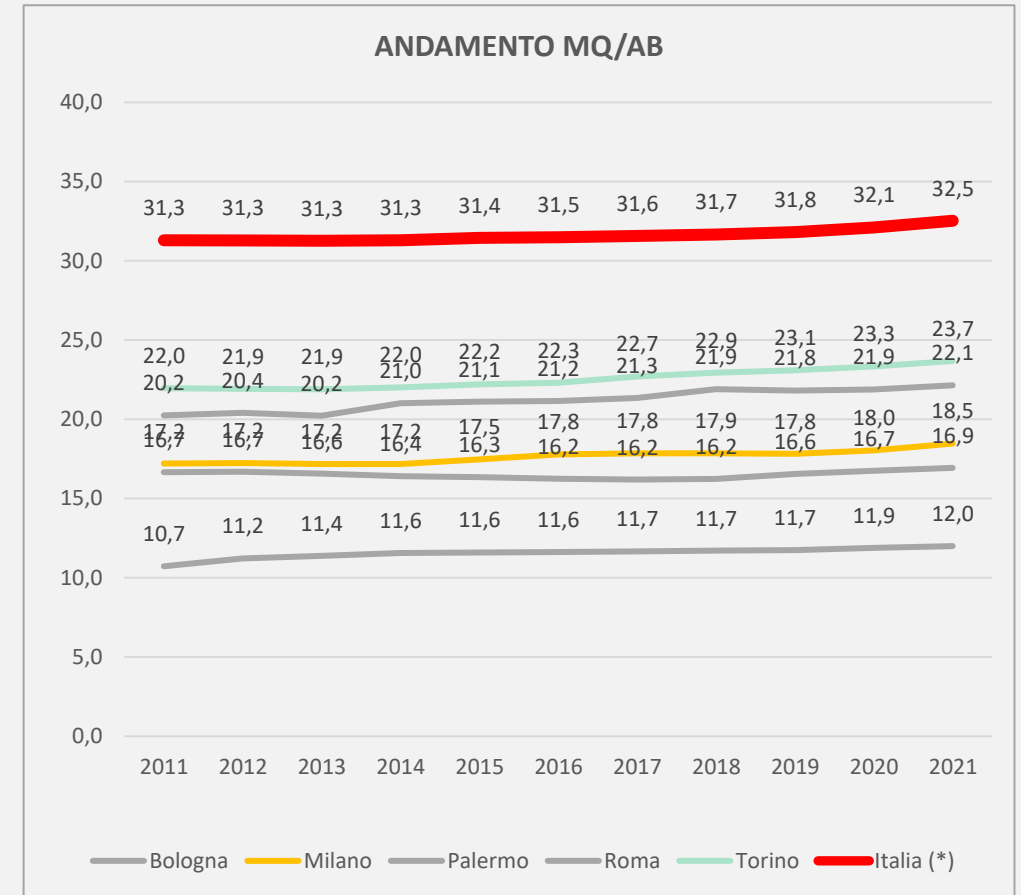
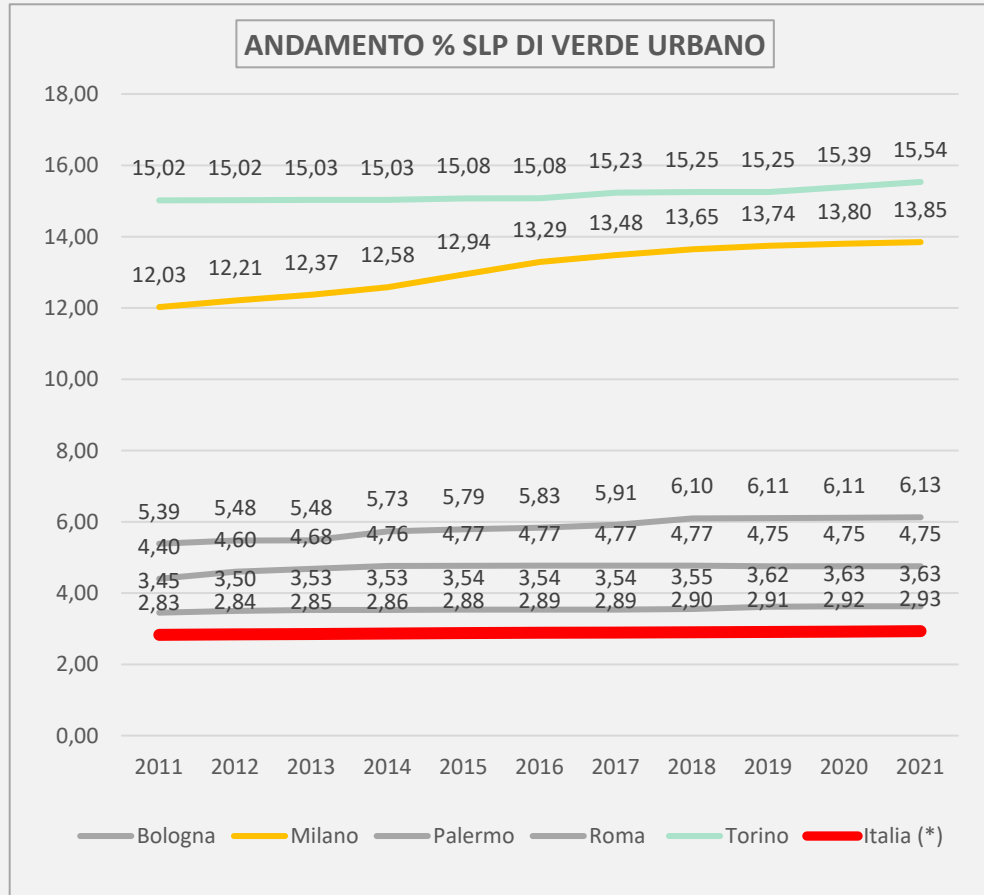


green plan

Strategie per la progettazione e la programmazione futura del Verde Pubblico e di tutte le alberature



Project "Italian Urban Green Space Management"



The green considered is all the green present in the urban territory (i.e. private, public, road, parks, etc.) with the exception of the green of agricultural parks.

Some cities such as Milan (yellow line) have an overall green area that is increasing significantly, but if you look at the sqm/inhabitant ratio, this growth is much less evident and the % is very learned the average

This is because:

The green area is increasing, but the number of inhabitants is increasing, so even more greenery should be made

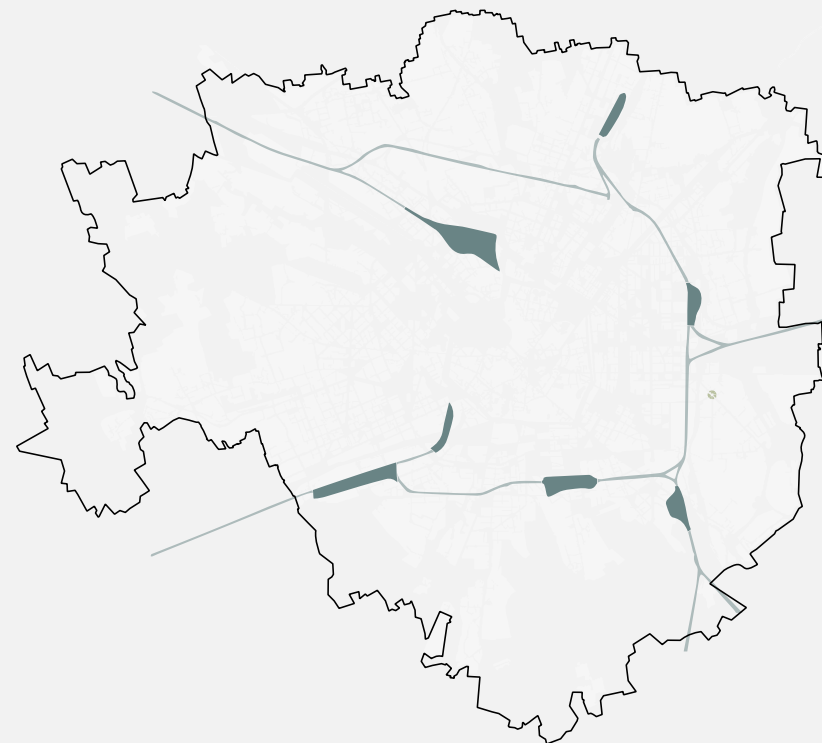
This graph does not consider domiciled (non-residents) so it is also an underestimate



