



University  
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European Centre for  
Environment & Human Health

# Green/blue infrastructure and health inequalities

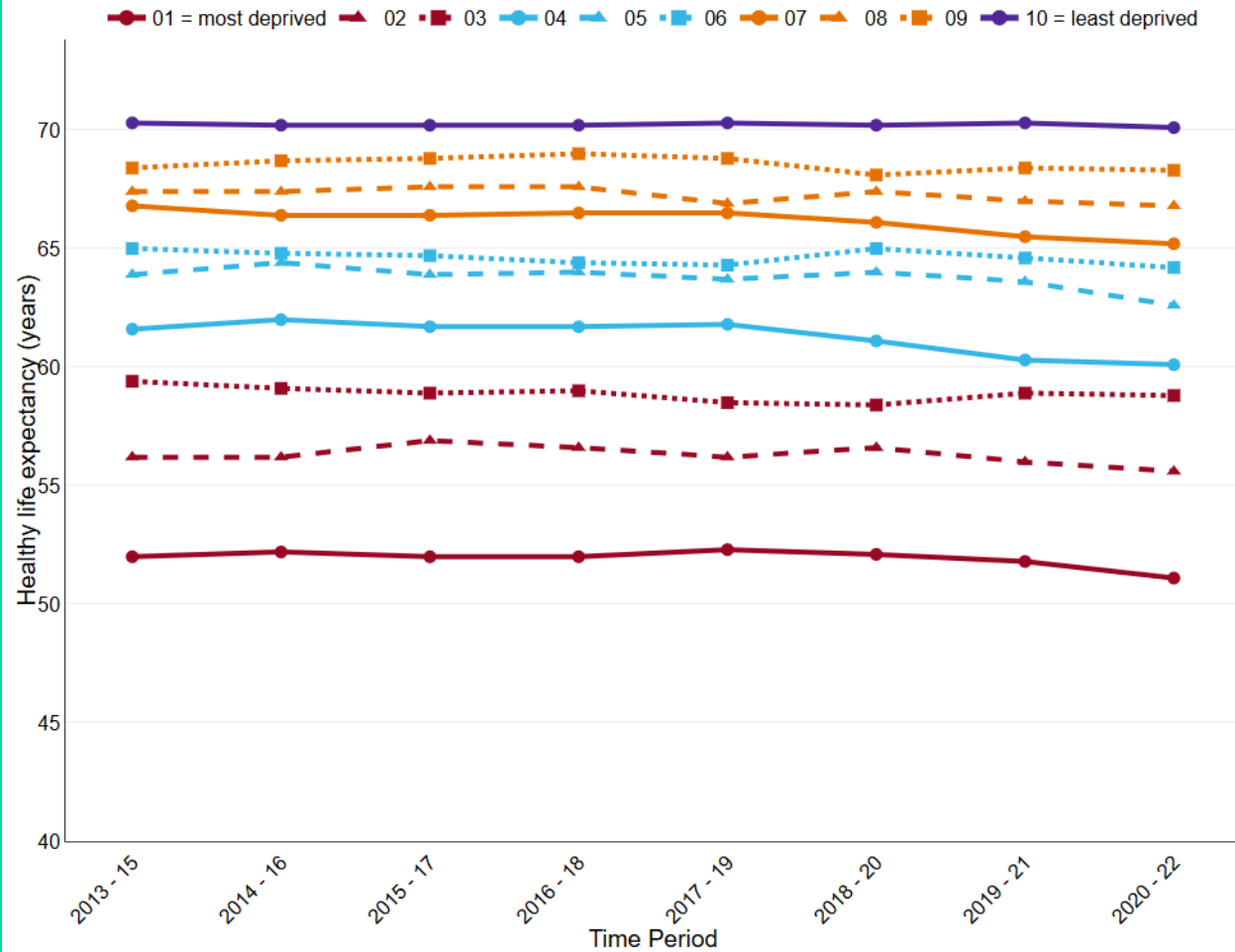


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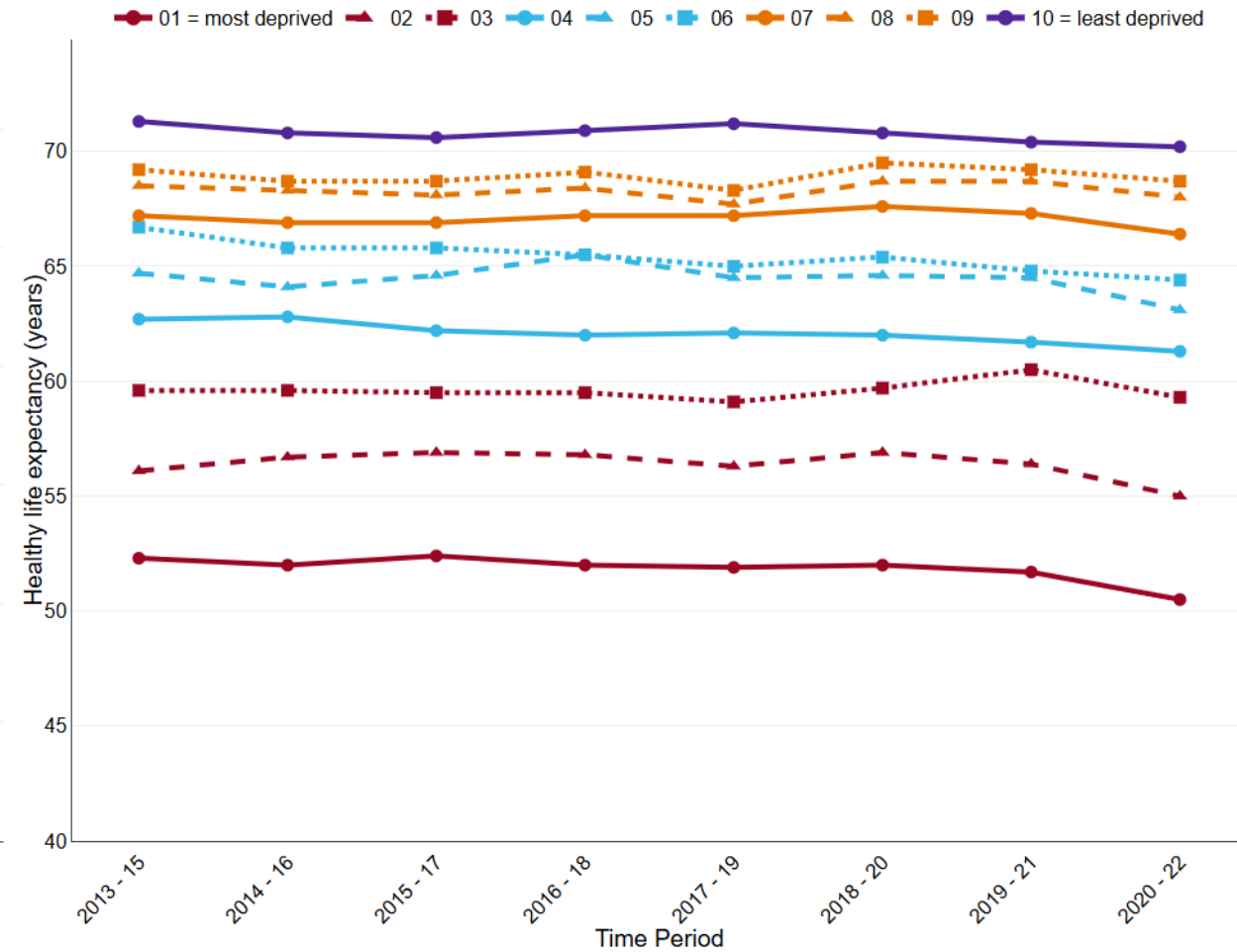
