

# DSA2020: New Leadership for Global Challenges

## UNIVERSITY OF BIRMINGHAM

### PhD Student Masterclass

# Contribution of urban green spaces on city dwellers' health in the Basque Country (Spain): towards guiding a sustainable and inclusive urban planning

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# Contribution of urban green spaces on city dwellers' health in the Basque Country (Spain)

Ecosystem Services assessment of BC

Background

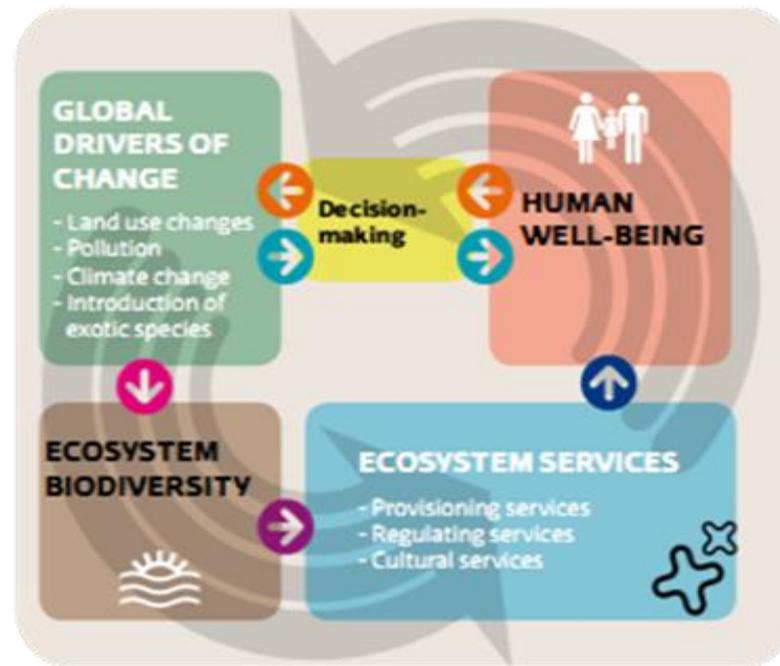
Methodology

Results

Discussion and challenges

# ECOSYSTEM SERVICES ASSESSMENT OF THE BASQUE COUNTRY

**PURPOSE** – To develop in the Basque Country the conceptual and methodological framework of the International Scientific Programme Millenium Ecosystem Assessment (UN).



## BACKGROUND



- ✓ The contribution of **natural environments** and **ecosystem services** to human well-being and quality of life has long been acknowledged.
- ✓ Their potentiality as drivers of **salutogenic** processes increasingly recognized with great relevance in **public health** and in the **urban context**.
- ✓ Classically: social environments as determinants of health inequalities, but natural ones?

There is a need to incorporate the contribution of natural environments to population health in order to understand

- 1) their benefits;
- 2) the potential inequalities in their distribution;
- 3) their capacity to reduce those inequalities (e.g. interventions focused on increasing exposure to green).

## BACKGROUND

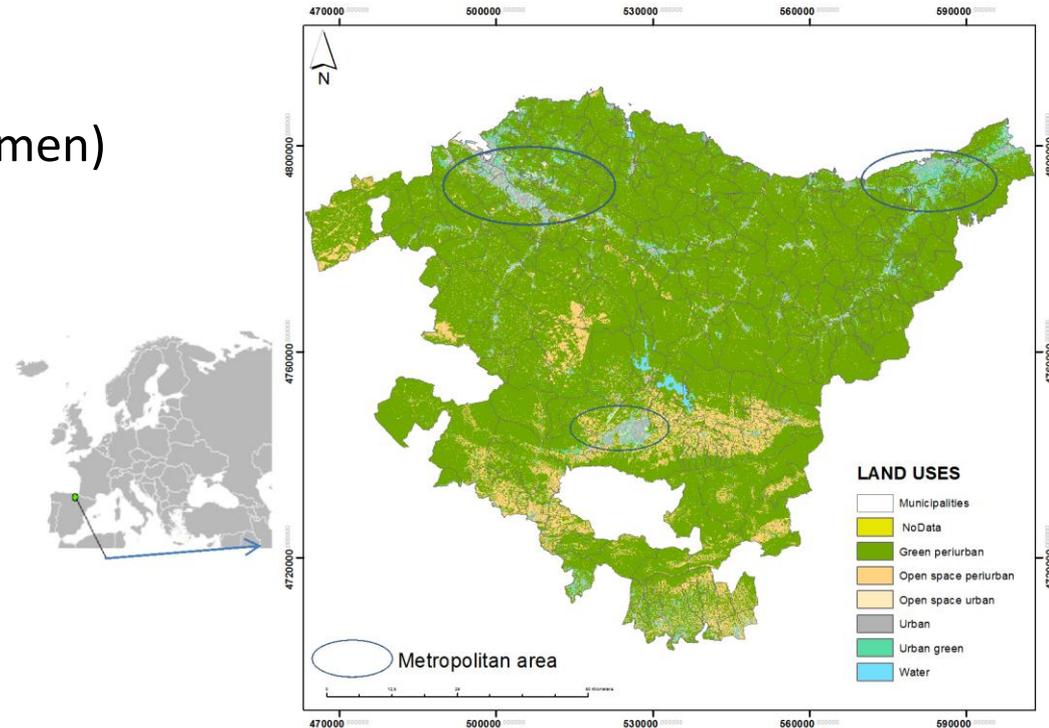
### AIM OF THIS STUDY

**To explore the relationship between URBAN GREEN SPACES (i.e. urban green infrastructure) and MORTALITY in the Basque Country. Moreover, we examined the hypothetical existence of different responses depending on socio-economic context that may contribute to the acknowledgment of green spaces in reducing income-related inequalities in health.**