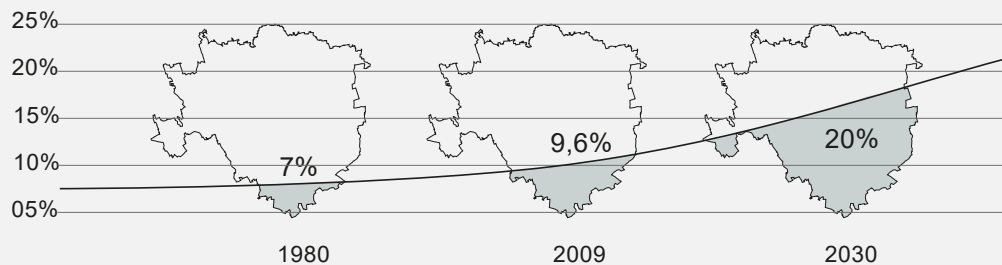
Main greening strategies of the city of Milano



green-rays project



re-development of ex-railway infrastructures



Urban Green Space will growth

But

How many people will live in Milan in 2030 and how many more residents live there?

Will the green areas be equally distributed?



“Accessibility an Availability of Urban Green Space”

RESEARCH QUESTION:

Do Italian cities have a sufficient distribution of green areas?

Do residents live close to green areas that are large enough to ensure beneficial health effects (physical, social and psychological)?



Finanziamento FBML: 2019-2020

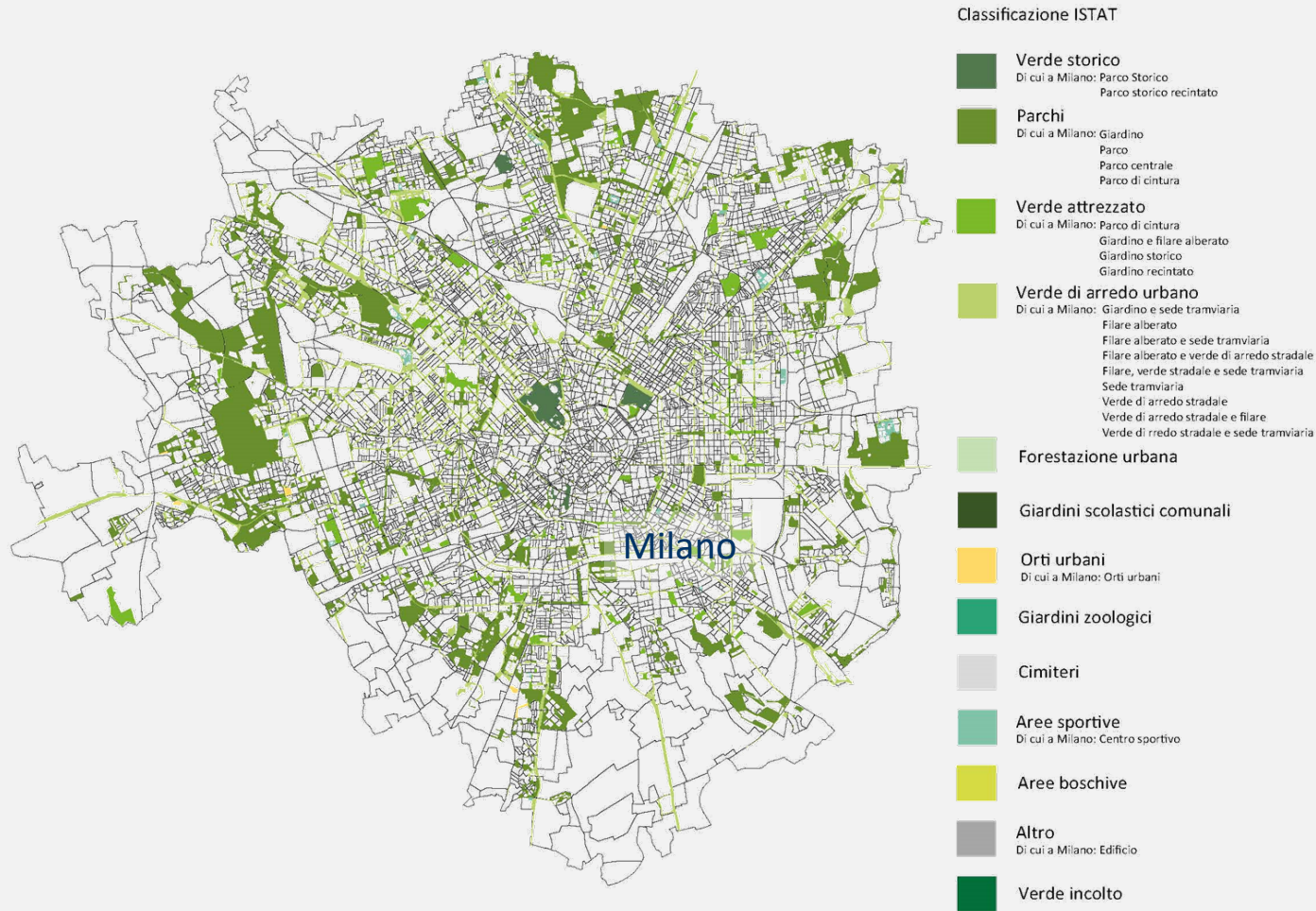
GRUPPO DI LAVORO

Politecnico di Milano (Design &Health LAB)

Università vita-salute San Raffaele

Project “Green Areas & Infrastructures and Public Health outcomes”

Objective: Analysis of green areas in Italian metropolitan cities and evaluation of the level of accessibility by users to green areas significant for health benefits



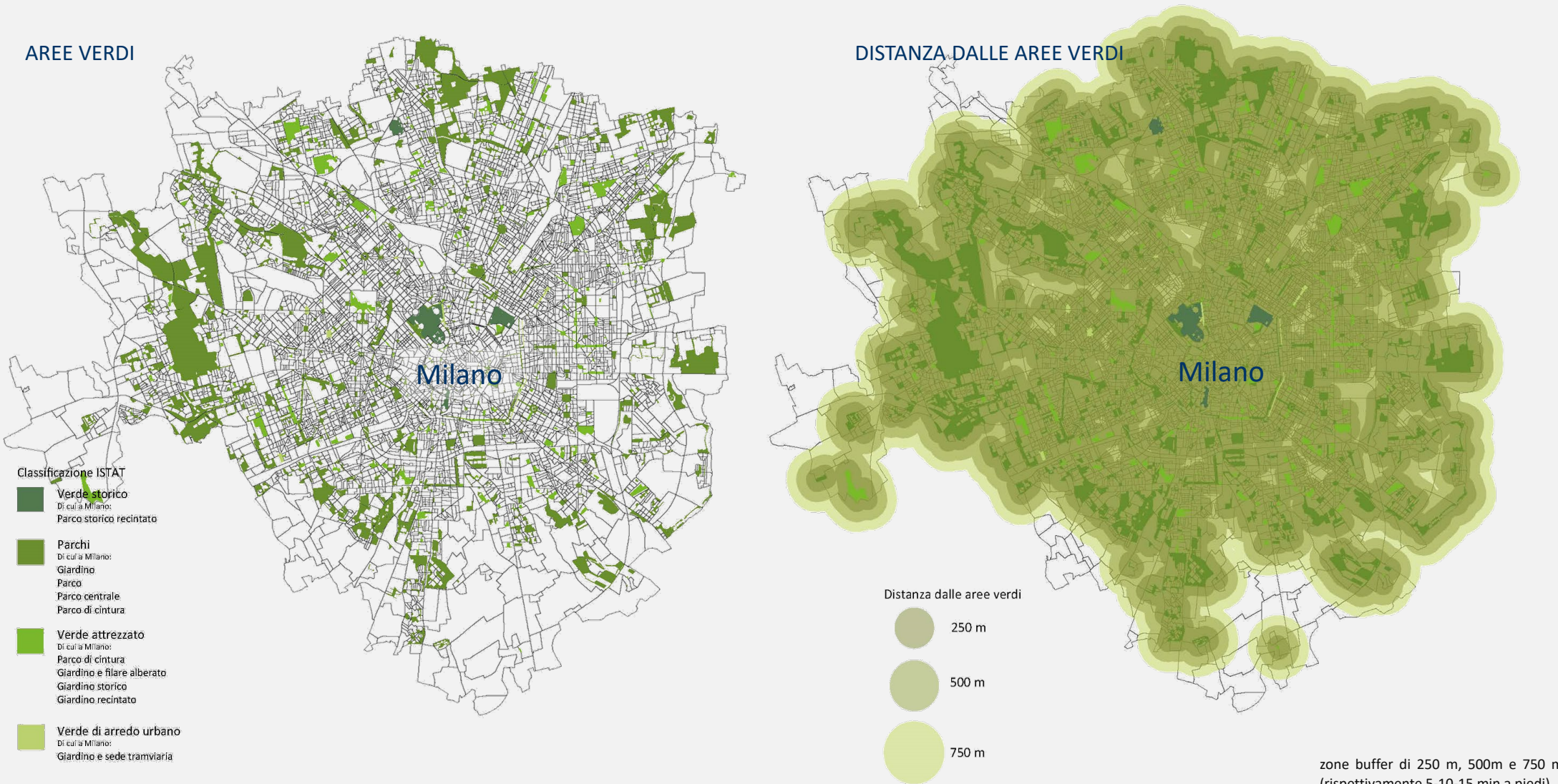
Aree verdi Milano escluse aree agricole
 Dati geoportale Milano 2019
 Milano_ISTAT