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Research Fellow

# Health Inequalities

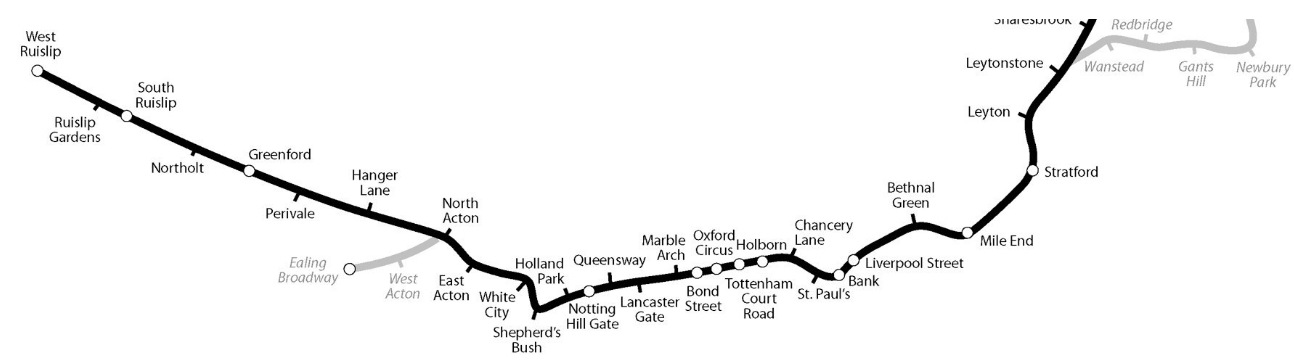
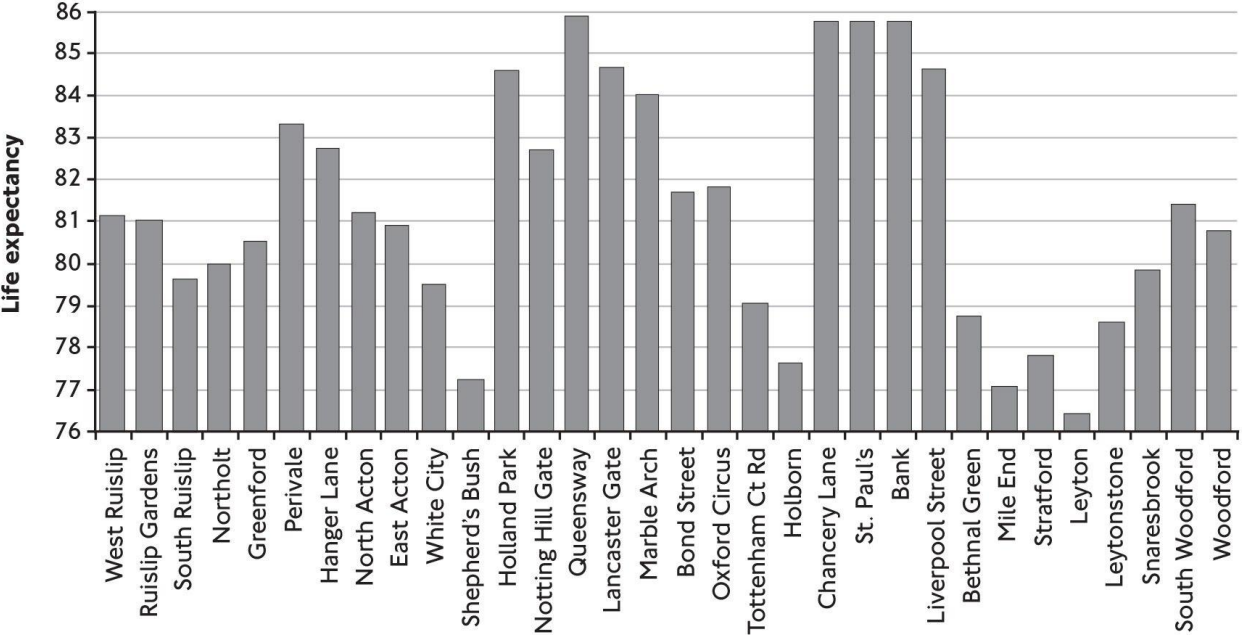
Healthy life expectancy at birth - Male, deprivation decile, England, 2013 - 15 to 2020 - 22



