

Funding Nature Based Solutions & Valuing Blue-Green Infrastructure



Tom Wild, Anna Jorgensen & Stephen Hincks, University of Sheffield



The
University
Of
Sheffield.



A WORLD
TOP 100
UNIVERSITY

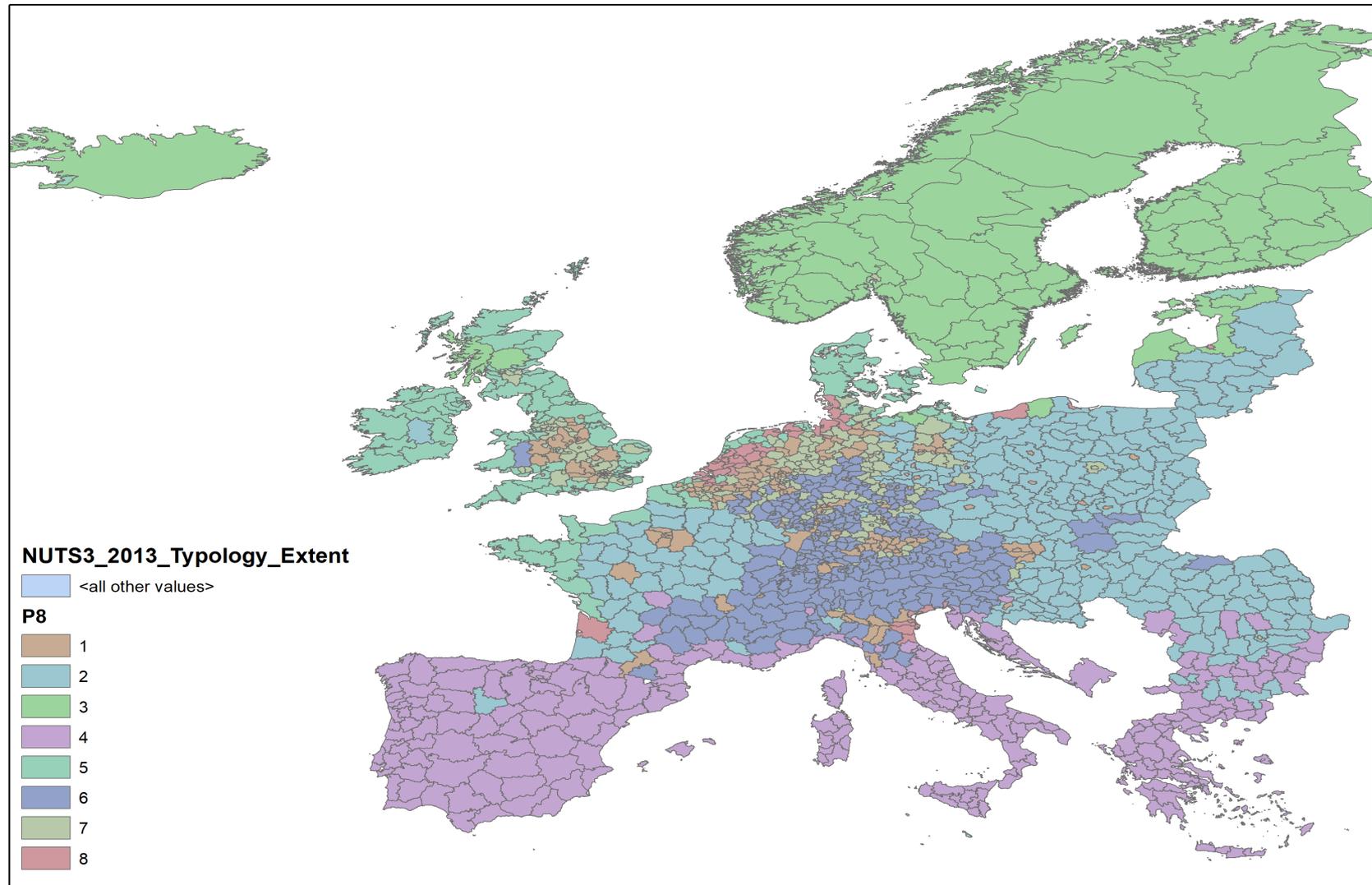


About us

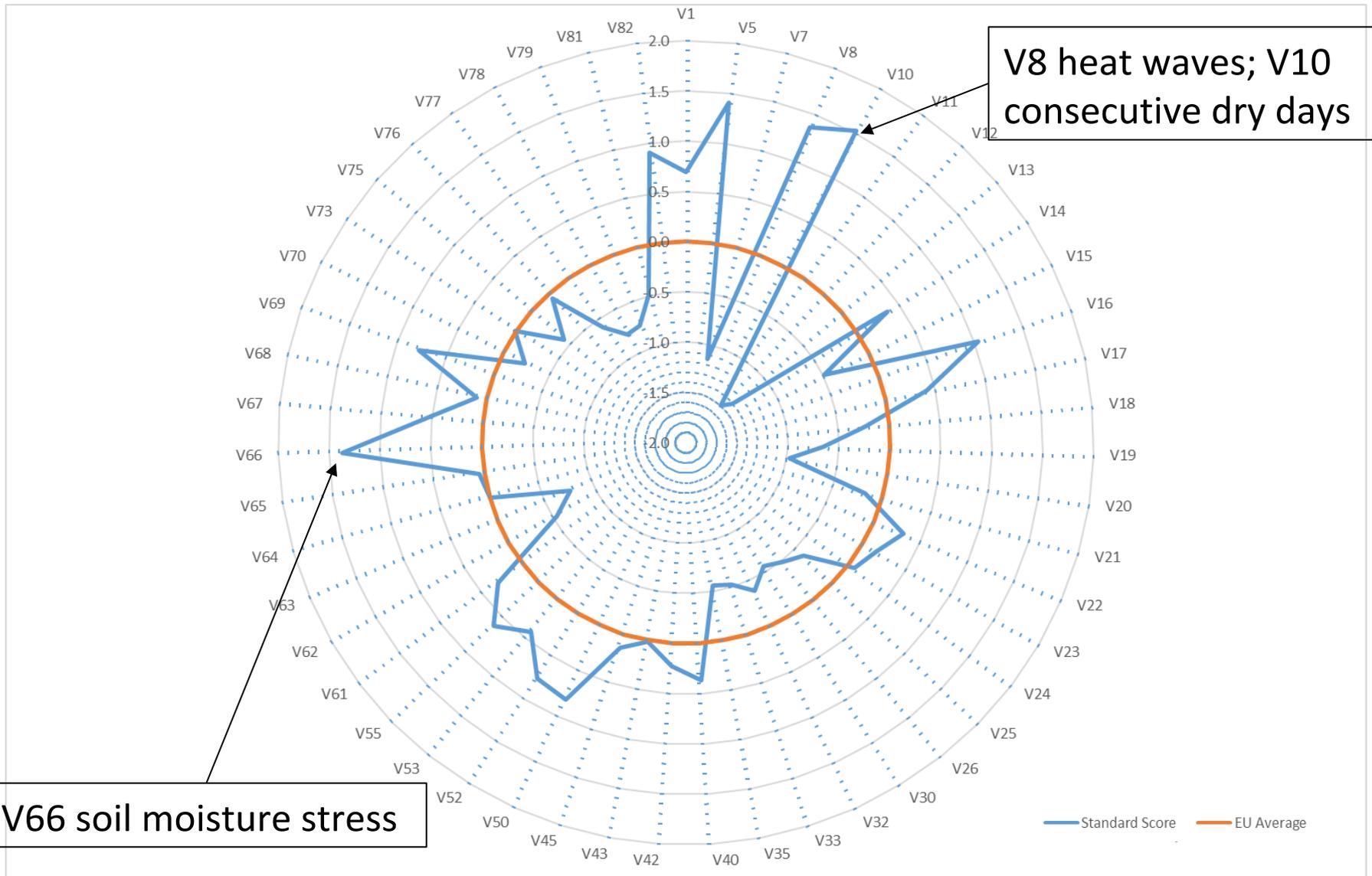
- One of the **Russell Group** of leading UK research universities
- Ranked **82nd** in the world in the 2018 QS World University Rankings (up two places)
- Ranked **104th** in the world in the 2018 Times Higher Education World University Rankings (up five places)
- Ranked **25th** in the Sunday Times 100 Best Not-For-Profit Organisations to Work For 2017
- **Six Nobel Prize Winners**
- Research Excellence Framework 2014: 80% of Faculty of Social Science's research was world leading / internationally excellent