Project “Green Areas & Infrastructures and Public Health outcomes”

NOT ALL GREEN AREAS ARE THE SAME FOR HEALTH PURPOSES.

Of all the green areas in Milan (GIS comunedimilano) **only the public green areas for public use have been selected, classified as Historic Green, Parks, Equipped Green** (parks, gardens, etc.) **and Urban Green** (selecting only the subcategories relating to gardens, linear parks)



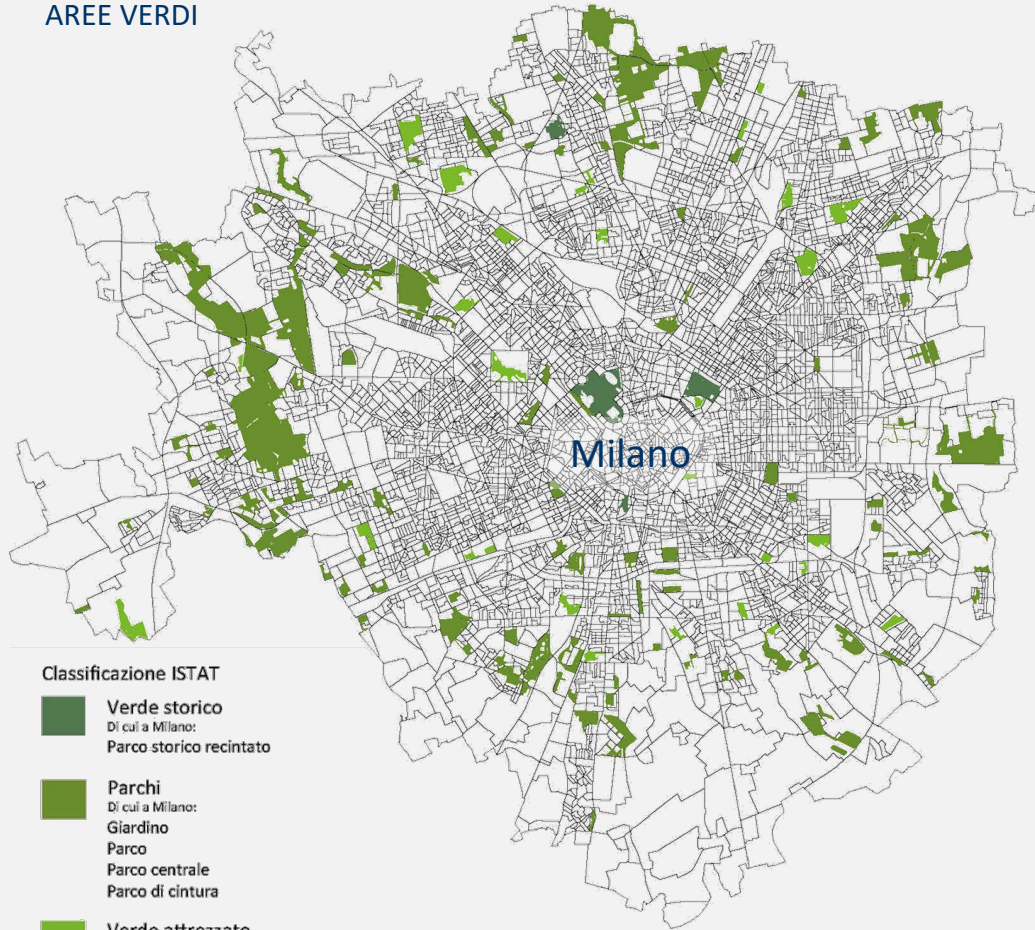
zone buffer di 250 m, 500m e 750 m
(rispettivamente 5-10-15 min a piedi)



Project "Green Areas & Infrastructures and Public Health outcomes"

NOT ALL GREEN AREAS HAVE A SUITABLE SIZE TO GUARANTEE HEALTH FUNCTIONS (sport, relaxation and quiet, leisure, immersion in nature...)
Only green areas greater than or equal to 15,000 square meters were further selected (WHO data for RECREATIONAL ACTIVITIES FOR HEALTH)