Healthy life expectancy at birth - Female, deprivation decile, England, 2013 - 15 to 2020 - 22

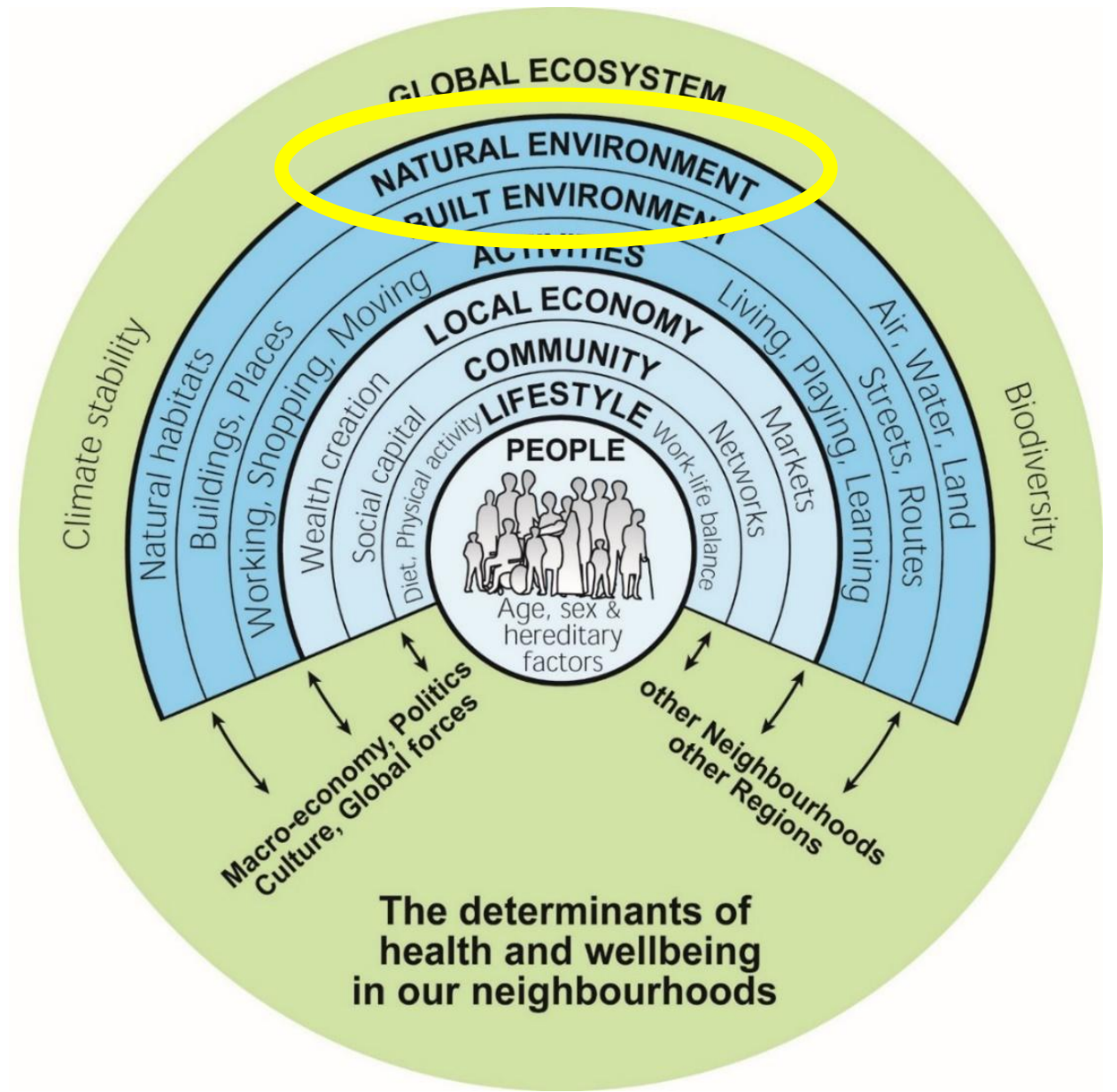


# Inequalities arise at all scales



<http://www.dannydorling.org/books/centralline/>

# Drivers of health and health inequalities



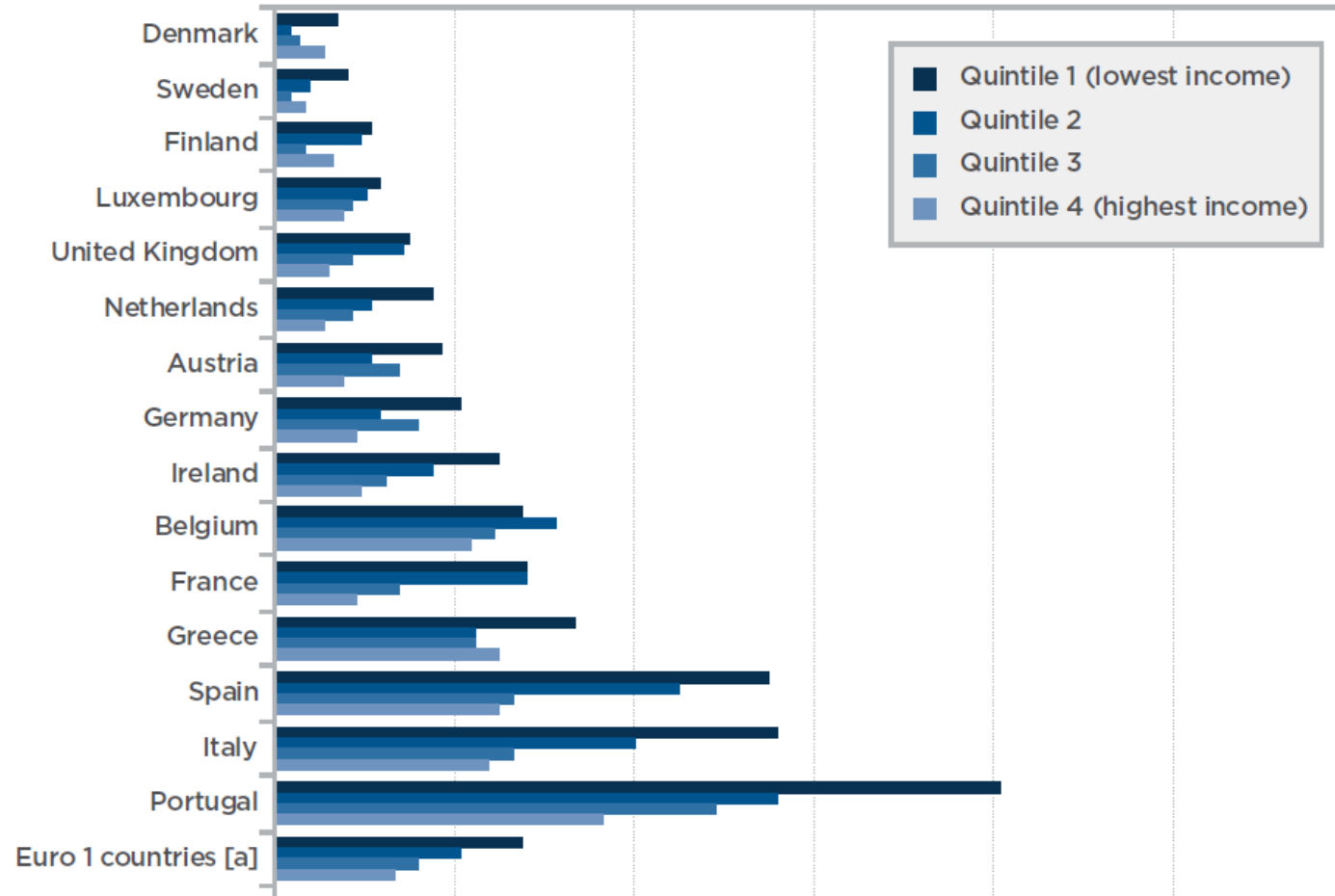
# How can green/blue infrastructure benefit health?

- ‘Restoration’ e.g.
  - Stress recovery
  - Cognitive restoration
- ‘Building capabilities’ e.g.
  - Physical activity
  - Social cohesion
- ‘Harm reduction’ e.g.
  - Air pollution
  - Heat



# Environmental inequality

**Fig. 40.** Prevalence of difficulty accessing recreational or green areas by income quartile (2016)



<https://www.euro.who.int/en/publications/abstracts/environmental-health-inequalities-in-europe.-second-assessment-report-2019>

# 1. Inequalities in access /exposure to nature

- Many studies indicate unequal access to nature
- But it's not always straightforward, some studies indicate the opposite of what we'd expect – e.g. better geographical accessibility amongst lower socio-economic groups
- Consideration of **quality** and wider drivers of **use** of green/blue spaces is likely to be critical here