Prototype risk-based typology

Non-hierarchical clustering of risks (k-means)



Supergroup 4 – ‘Mediterranean regions’



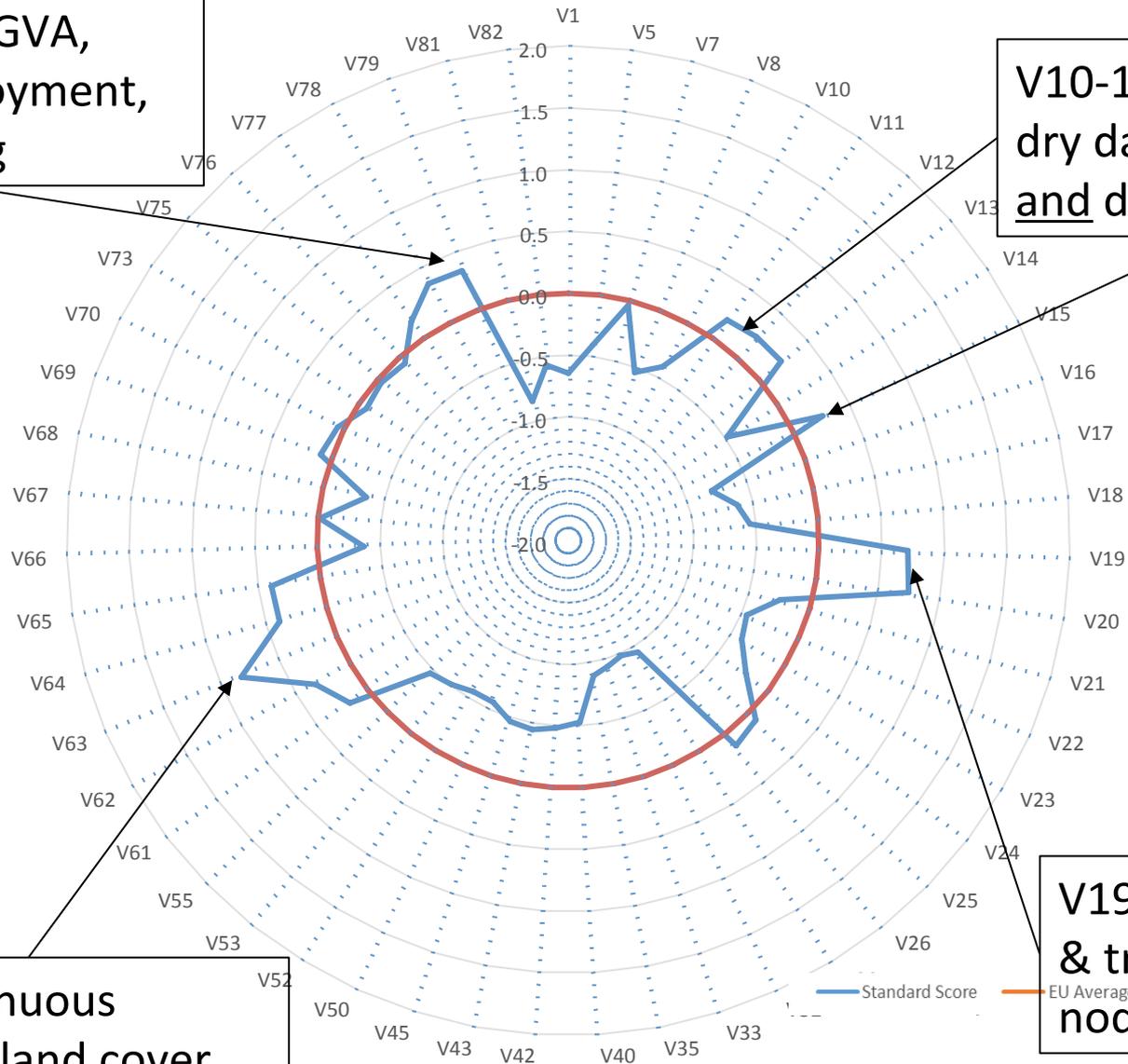


© Sheffield, England

Supergroup 7 – ‘Sheffield-type regions’