## METHODOLOGY

- ✓ **STUDY AREA: Urban areas** (n= 30)
- ✓ **INDICATORS** (Official public sources)
  - A set of fourteen health indicators by disease (**Relative Mortality Risks**)
  - Exposure to green spaces (**Normalized Difference Vegetation Index**)
  - Five socioeconomic contexts (**Deprivation index**)
- ✓ **STATISTICAL ANALYSES** (men and women)
  - Principal Components Analysis
  - Pearson correlation coefficients
  - General linear models (factors: deprivation + NDVI quintile)
  - GIS and R software



## RESULTS

### ✓ INDICATORS SELECTED:

- Relative Mortality Risk of Lung Cancer (RMR)
- Proportion of urban green spaces

inverse correlation of  $r = -0.36$ ,  $p\text{-value} < 0.05$

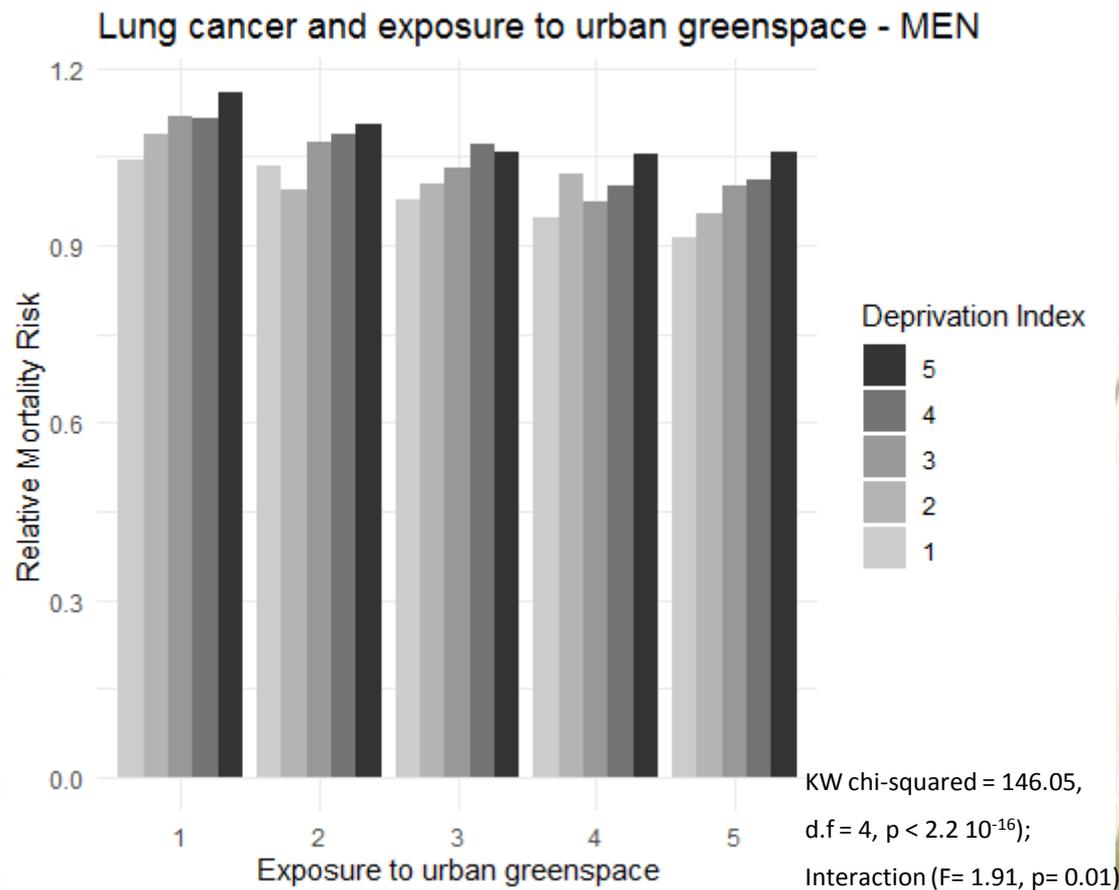
### ✓ RMR: DIFFERENT ACROSS SOCIOECONOMIC DEPRIVATION GROUPS for both sexes:

- Men: RMR **increased** as deprivation did (Kruskal-Wallis chi-squared = 132.48,  $df = 4$ ,  $p\text{-value} < 2.2e-16$ )
- Women: RMR **decreased** as deprivation increased (Kruskal-Wallis chi-squared = 164.5,  $df = 4$ ,  $p\text{-value} < 2.2e-16$ )