# Inequalities in access to nature

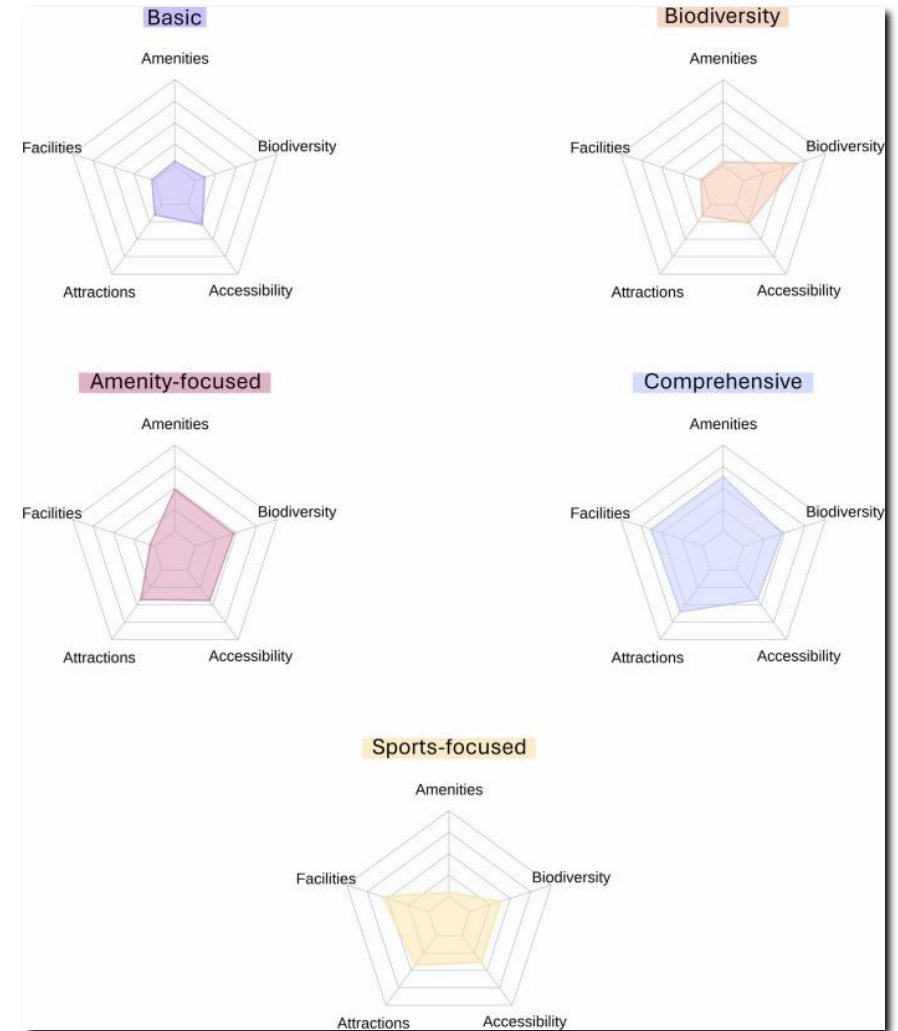
Bristol, analysis of Quality of Life survey:

“Respondents in more deprived areas lived closer to greenspaces, but reported poorer perceived accessibility, poorer safety, and less frequent use.”



# Park types & inequalities

- GB parks (OS green space map) grouped by functions
  - Higher proportion of ‘Sports-focused’ parks in more deprived areas
  - Lower proportion of ‘Amenity-focused’ parks (cafes, toilets etc.) and ‘Biodiversity’ parks in more deprived areas



# Who doesn't visit nature?

- Natural England MENE data (n~60k)
- Infrequent visitors (<1 x per month) were more likely to be:
  - Female
  - Older
  - In poor health
  - Lower socioeconomic status
  - Ethnic minority
  - Live in relatively deprived areas
  - Reside in areas with less neighbourhood greenspace

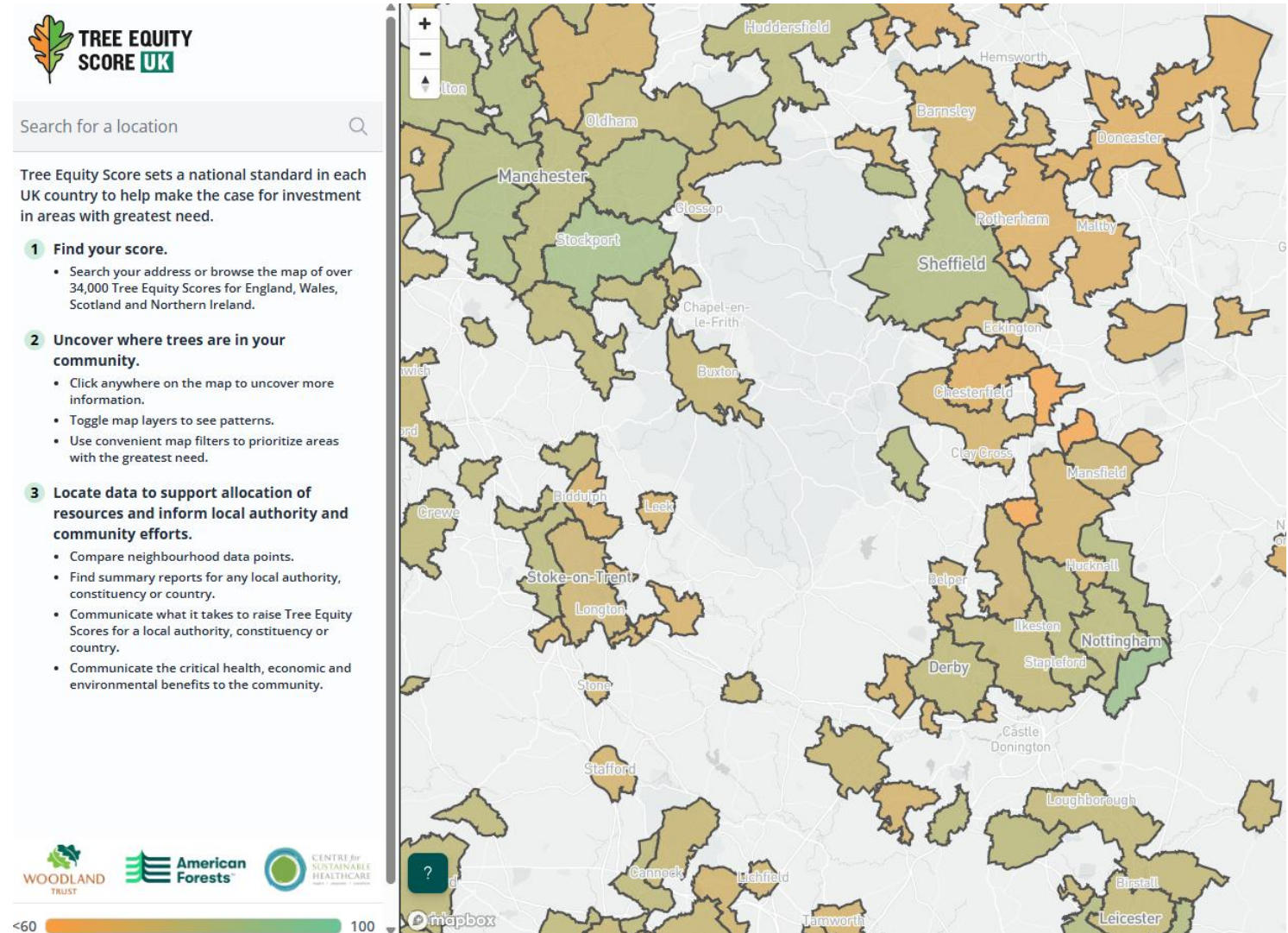
# And Why?