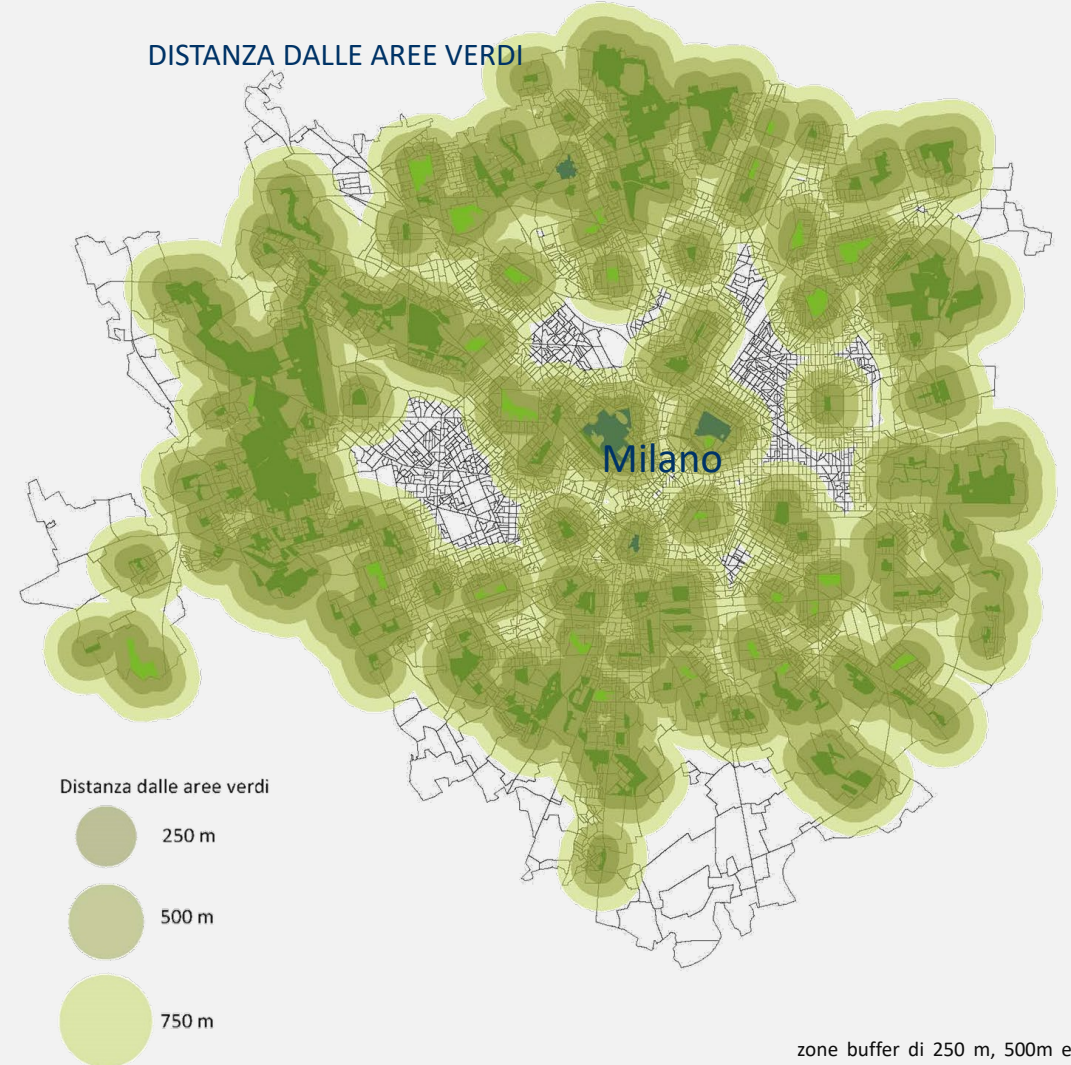
AREE VERDI



Classificazione ISTAT

- Verde storico
Di cui a Milano:
Parco storico recintato
- Parchi
Di cui a Milano:
Giardino
Parco
Parco centrale
Parco di cintura
- Verde attrezzato
Di cui a Milano:
Parco di cintura
Giardino storico
Giardino recintato

DISTANZA DALLE AREE VERDI



Distanza dalle aree verdi

- 250 m
- 500 m
- 750 m

zone buffer di 250 m, 500m e 750 m
(rispettivamente 5-10-15 min a piedi)

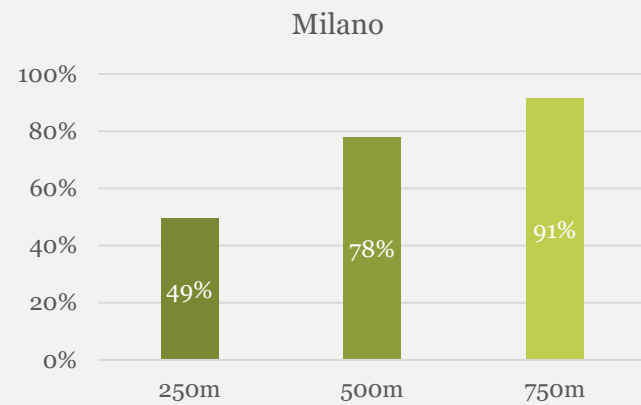
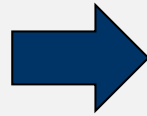
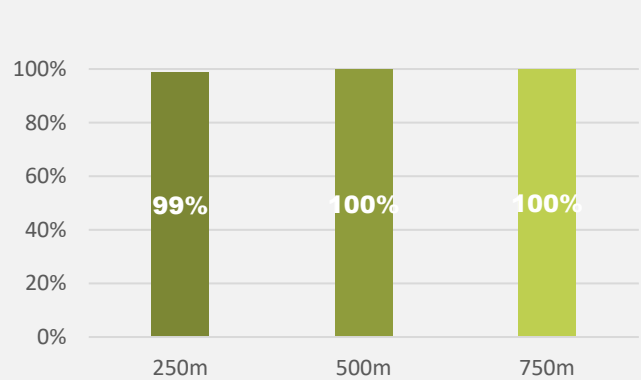


Project “Green Areas & Infrastructures and Public Health outcomes”

Calculation of the population living near green areas VS green areas >15.000 sqm

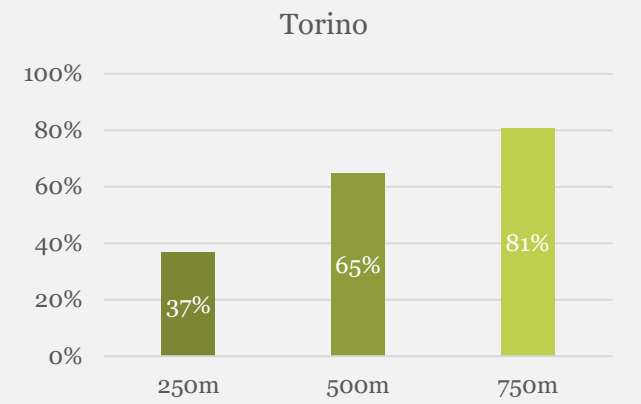
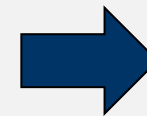
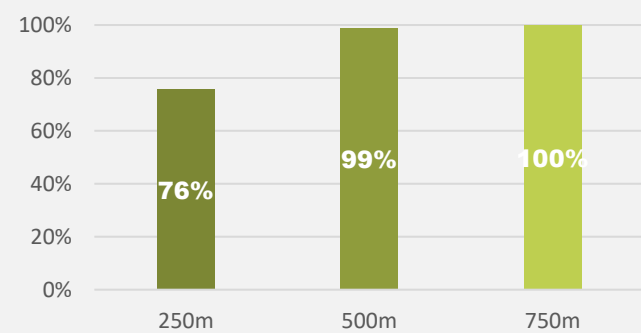
By combining the calculations carried out with the information relating to the resident population in the various census sections (ISTAT 2011 data) it is possible to quantify the population present in the three buffer zones (250 m - 500 - 750 m)

Next Step: Green SHOULD then also be evaluated qualitatively, not only quantitatively



Milano

Milano	Aree Verdi Originali	22.446.564
	Aree Verdi Parchi e Giardini	18.816.209
	Aree Verdi Parchi e Giardini > 15000mq	13.451.032



Torino

Torino	Aree Verdi Originali	14.681.336
	Aree Verdi Parchi e Giardini	8.326.102
	Aree Verdi Parchi e Giardini > 15000mq	6.198.486

The percentage of UGS is not enough to guarantee health benefits in a city.

You also need to understand the distribution, the accessibility, and the size of each individual area...

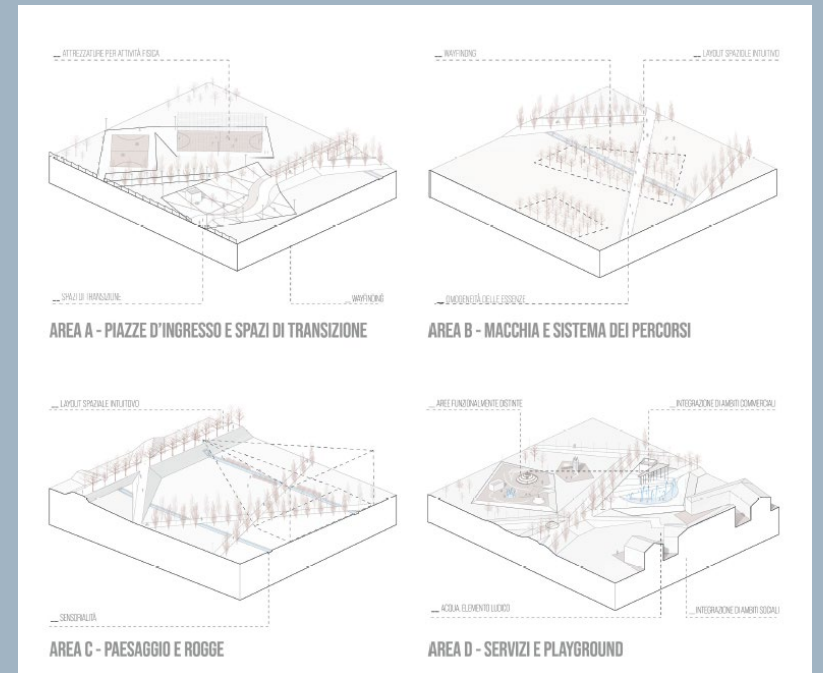
and

What about the quality and the design of UGS?