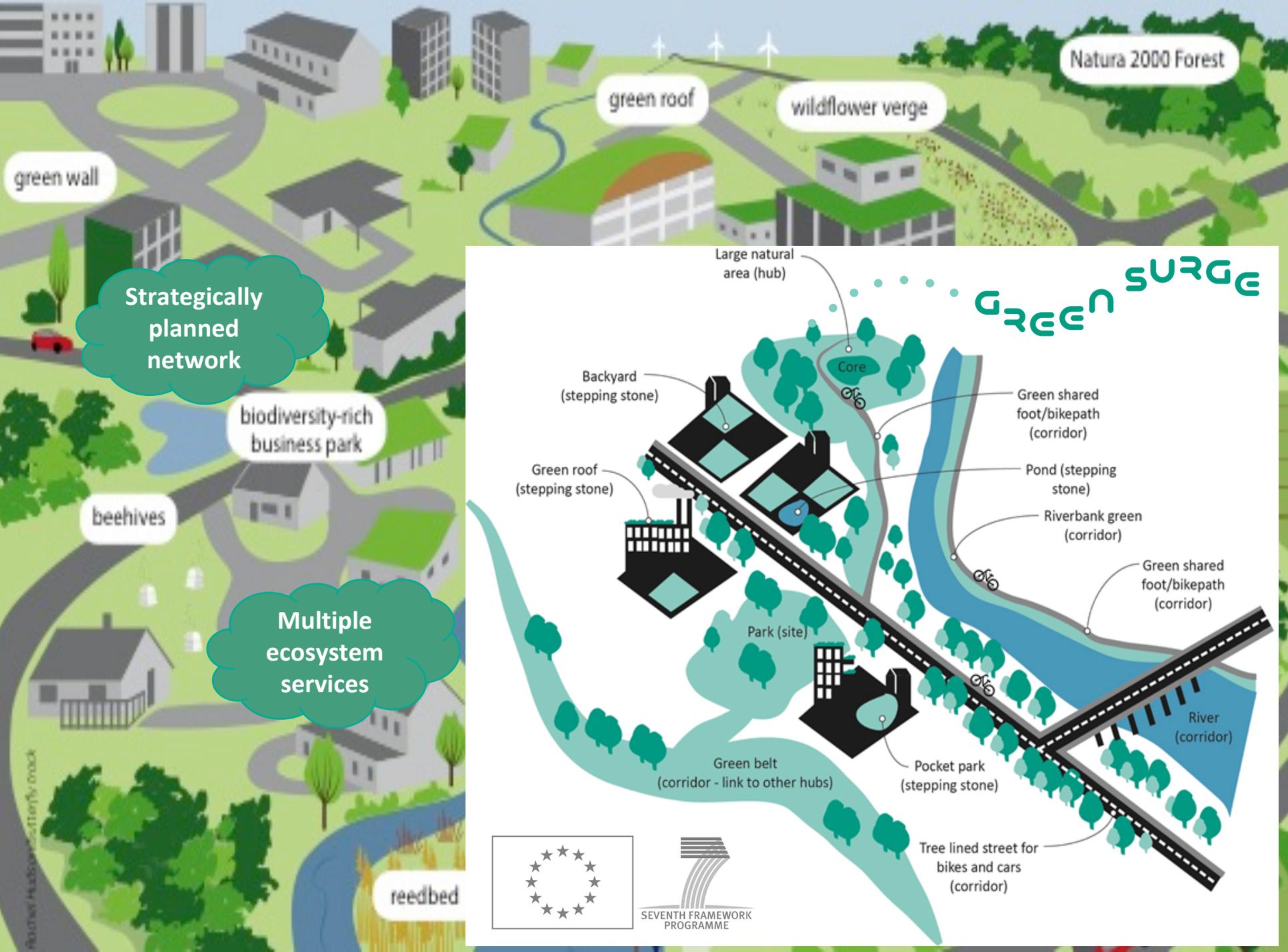
V77-79: Low GVA,
high unemployment,
low patenting