## Key reasons for not visiting nature

- Time (too busy at home/work)
- Poor health and disabilities
- Motivational
- Overcrowding
- Cleanliness
- Travel barriers (time, cost)
- Costs
- Facilities
- Weather
- Social & cultural norms
- Safety
- Stigma & discrimination

# Inequalities in GBI exposure

- Some health benefits don't require 'access' e.g. urban heat mitigation by trees
- But benefits are often still unfairly distributed



<https://uk.treeequityscore.org/map>

## 2. Equigenesis – ‘creation of equality’

- Some studies indicate **disproportionate health benefit** of natural environments for lower socio-economic groups
- Are good quality living environments able to mitigate some of the damaging effects of socio-economic deprivation? [the **equigenesis** hypothesis]

# Greenspace & Inequalities in Mortality

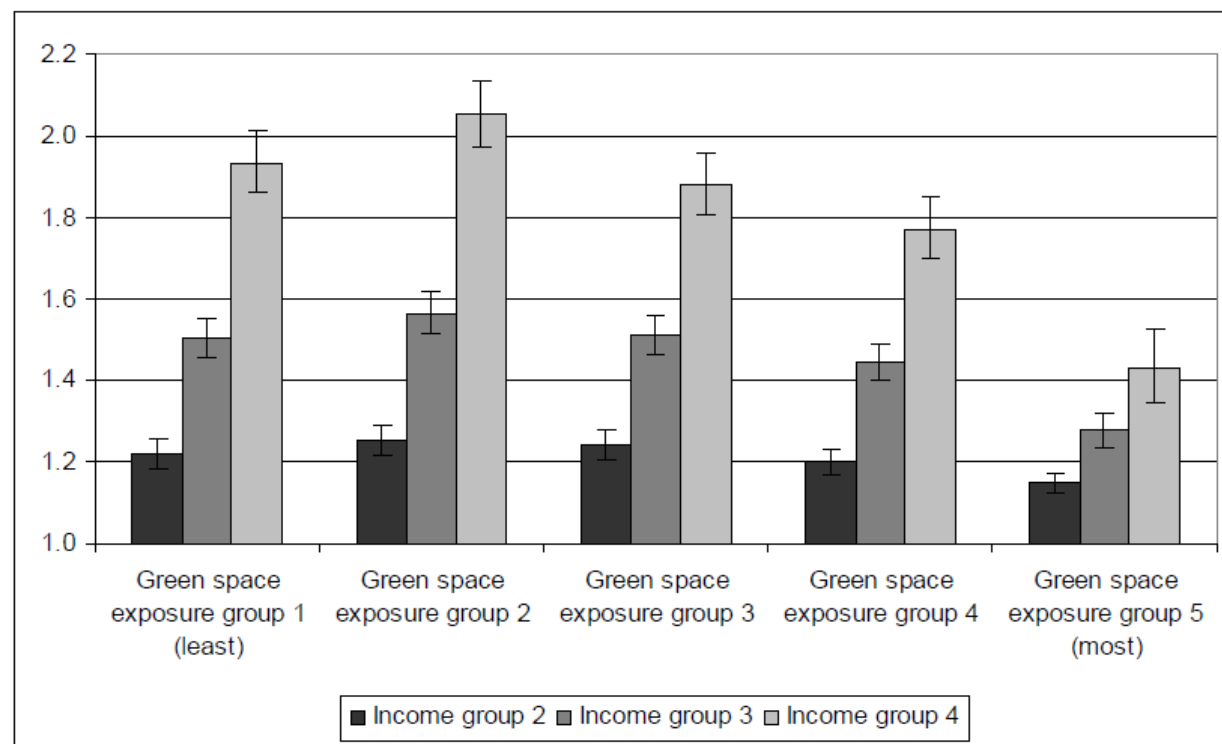
- Income inequality gradient clear – highest mortality in most deprived quartile
- Gradient is weaker in greener areas

→ Mortality differential (highest-lowest income):