“Quality Evaluation of UGS in Milan”

RESEARCH QUESTION:

How can we assess the quality of UGS? Are quality green areas in a city equally distributed? How much does size affect the quality of a green area for health purposes and its use?



Quality Evaluation of UGS in Milan

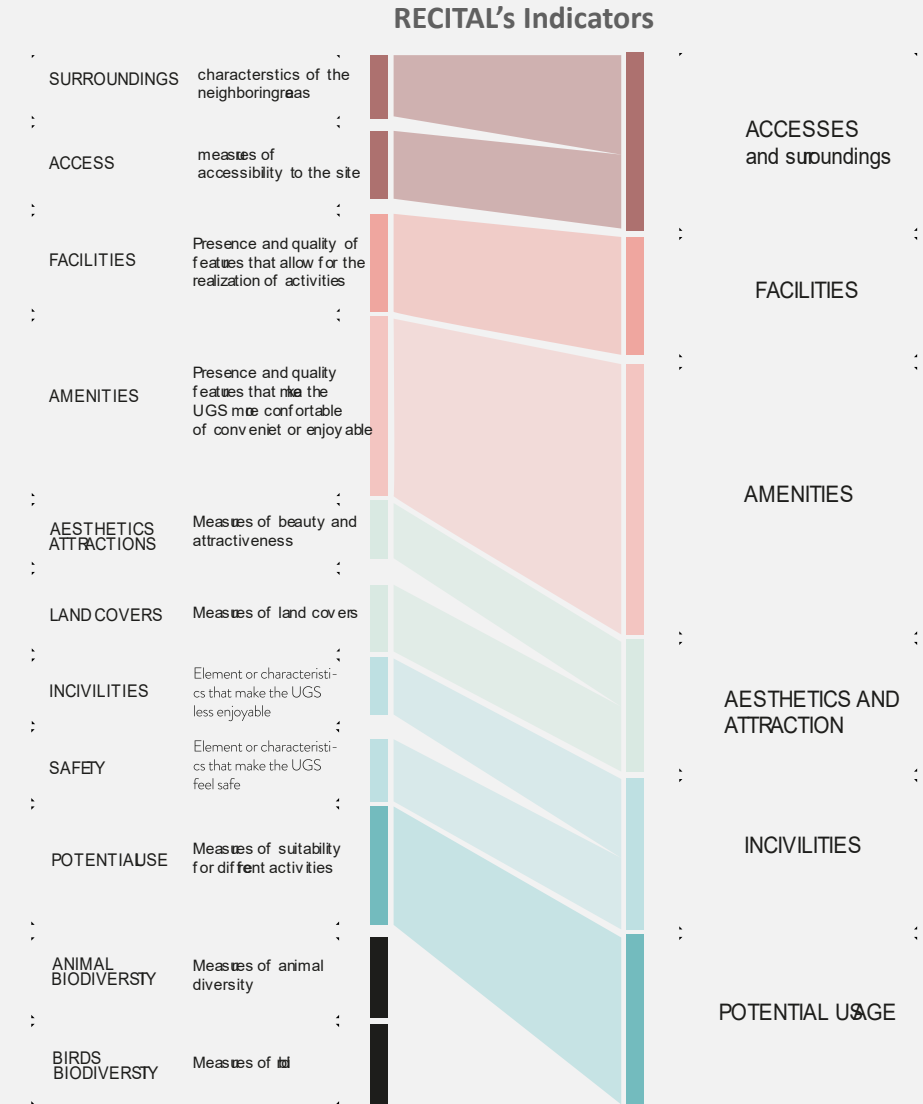
Objective: Analysis of Milan green areas Quality using RECITAL (uRban grEen spaCe qualITy Assessment tool) tool

UGS quality can be defined as the attributes that affect the use and interaction of the population with the UGS, including characteristics (e. g., size or location), features (e.g., facilities or amenities), and fitness for purpose (e.g., maintenance or condition) (Gidlow et al., 2018).

RECITAL (uRban grEen spaCe qualITy Assessment tool) aims to encompass all potentially relevant quality aspects to be useful when analyzing associations between urban green spaces and human health, both if they are well known or have little supporting evidence.

The TOOL

- **90 quality indicators,**
- organized into 11 thematic quality dimensions: (Surroundings, Access, Facilities, Amenities, Aesthetics and Attractions, Incivilities, Safety, Potential usage, Land Covers, Animal biodiversity, and Birds biodiversity)
- The tool is very flexible and can be adapted to the conditions of the environment
- For the Milan analysis, the quality dimensions have been merged **into 6 macro-areas**

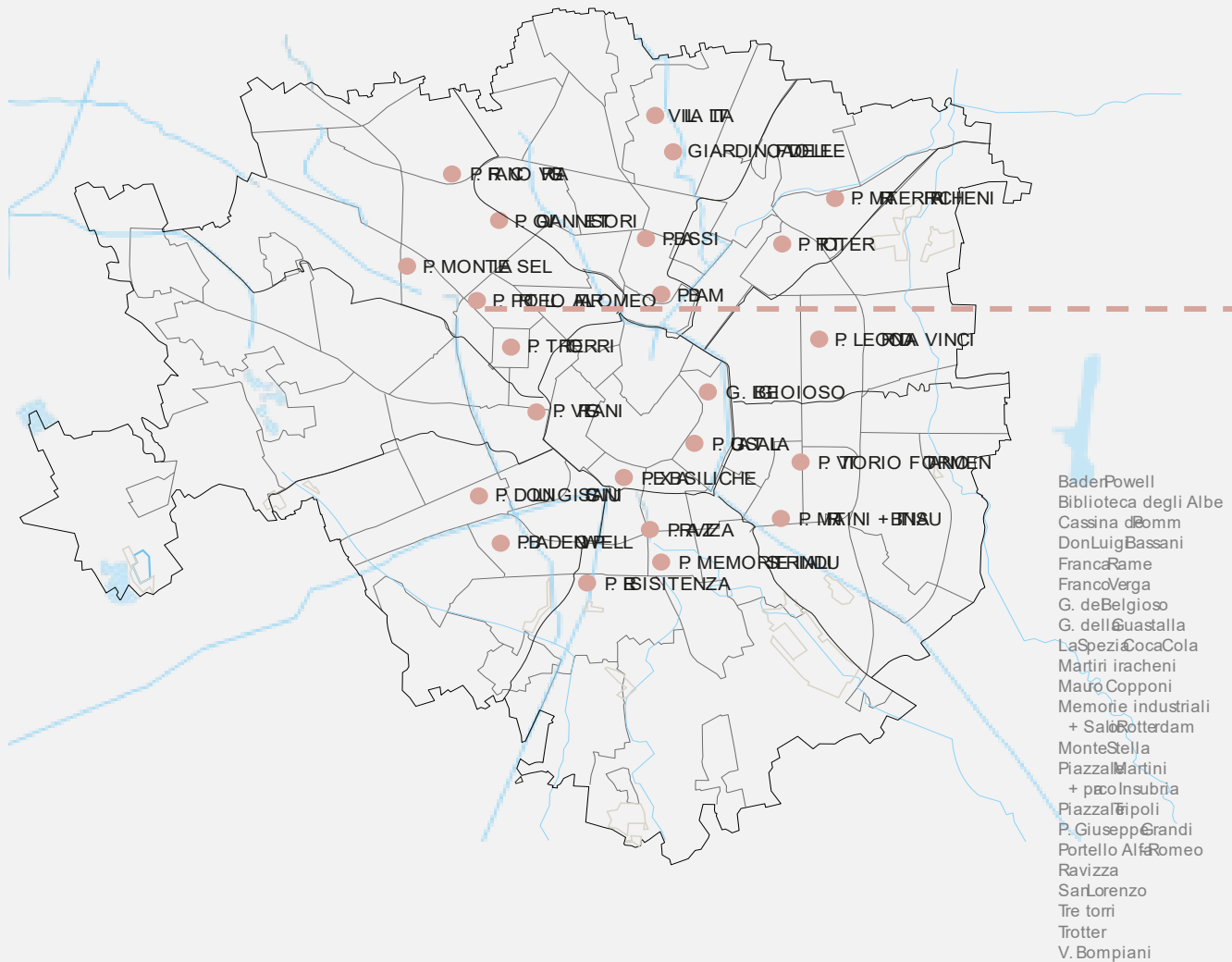


Quality Evaluation of UGS in Milan

Qualitative evaluation of some Urban Green Spaces through the RECITAL tool

Selection of at least 2-3 parks for each municipality with widespread coverage on the territory and comparison with economic and domestic parameters.