V10-15: rainfall,
dry days, floods
and droughts



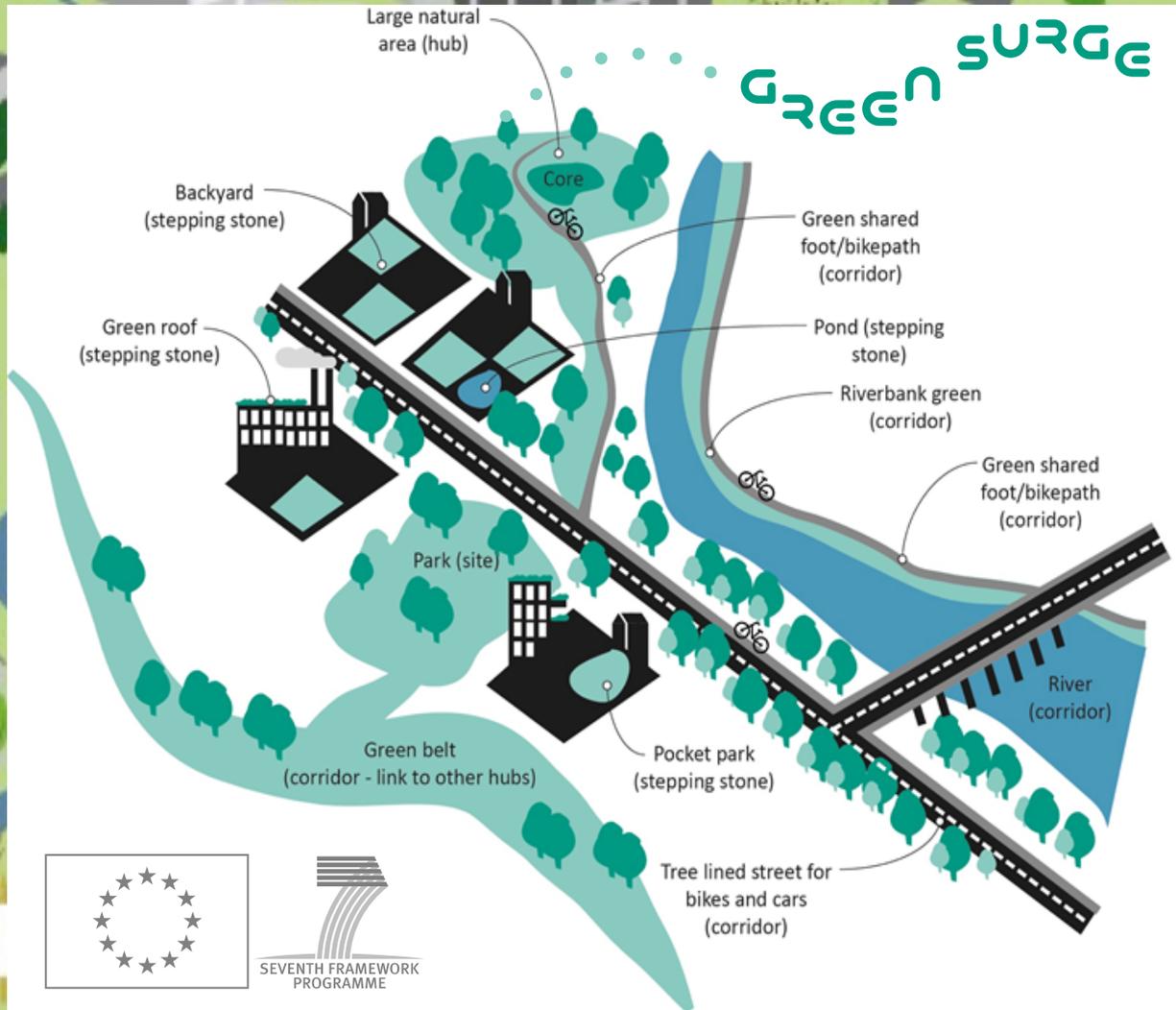
V63: continuous
urbanised land cover

V19 - V20: road
& transport
node density



Strategically planned network

Multiple ecosystem services



GREEN SURGE





We aim to find out more about how Sheffield's natural environment can improve the health & wellbeing of city residents



Work Package 1

A place-based analysis of population-level linkages between natural environments, health inequality, deprivation and green space usage



Work Package 2

Cultures and values of nature and health & wellbeing: reflecting a diverse society



Work Package 3

Which characteristics of urban natural environments deliver the health & wellbeing benefits?



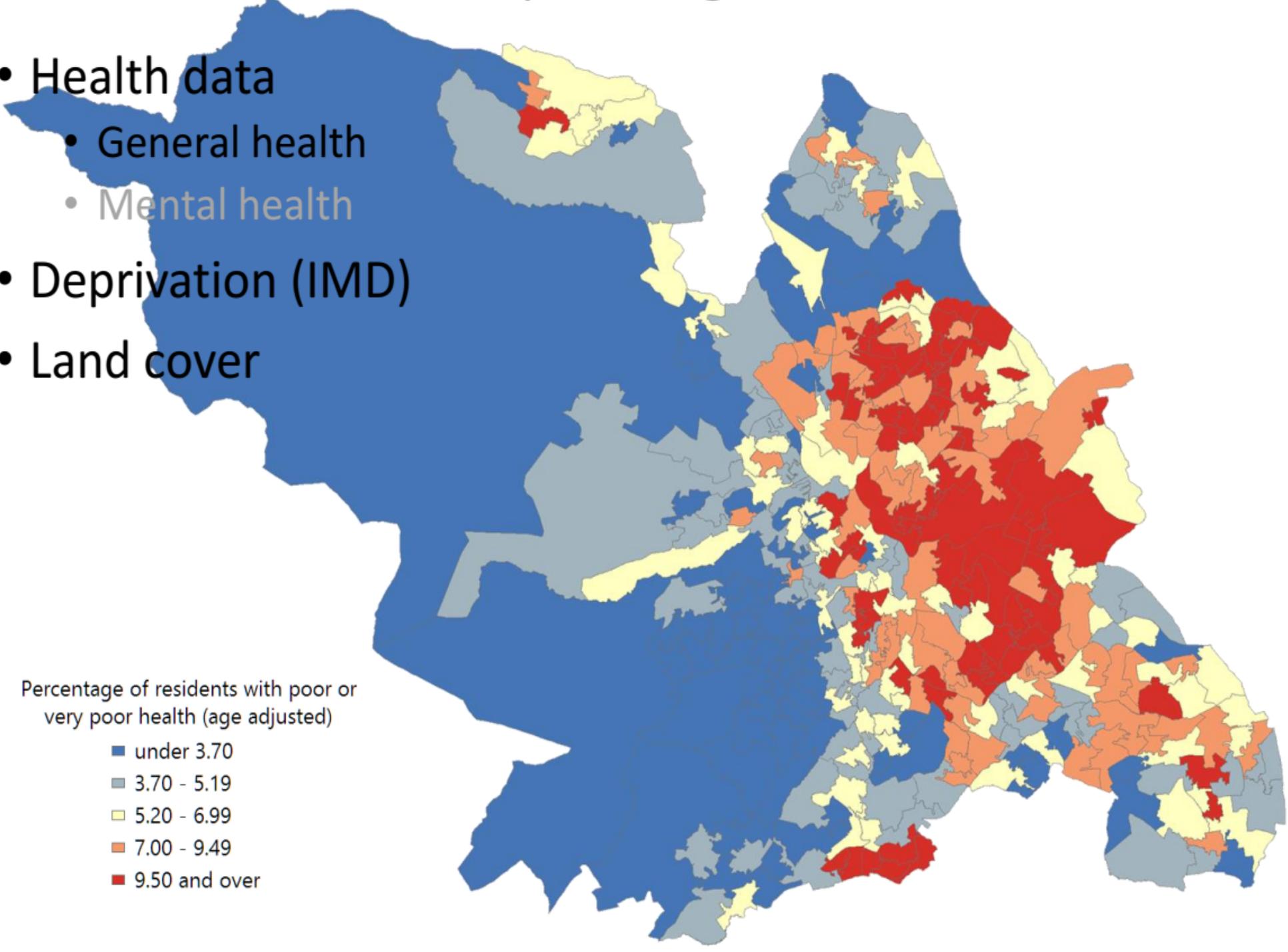
Work Package 4

A new green paradigm for wellbeing - an integrated approach to Green Blue Infrastructure planning, health and social care

- Health data
 - General health
 - Mental health
- Deprivation (IMD)
- Land cover