+90% in least green areas

+40% in most green areas

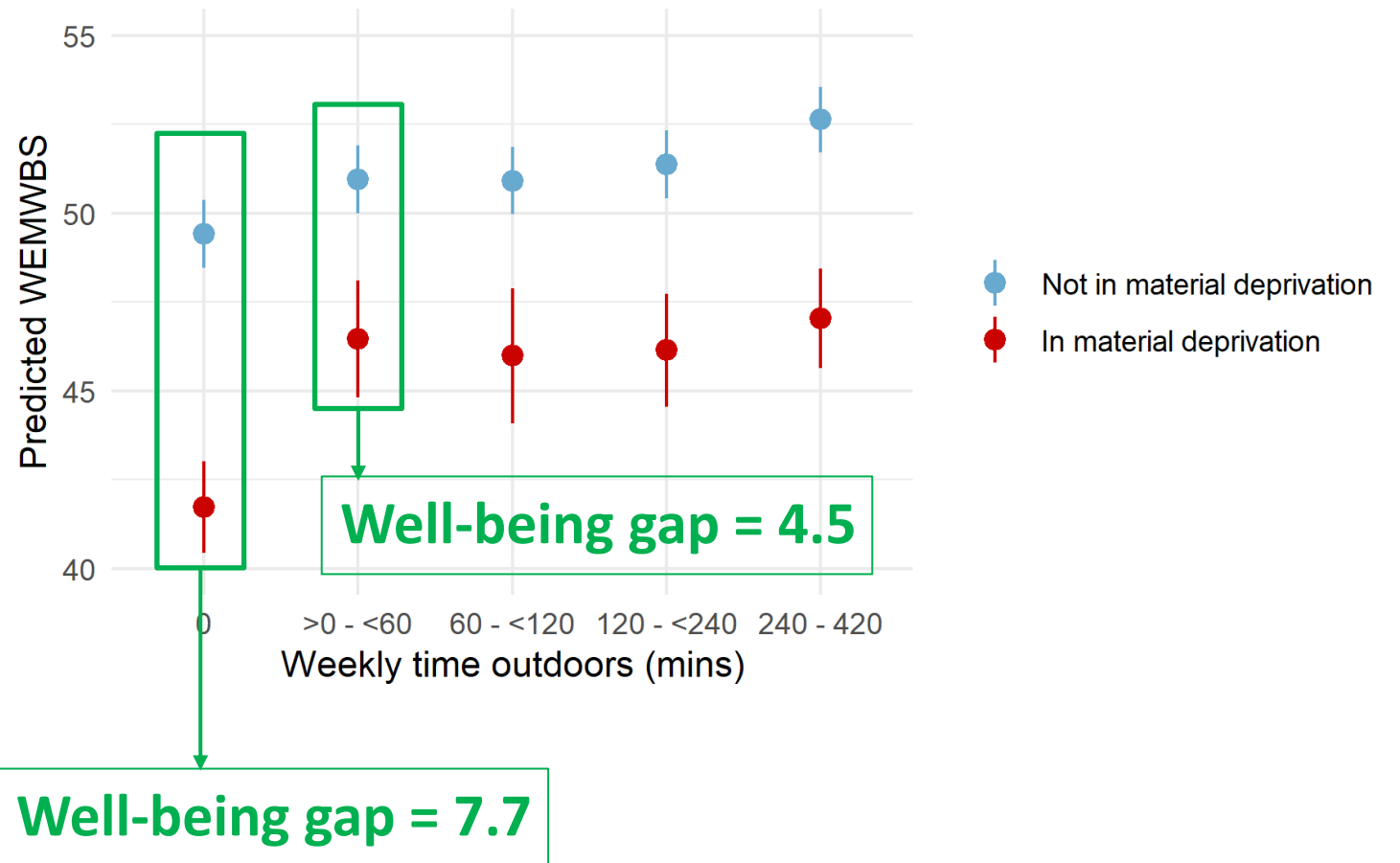
Figure 2: Incidence rate ratios (with 95% confidence intervals) for all-cause mortality in income deprivation quartiles 2-4, relative to income deprivation quartile 1 (least deprived), stratified by green space exposure group



# Time in nature can narrow the well-being gap

## Equigenesis?

Maybe good quality living environments can buffer the impact of socio-economic inequality on health inequality.



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Garrett JK, et al. Visiting nature is associated with lower socioeconomic inequalities in well-being in Wales. Scientific Reports. 2023;13(1):9684. <https://doi.org/10.1038/s41598-023-35427-7>

# 3. Unintended consequences

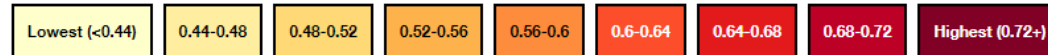
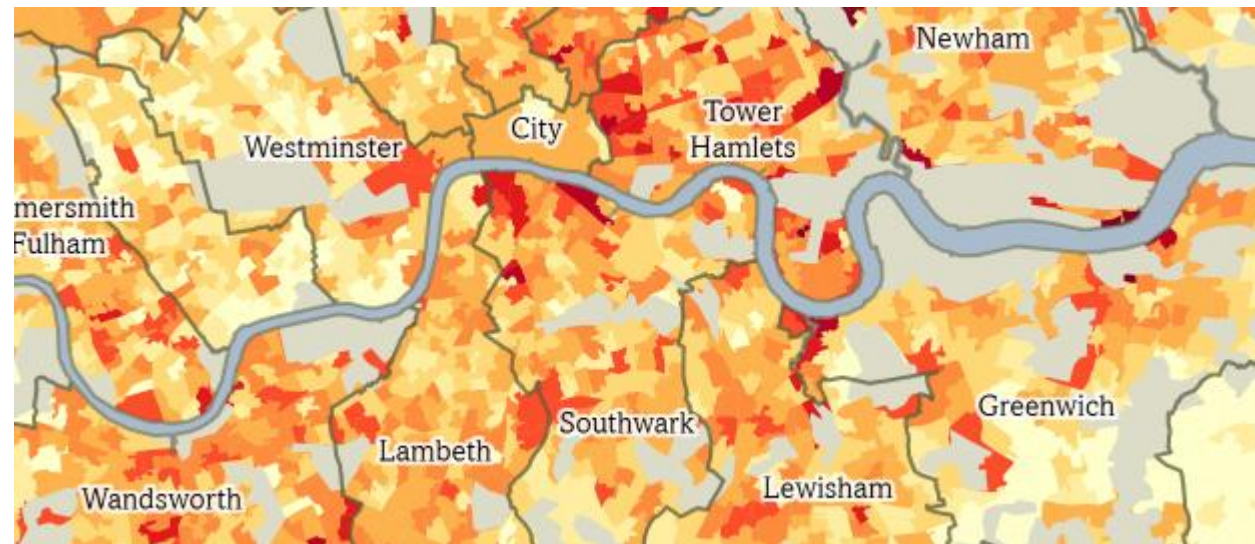
- Improving environments – e.g. urban greening, water quality improvements – can lead to gentrification of neighbourhoods
- This has been going on for a long time