Milano's map and selected UGS case studies



PUNTEGGIO RECITAL GLOBALE

CRITICITÀ E NOTE

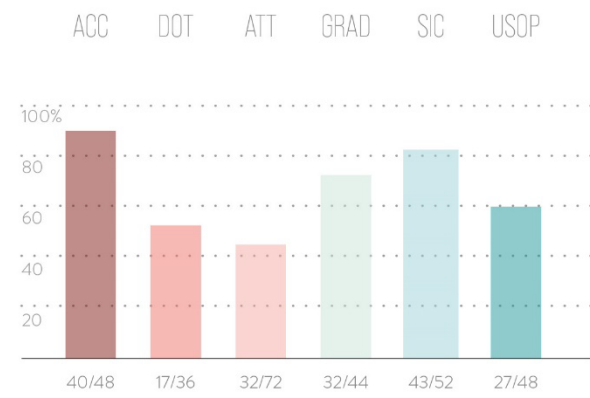
191/300

64% RECITAL

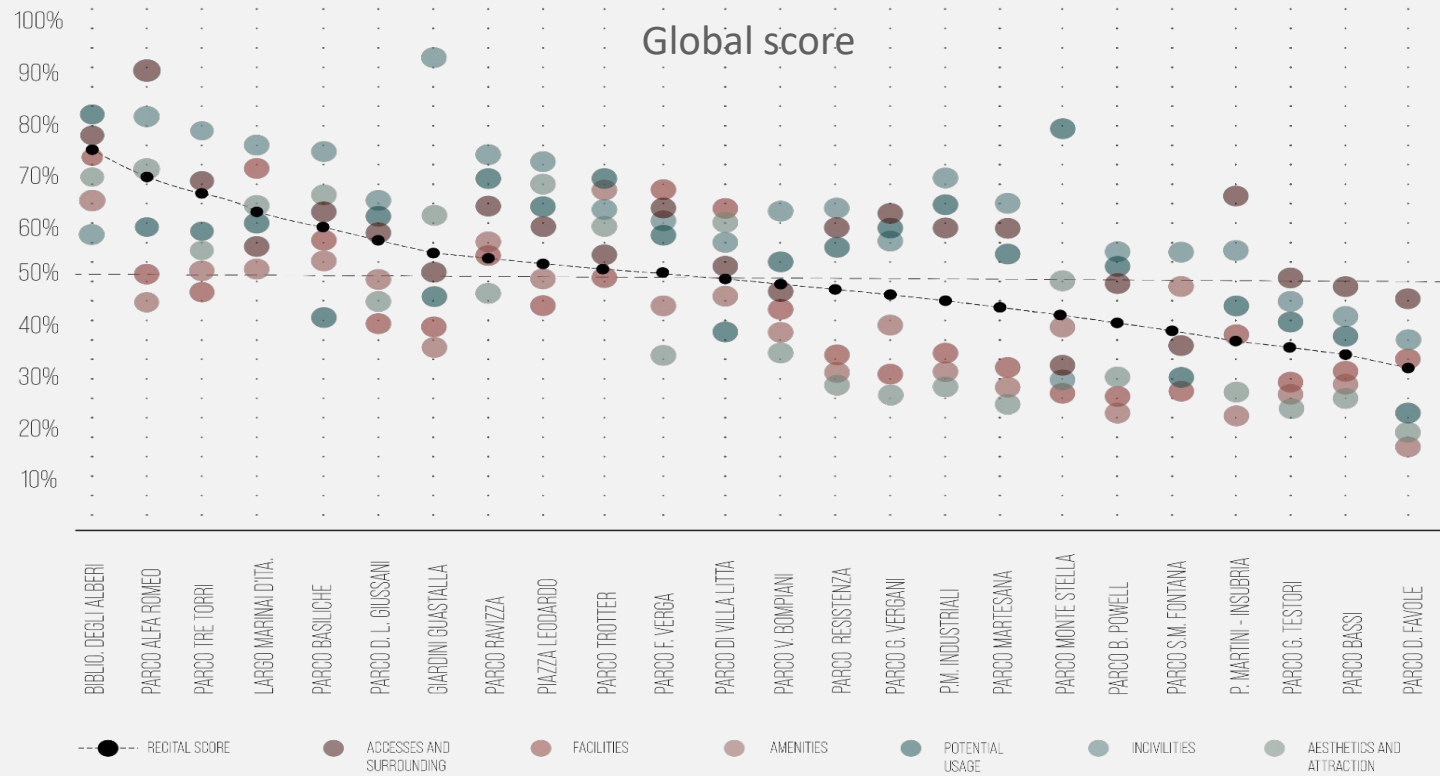
+grande scenografia urbana, con ampie viste e angoli più raccolti
-nella collina "del presente" il terreno ghiaioso limita la fruizione a utenti con difficoltà motorie

- S elevata qualità ambientale forte valenza artistica
- O vicinanza al QT8 ed efficaci collegamenti

- W poca varietà funzionale
- T Scarse densità abitative nel circondario



Quality Evaluation of UGS in Milan



Scoring method

Scoring methods	Scores				
	0	1	2	3	4
Quantity	No presence	Almost no presence	Present in some areas	Mostly present	Always present
Quality	No presence	Poorly maintained and aesthetically unpleasant	Poorly maintained and aesthetically unpleasant	Well maintained and aesthetically pleasing	Exceptionally maintained and aesthetically pleasing
Combined quantity and quality	Not present	Not fit for purpose	Fit but need repair or insufficient amount	Fit and sufficient.	Fit, sufficient, and aesthetically pleasing.
Reversed quantity	Always present	Mostly present	Present in some areas	Almost no presence	No presence
Potential use	Activity completely impossible	Activity possible but with many limitations	Activity possible with some limitations	Good conditions for the activity.	Perfect conditions for the activity.
Braun-Blanquet	5 % or less cover	5 % to 25 % cover	25 % to 50 % cover	50 % to 75 % cover	75 % or more cover