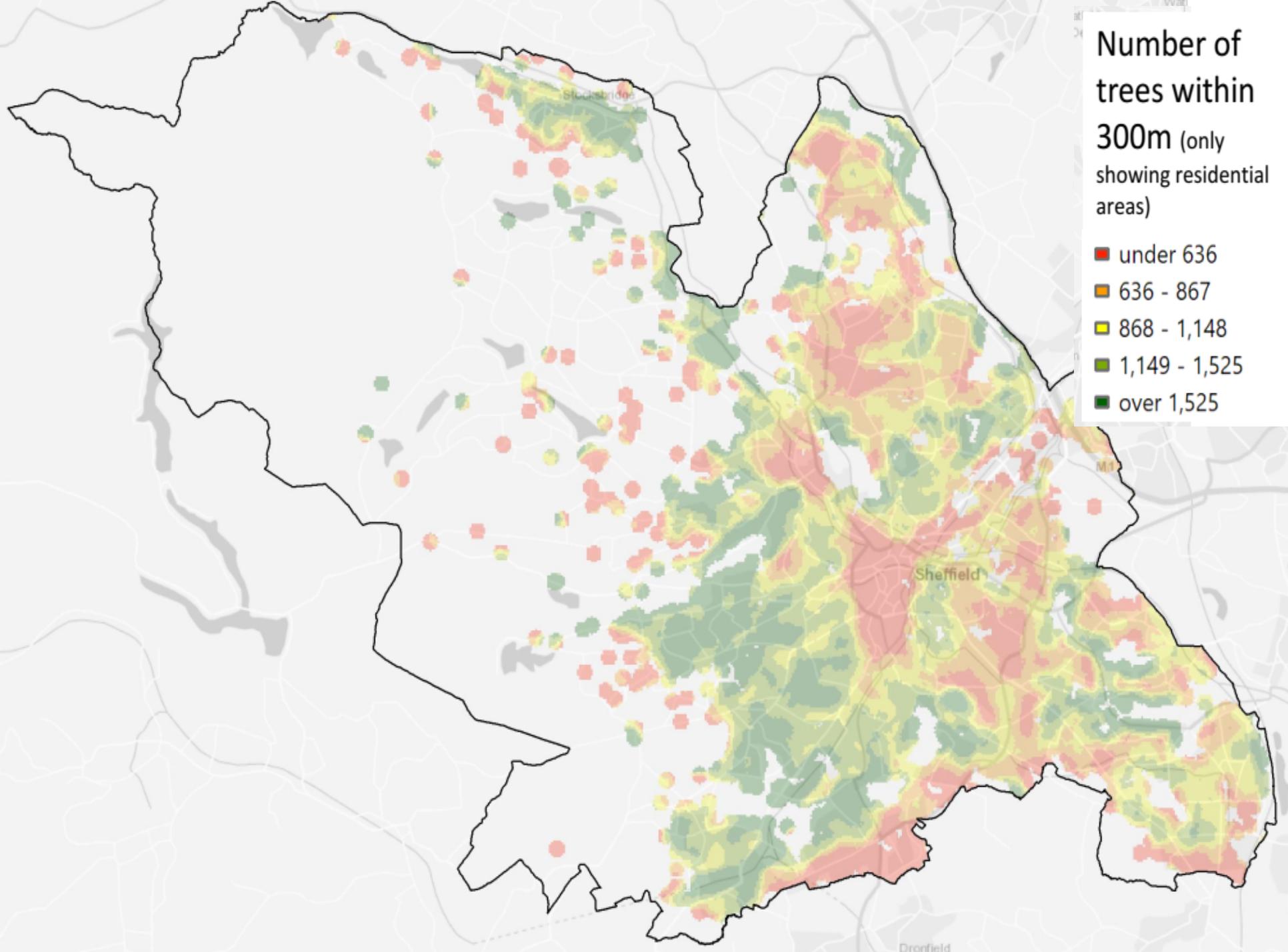
Percentage of residents with poor or very poor health (age adjusted)

- under 3.70
- 3.70 - 5.19
- 5.20 - 6.99
- 7.00 - 9.49
- 9.50 and over



Number of trees within 300m (only showing residential areas)

- under 636
- 636 - 867
- 868 - 1,148
- 1,149 - 1,525
- over 1,525











June 2007: €500 million lost in 2 days



Sheffield's Waterways Strategy

City of Rivers

OUR GOALS

This strategy is focused on achieving eight ambitious but realistic goals.

1 PEOPLE

To place people at the heart of Sheffield's efforts to promote waterways regeneration in ways which are open, inclusive and democratic. We want to help Sheffield regenerate its rivers, and let rivers help regenerate Sheffield.

2 ECONOMIC OPPORTUNITY

To help our city rediscover the economic opportunity of its wealth of waterways. We will help deliver attractive riverside landscapes and high quality riverfront buildings to stimulate investment and opportunities for business.

3 CLIMATE CHANGE ADAPTATION

To adapt to climate change and manage flood risks more sustainably by restoring the natural water cycle as far as practicable, ensuring the use of sustainable drainage systems, promoting low carbon options for travel and development along river corridors and delivering robust yet sensitive approaches at the scale of the entire river catchment.

4 PROMOTING SHEFFIELD AND ITS WATERWAYS

To make Sheffield well known as a city of rivers and show how waterways are a central part of what makes Sheffield. We will promote our shared vision of Sheffield as an attractive, sustainable and competitive city whose defining features are its waterways.

5 HERITAGE, CULTURE AND HISTORY

To use our rivers and canals to help celebrate the heritage, culture and rich history of our city. In order to do this we will provide educational opportunities, seek new resources for conservation and promote the careful retention and reuse of Sheffield's culture and industrial heritage. Sheffield's waterways will become a focus for an exciting series of celebrations, festivals and cultural events.

6 ACCESS

To secure access along Sheffield's waterways as part of a city-wide network of riverside parkways providing pedestrian and cycle paths that link safe, attractive and natural green spaces.

7 STEWARDSHIP

To care for our waterways, by promoting river stewardship in order to provide clean, safe and attractive environments, encouraging riparian owner responsibility, involvement, regular and sensitive channel maintenance and helping people to enjoy these unique places.

8 WILDLIFE AND NATURAL ENVIRONMENTS

To protect and enhance habitats for wildlife right into the heart of the city, ensuring biodiversity, helping people to access nature and contributing to Sheffield's reputation as the greenest city in England.

2005-15: Projects on NBS valuation & investment



- **CSI:** Creating a Setting for Investment
- **VALUE:** Valuing Attractive Landscapes in the Urban Economy
- **MP4:** Making Places Profitable
- **VALUE+ :** Value Added
- **SEEDS:** Stimulating Enterprising Environments for Development & Sustainability
- **URSULA:** Urban River corridors: Sustainable Urban Living Agendas



The University of Sheffield.