"The Silent Highwayman" (1858). Death rows on the Thames, claiming the lives of victims who have not paid to have the river cleaned up.

[https://en.wikipedia.org/wiki/Great\\_Stink](https://en.wikipedia.org/wiki/Great_Stink)

Gentrification Index for Small Areas in London (2010-16)



<https://www.trustforlondon.org.uk/data/gentrification-across-london/>

# Green/blue infrastructure risks?

- Consider potential health risks e.g.
  - Injury/accident
  - Chemical/biological exposures
  - Vector-borne disease (e.g. ticks, mosquitoes)
- Evaluate and mitigate
- Communicate risks appropriately



## Cornwall: 'Unbearable' stench of sewage on beauty spot beach

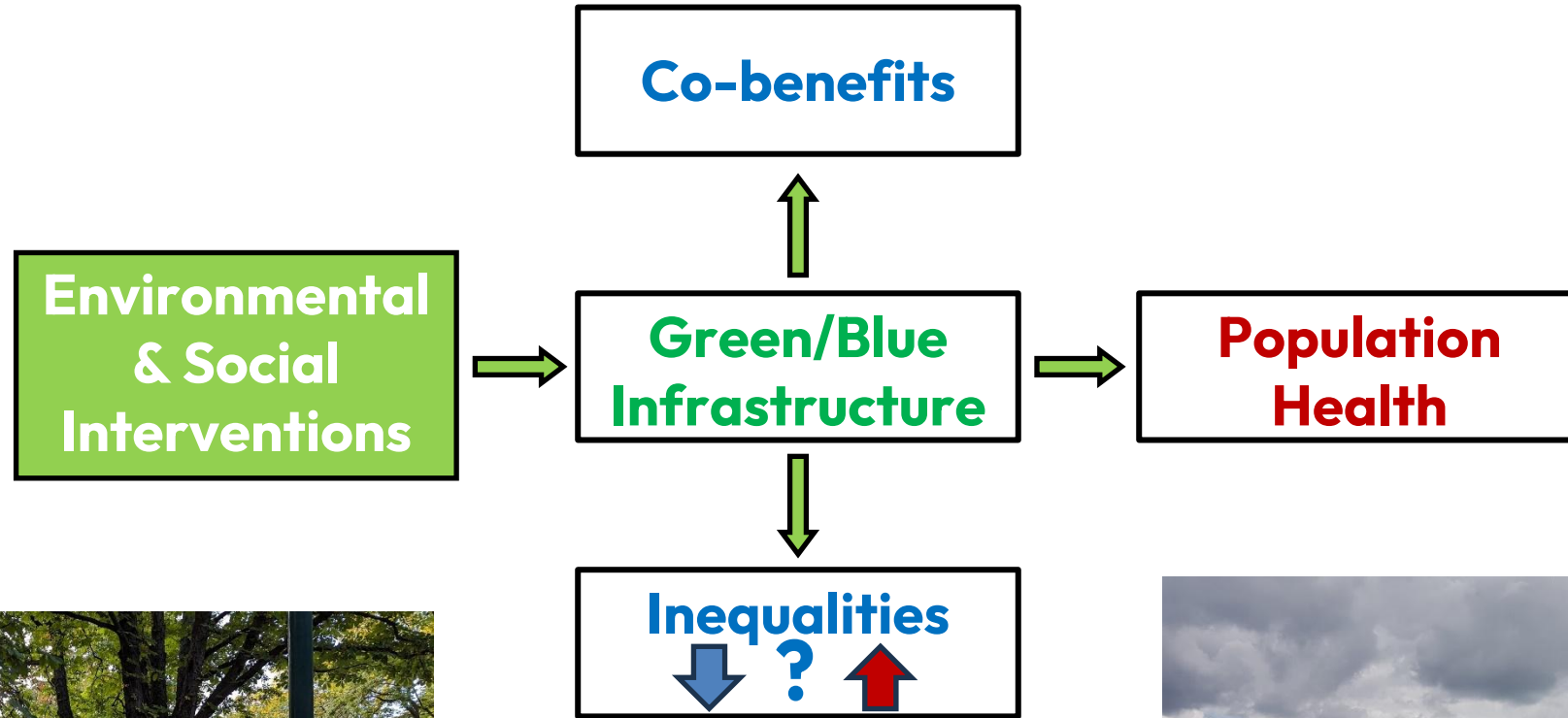
© 31 October 2022



The sea is turned brown at Trevaunance Cove

<https://www.bbc.co.uk/news/uk-england-cornwall-63456417>

# Tackling health inequalities through green/blue infrastructure



# Thank you

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## Project links:

**Tackling health inequalities through green/blue infrastructure**

<https://beyondgreenspace.net/health-inequalities-and-natural-infrastructure/>

**GroundsWell:** actions to maximise health and wellbeing benefits from urban green and blue spaces

<https://groundswelluk.org/>