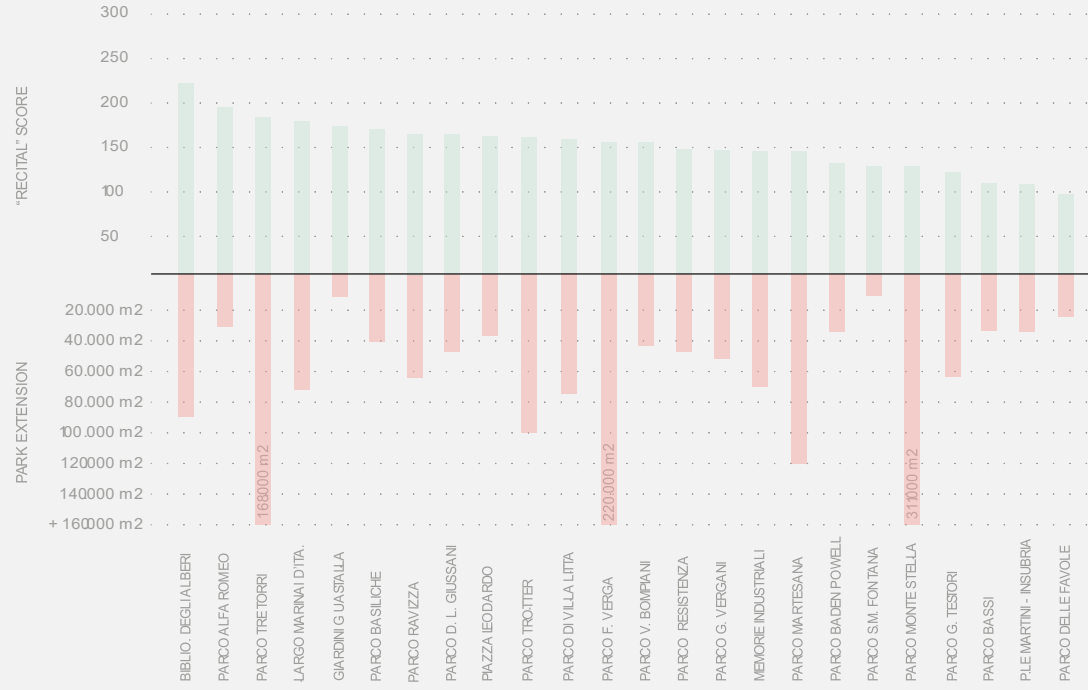
Surroundings	Characteristics of the neighboring area.	Features of the surrounding buildings	Quality
		Facilities	Quality
		Connection to the site	Quality
		Space entries	Combined
		Fences	Combined
Facilities	Presence and quality of features that allow for the realization of specific activities.	Playgrounds	Combined
		Grass pitches	Combined
		Courts	Combined
		Dog playing grounds	Combined
		Skateboard ramps	Combined
		Open space for multichoice usage	Combined
Amenities	Presence and quality features that make the US more comfortable, convenient, or enjoyable.	Water-related facilities	Combined
		Outdoor gym	Combined
		Seating and benches	Combined
		Litter disposal	Combined
		Informational signage	Combined
		Picnic tables	Combined
Aesthetics and Attractions	Measures of beauty and attractiveness.	Drinking fountains	Combined
		Public toilets	Combined
		Shelter	Quantity
		Shade	Quantity
		Dog excrement bins	Combined
		Specific sports amenities	Combined
		Barbecues	Combined
		Café/food	Combined
		Bike parking	Combined
		Vegetable garden	Combined
		Aromatic garden	Combined
		Vines	Combined

Dimension	Dimension description	Item	Type of scoring
Aesthetics and Attractions	Measures of beauty and attractiveness.	Primary surface	Quality
		Material of primary surface	Quality
		Seasonal and high-maint.	Quality
		Year-round vegetation	Quality
Land Covers	Measures of land covers.	Water fountain	Combined
		Public art	Combined
		Historic structures or buildings	Combined
		Public attractions	Combined
Animal biodiversity	Measures of animal diversity.	Grass	Braun-Blanquet
		Soft soilcover (gravel, dirt or similar)	Braun-Blanquet
		Tough soilcover (paved or similar)	Braun-Blanquet
		Rhododera	Quantity
Birds biodiversity	Measures of bird diversity.	Statodora	Quantity
		Rodentia	Quantity
		Chiroptera	Quantity
		Other animals	Quantity
Access	Measures of accessibility to the site.	Reptiles and amphibians	Quantity
		Charadriiformes	Quantity
		Falconiformes	Quantity
		Palabiformes	Quantity
Incivilities	Elements or characteristics that make the US less enjoyable.	Psittaciformes	Quantity
		Coraciiformes	Quantity
		Piciformes	Quantity
		Passeriformes	Quantity
Safety	Elements or characteristics that make US feel safe.	Ciconiformes	Quantity
		Walking paths	Combined
		Bike lanes	Combined
		Car parking spaces	Quantity
Potential usage	Measures of suitability for different activities.	Handicapped adaptations	Combined
		Slope	Quantity
		General litter	Reversed quantity
		Alcohol use	Reversed quantity
Facilities	Presence and quality of features that allow for the realization of specific activities.	Other drugs	Reversed quantity
		Sex work	Reversed quantity
		Vandalism	Reversed quantity
		Nuisance	Reversed quantity
Aesthetics and Attractions	Measures of beauty and attractiveness.	Scells	Reversed quantity
		Lighting	Combined
		Visibility from ground level	Quality
		Visibility from surrounding buildings	Quality
Safety	Elements or characteristics that make US feel safe.	Car safety	Quantity
		Safety from bikes	Quantity
		CCV	Quantity
		Sports in courts	Potential use
Potential usage	Measures of suitability for different activities.	Informal games	Potential use
		Walking or running	Potential use
		Children's play	Potential use
		Conservation or biodiversity	Potential use
Potential usage	Measures of suitability for different activities.	Enjoy landscape	Potential use
		Dog walking	Potential use
		Social activities	Potential use
		Relaxing	Potential use
Potential usage	Measures of suitability for different activities.	Cycling	Potential use
		Water sports	Potential use
		Swimming	Potential use
		Dog play	Potential use

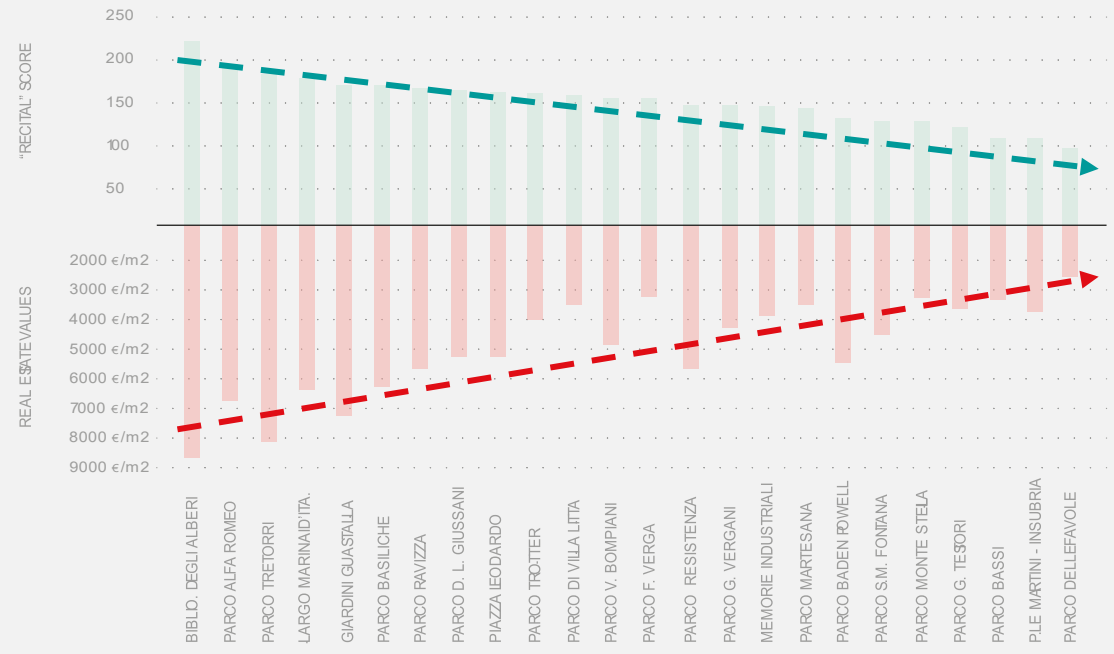


Quality Evaluation of UGS in Milan

Comparison with UGS surface / extension



Comparison with real estate values by italian Osservatorio Mercato Immobiliare (OMI)



“New green infrastructure in Milan Survey on use”

RESEARCH QUESTION:

How much do the uses of public space change with the opening of a new green infrastructure? What are the most popular and used areas?