The Interreg IVB North Sea Region Programme



Investing in the future by working together for a sustainable and competitive region



INTERREG IVB



SOUTH YORKSHIRE forest
A National community forest Partner

The River Stewardship Company is a social enterprise working to improve waterways for people and wildlife.

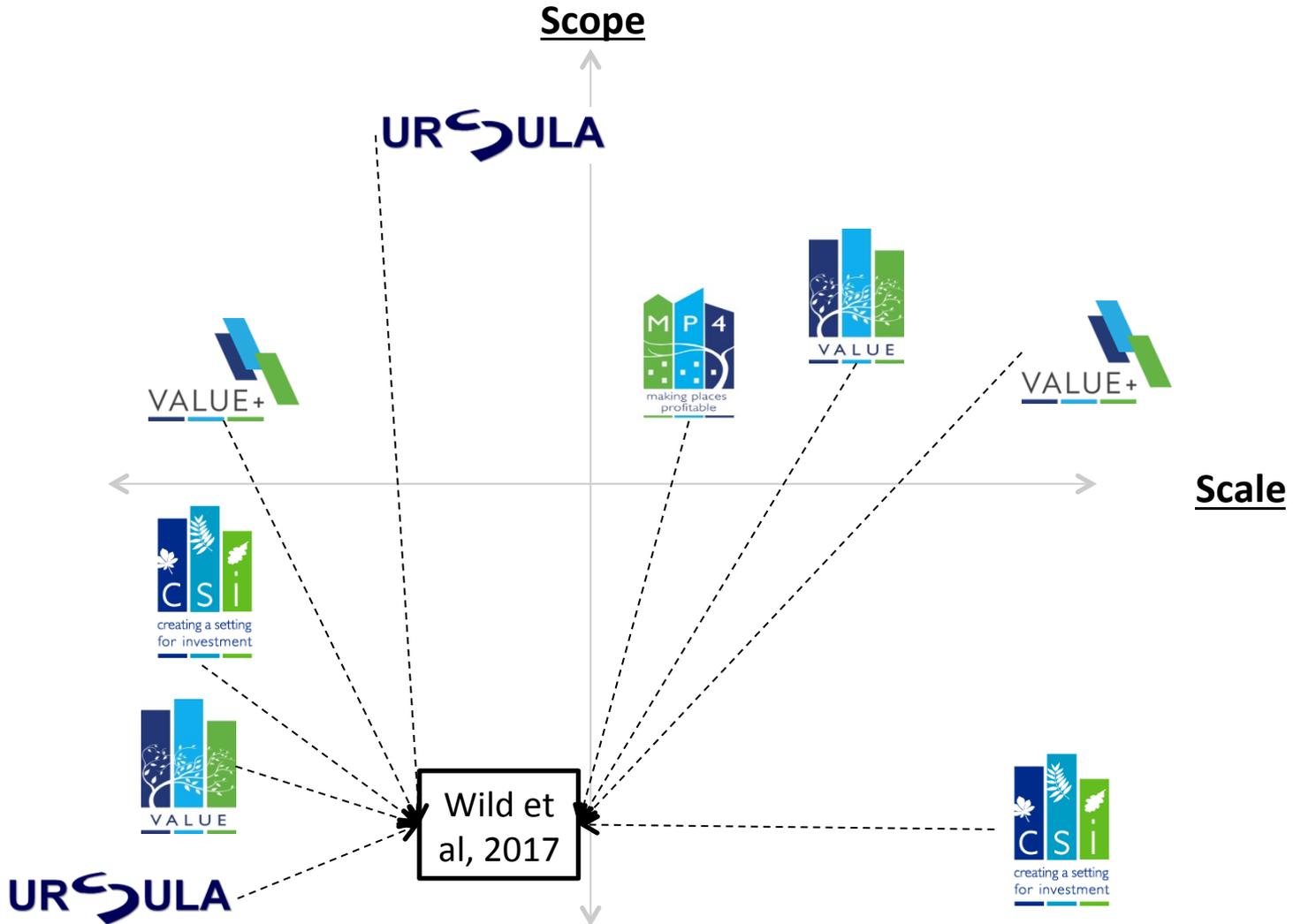


ABOUT RSC

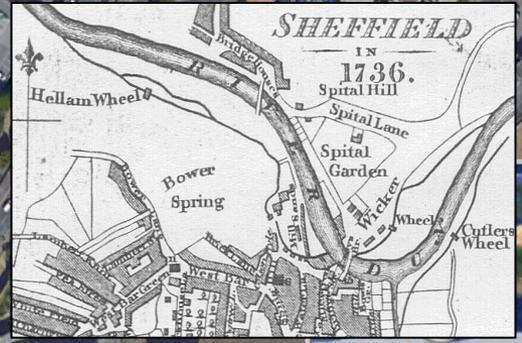
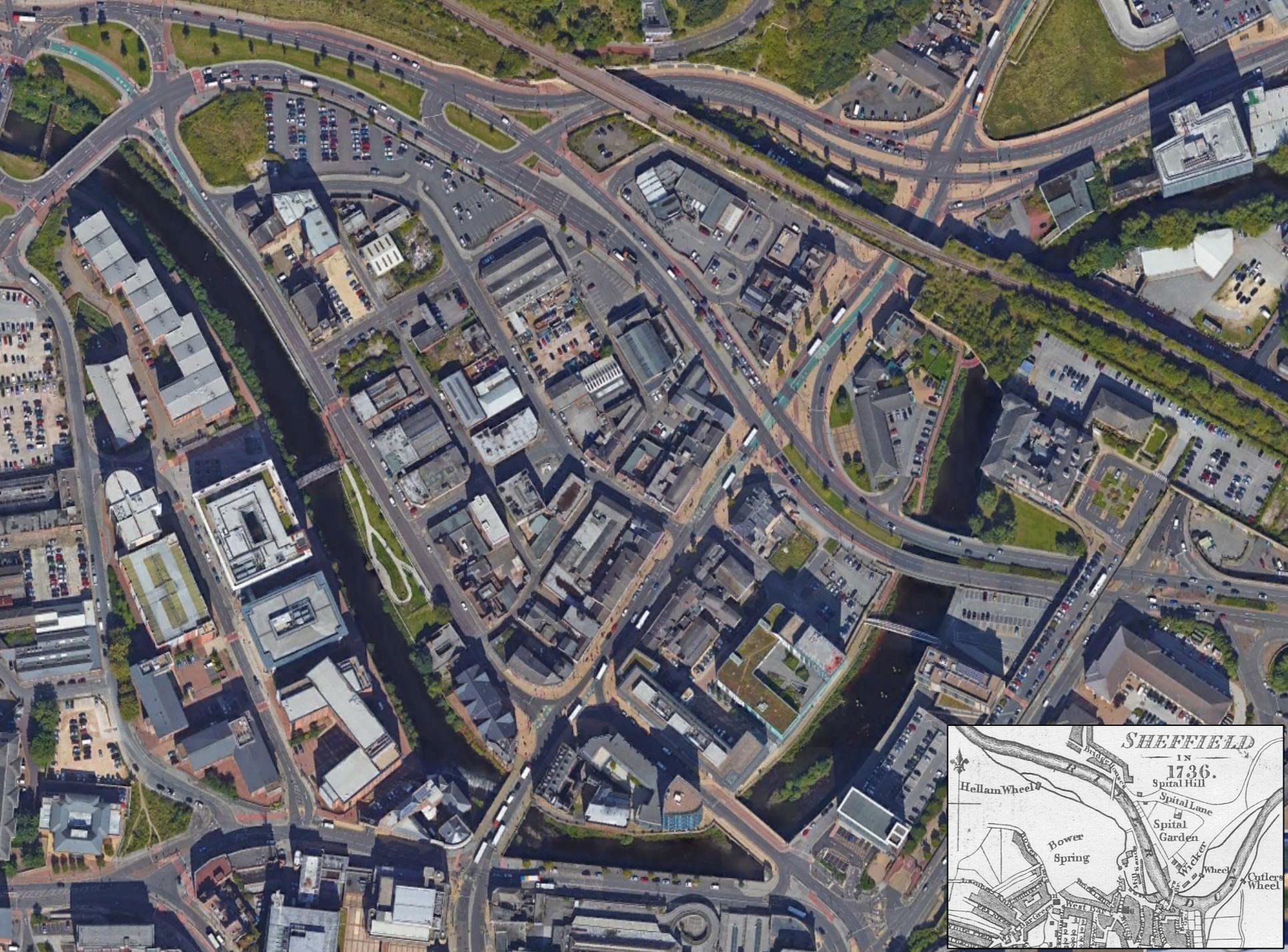
SERVICES

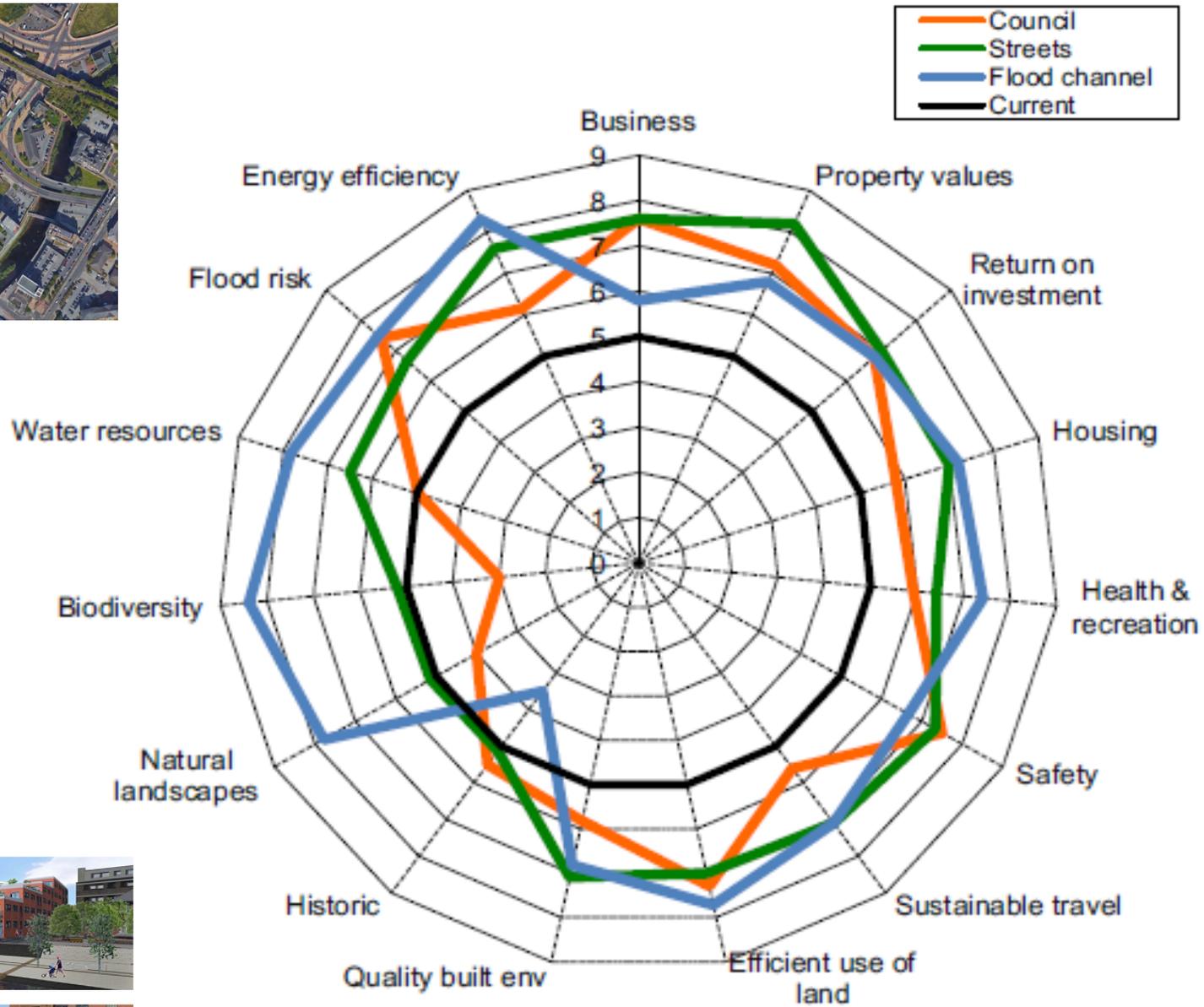
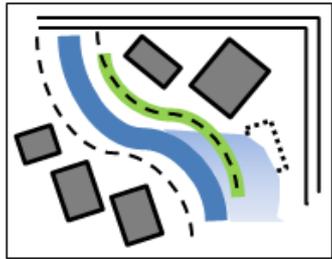
COMMUNITY ENGAGEMENT