## RESULTS

### ✓ RMR: Socioeconomic DEPRIVATION and EXPOSURE

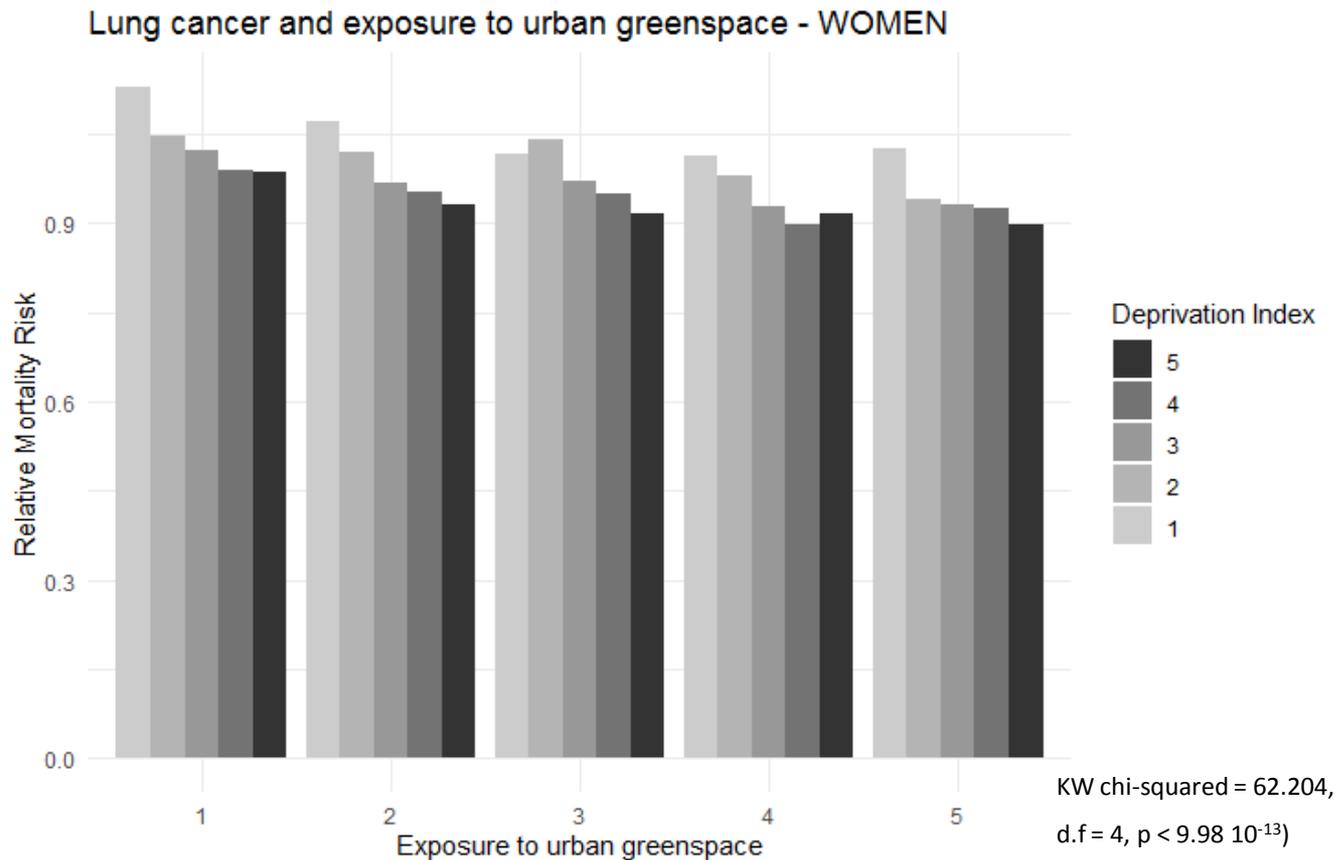
- Men showed a significant decrease in the RMR with exposure as well an effect of the interaction.



## RESULTS

### ✓ RMR: Socioeconomic DEPRIVATION and EXPOSURE

- Women showed a significant decrease in the RMR with exposure (no effect of the interaction).



## DISCUSSION

✓ A greater exposure to green spaces is related to a lower lung mortality risk

- Men: this is greater for the **most vulnerable** population **which might benefit more**.

- Women: also a reduction in the differences of RMR for **the most exposed group** so it suggests **a decrease in the inequalities within** that group.



## DISCUSSION

✓ **Key role of green** availability and distribution in terms of **public health**.

✓ **Include** an equity lens for the most vulnerable.

✓ Contribute to develop **management tools** for the urban green infrastructure **(Nature based solutions)** to be applied in the **just and inclusive urban planning** focused on the resilience and the counteracting of inequalities.



## CHALLENGES

Reinforce the equity lens for the most vulnerable, *i.e.*:



**HOW to CONNECT this APPROACH from the Ecology towards the narrative/discussion from Sustainability of Life, Development and SOCIAL and ENVIRONMENTAL JUSTICE discussion? (e.g. bridging with degrowth)**

**Many thanks for your attention!**



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