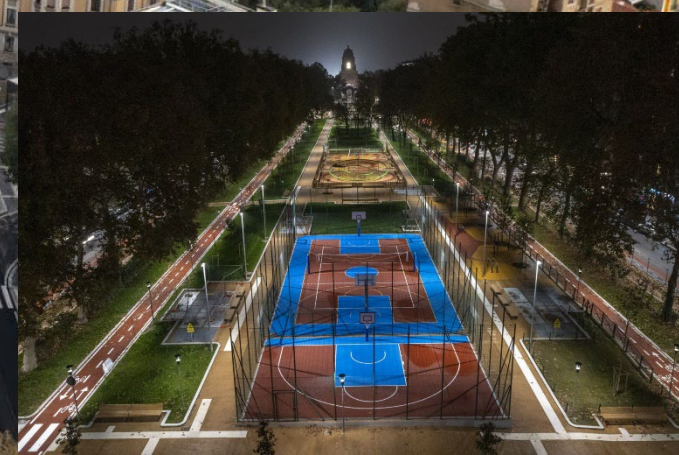
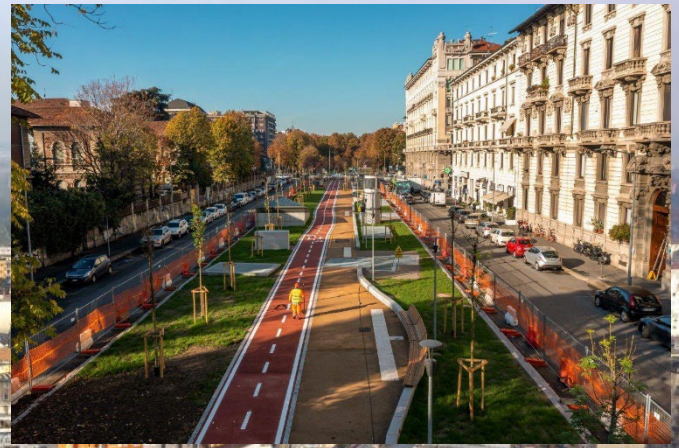
Prof. MADDALENA BUFFOLI

Design & Health Lab, Dipartimento ABC

Politecnico di Milano

maddalena.buffoli@polimi.it

Regeneration project: Viale Argonne-Corso Plebisciti e Corso Indipendenza
2023 con la realizzazione della MM4



“New green infrastructure in Milan - Survey on use”

Survey of changes in use in the population following the opening of a new green infrastructure:

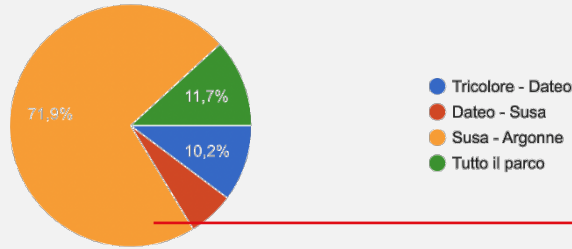
In particular, the questionnaire investigated the following aspects:

Frequency

Type of use (sport, leisure, passage)

Busy areas

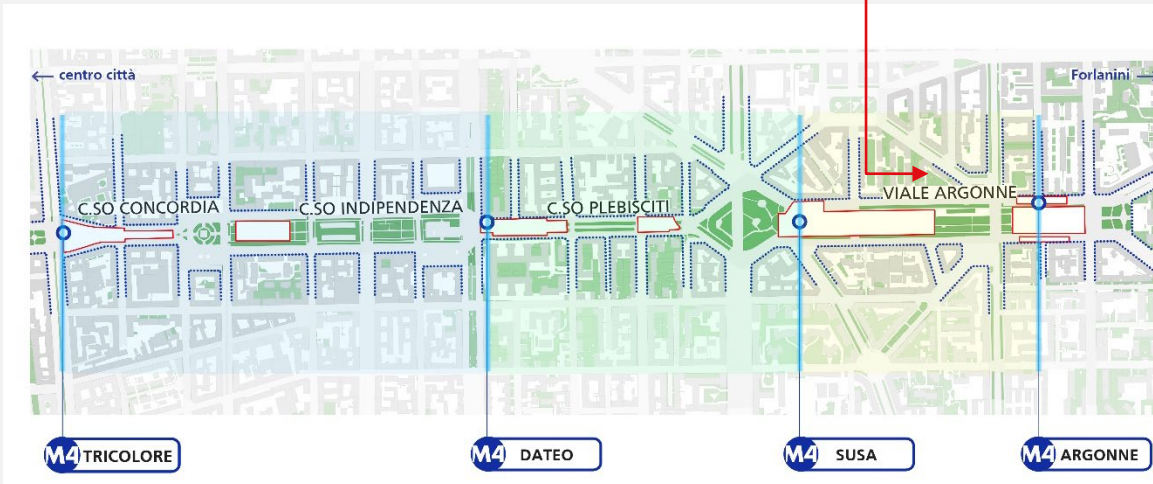
Level of pleasantness of the spaces



63,8% asks for **more trees** for shading during daylight hours

The most frequented area is the one richest in

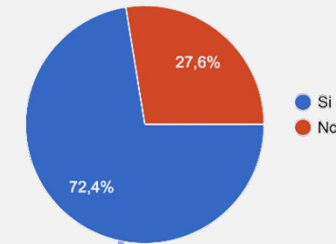
sports equipment



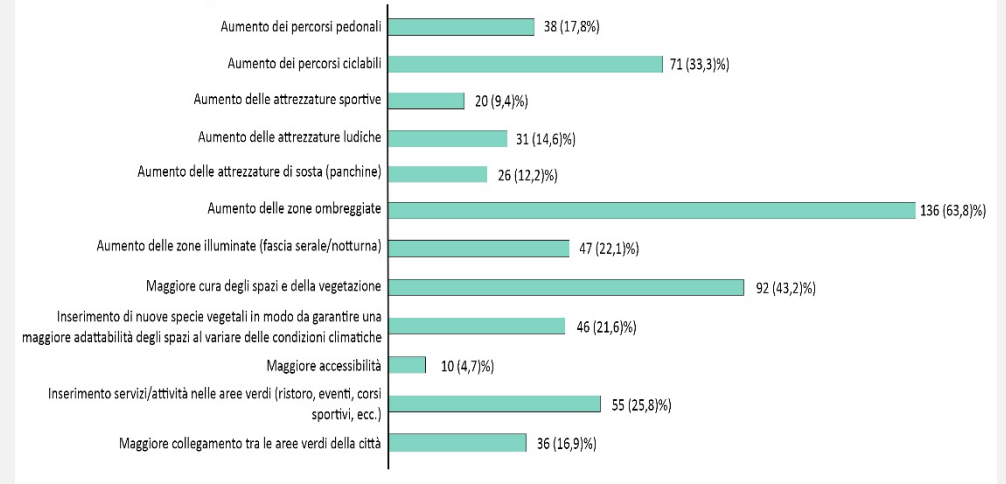
It's a **neighborhood park**

81.6% reach the park on foot

14.8% reach the park by bike



The **72.4%** increased their time spent in outdoor public spaces after the park opened, with increased levels of sports activity and leisure time.



CONCLUSION

UGS have Positive impacts on physical and mental health, wellbeing, social cohesion, physical activity, environmental sustainability and climate change and much more...

***if nature was a pill, it would be the most prescribed
medicine***

**It is our responsibility to make sure that it's well design, Managed, and available locally for
all**

SESSION n°3: CASE STUDIES HEALTHCARE DESIGN

**Design
& Health**
International Academy for Design and Health

Milano, Italy 11-14 April 2024

Design & Health

13TH WORLD CONGRESS & EXHIBITION

REVITALIZING HEALTH BY SALUTOGENIC DESIGN

Healthy environment | Healthy people

Urban Green Space Design and Impacts

Maddalena Buffoli

Design & health Lab, DABC, Politecnico di Milano

maddalena.buffoli@polimi.it



**POLITECNICO
MILANO 1863**

DIPARTIMENTO DI ARCHITETTURA,
INGEGNERIA DELLE COSTRUZIONI
E AMBIENTE COSTRUITO

**Progettare
per la Sanità**
Organizzazione, tecnologia, architettura

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