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20-23 March 2018

The Hotel Windsor,
Melbourne, Australia



MAKING HIGH DENSITY CITIES HEALTHY THROUGH GREENING

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Clean Air and Urban Landscapes Hub, National Environmental
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Centre for
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Clean Air and
Urban Landscapes
Hub

National Environmental Science Programme

AIPH MEETING

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Sustainable Development Goals 2030



- *By 2030, almost 60 per cent of the world's population will live in urban areas*
- *95 per cent of urban expansion in the next decades will take place in developing world*

SDG 11: MAKE CITIES INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

- By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries
- By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
- **By 2030, provide universal access to safe, inclusive and accessible, green and public spaces**, in particular for women and children, older persons and persons with disabilities
- Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning



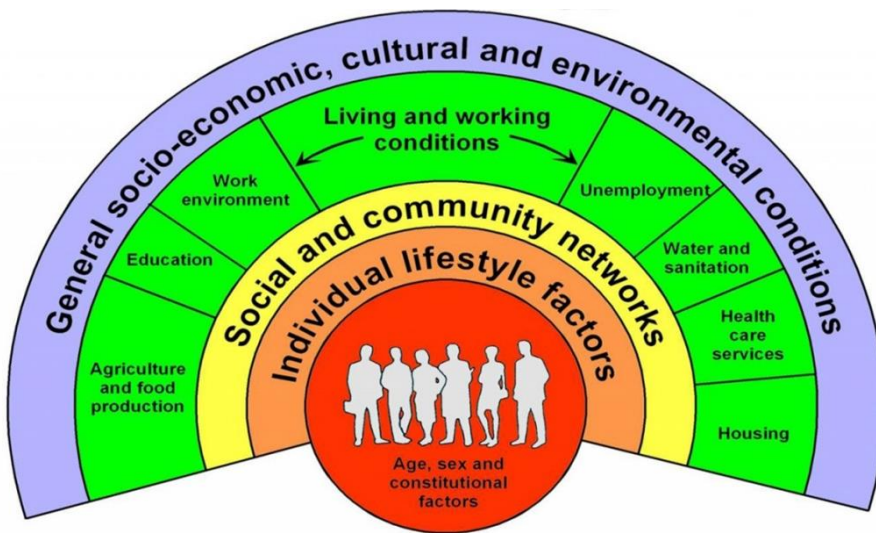
❖ *Importance of indicators for measuring, monitoring, reporting and engaging*

What is liveability?

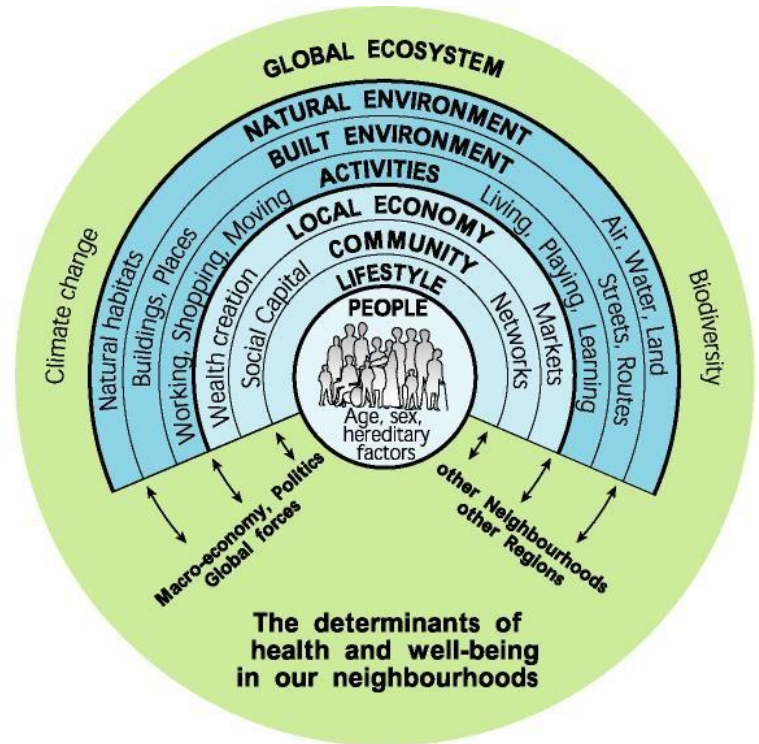
'Safe, socially cohesive and inclusive, and environmentally sustainable; with affordable and diverse housing linked via public transport, walking, and cycling infrastructure to employment, education, public open space, local shops, health and community services, and leisure and cultural opportunities'
(Lowe et al, 2013)

GREENSPACE & LIVEABILITY

The importance of place in health



Source: Dahlgren and Whitehead, 1991



The determinants of health and well-being in our neighbourhoods

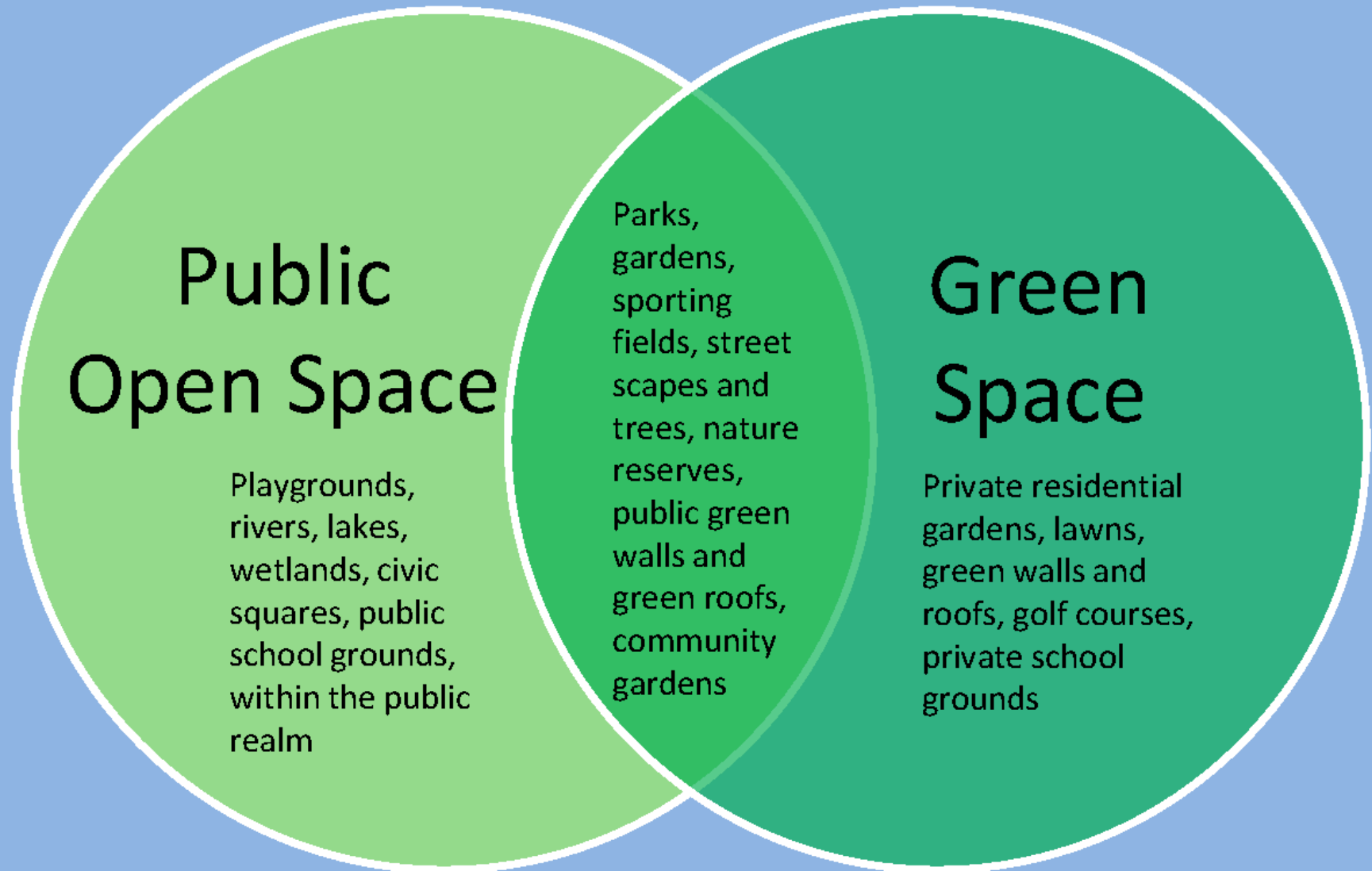
THE HISTORY OF PARKS

19th Century Parks “Lungs of the City”



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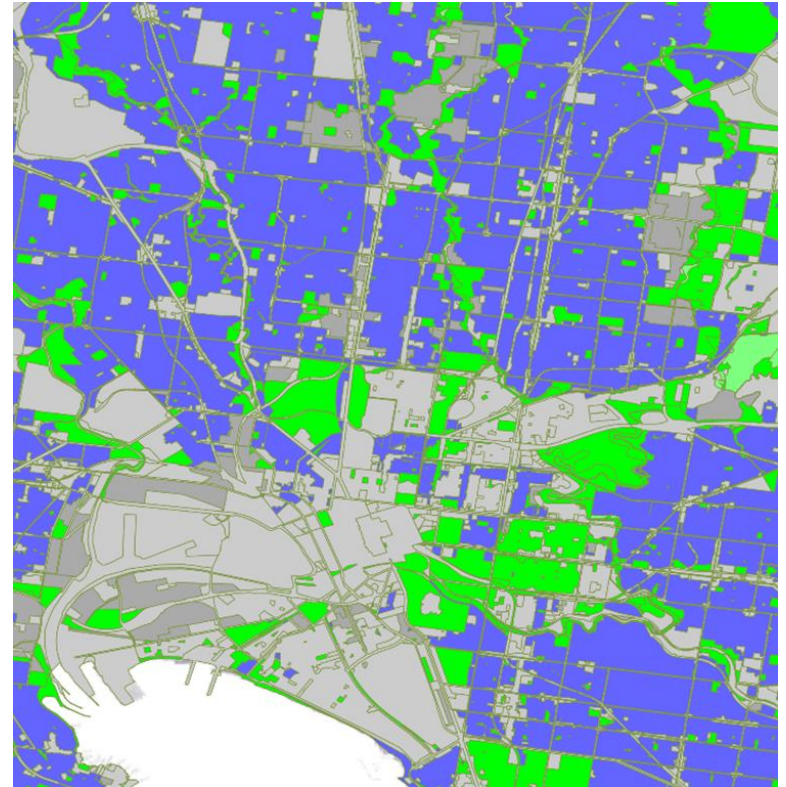
WHAT IS GREENSPACE?



LAND USE vs LAND COVER

Land use dominates in urban planning & health

- Planning zones and land use
- Public tenure
 - Parks/Conservation reserves
 - Roads/Streetscapes
- Private tenure
 - Residential (gardens)
 - Golf courses
 - Green roofs
 - Business/Industrial/Commercial



LAND USE vs LAND COVER

Land cover dominates in ecology

- **Built form**
 - Roads, buildings
- **Vegetation**
 - Vegetation structure
 - Tree vs turf
 - Composition
 - Diversity
- **Measurement & Indicators**
 - NDVI, Tree Canopy



BENEFITS OF GREENSPACE

Health Benefits

- Evidence of physical health benefits include physical activity, obesity, morbidity, faster surgical recovery and increased pain tolerance.
- Evidence of mental health benefits include stress reduction, mental fatigue recovery, better general mental health, reduced depression, better mental function and concentration and child development outcomes.
- Evidence of social outcomes include increased social interactions and social cohesion, reduced loneliness, greater sense of community and reduced aggression, incivilities and crime.



Green cities are healthier cities!

BENEFITS OF GREENSPACE

Ecological Services

- Evidence of benefits to climate and urban heat island (UHI), hydrological processes, pollination, carbon storage, noise reduction, air quality, storm protection and maintenance of healthy soils.
- Evidence of benefits to biodiversity of birds, arthropods, amphibians, conservation of native and threatened species and the implications of artificial night light.
- Environmental disservices of green spaces have also been identified ranging from damage to infrastructure (e.g. tree roots) to unwanted shade, mess from leaves/fruits, allergens, animals, bushfire and floods.

IMPORTANCE OF CONTEXT

- Physical environment variables that influence green spaces include climate, irrigation, urbanisation, social context and demographics, population density, socioeconomic inequity, culture, age and gender.
- Importance of POS and green spaces with increasing densities.
- Higher quality POS include parks with grassed areas, amenities, dog-related facilities and off-lead areas, gardens, walking paths, water features and wildlife. Better quality POS more beneficial and more likely to be used.
- Quality POS should also support ecosystem services and biodiversity with vegetation and soil determining the capacity to support biodiversity.
- Different attributes provide different benefits



- People reporting access to high **quality parks** almost twice (OR 1.79) as likely to visit their park frequently (i.e. at least once a week).

Frances et al., 2012.

	Benefits From Green Open Space				
ATTRIBUTES OF POS	PHYSICAL HEALTH	MENTAL HEALTH & WELLBEING	SOCIAL & CULTURAL	ECOSYSTEM SERVICES	BIODIVERSITY
Trees	Physical activity: Trees – provide shade, and create more attractive POS which encourages walking.	Perceptions of safety: There can be public concerns about falling tree limbs.	Sense of community: Street trees encourage a sense of community.	Cooling: Trees canopy coverage is a good predictor of the cooling effects of urban green space.	Habitat for native animals: Old trees with hollows offer habitat for birds and mammals, and trees more generally offer habitat for arthropods.



Quality Green Space Supporting Health, Wellbeing and Biodiversity:

A Literature Review

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Thank you!

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