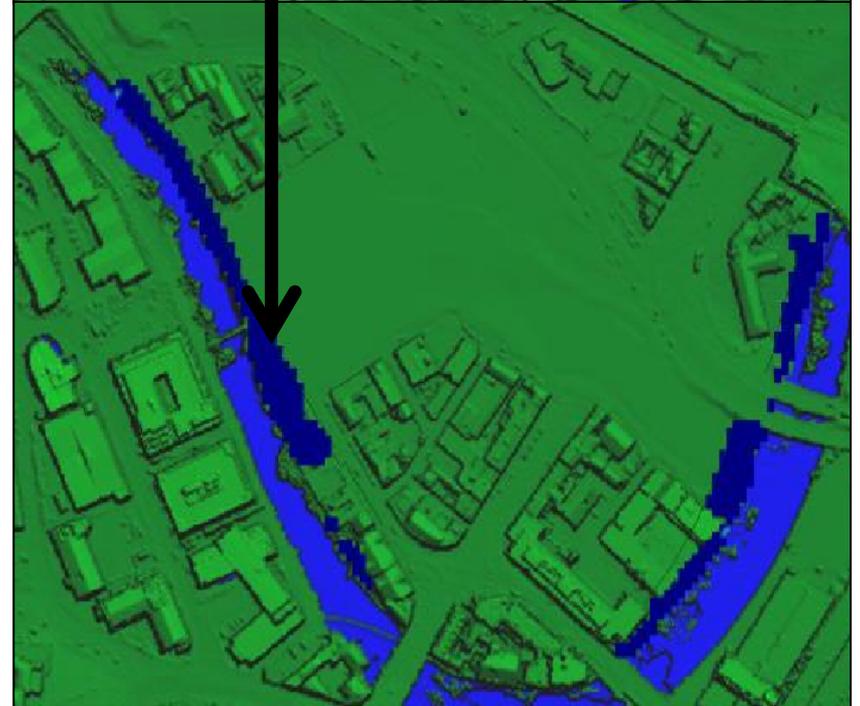
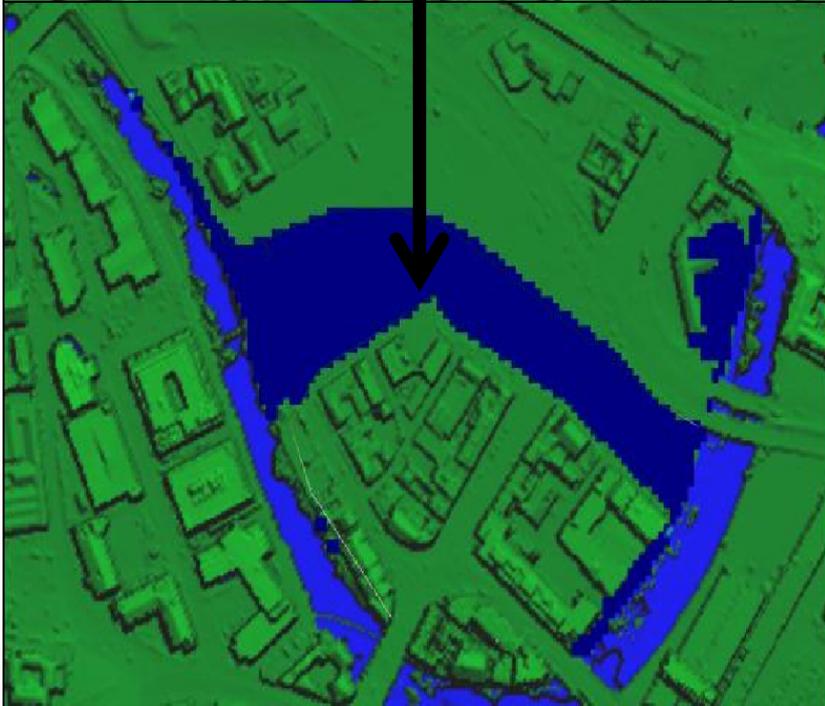
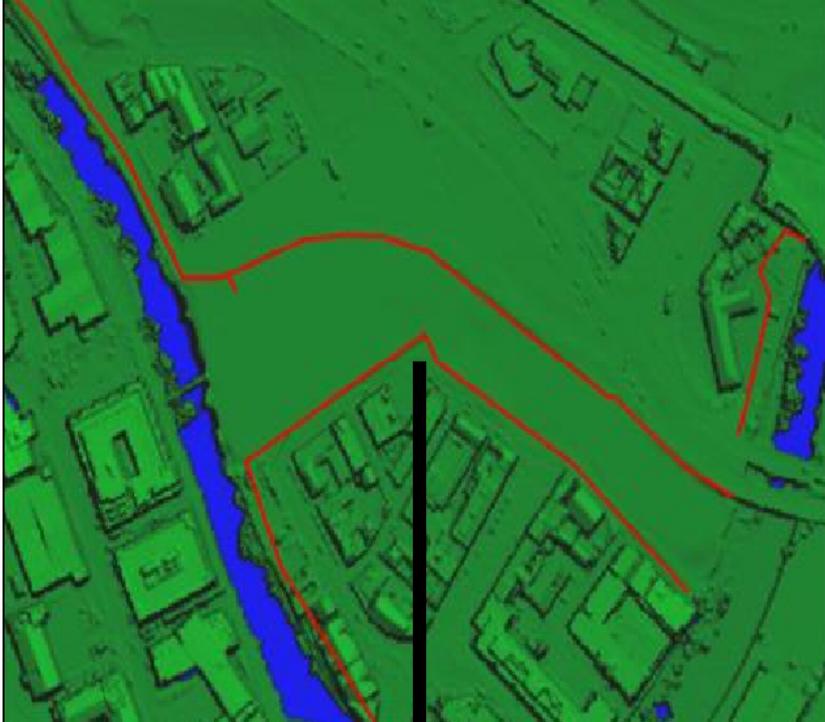
Sheffield: assessing value, natural capital, ES & sustainability



- 2007
- 2009
- 2011
- 2013
- 2015
- 2017









With thanks to Ed Morgan

WICKER RIVERSIDE

The public were asked how much they were willing to pay in council tax, rent or mortgage payments in green spaces in their local areas

How much extra would you pay in rent or mortgage payments for a property with a view of Green Infrastructure investments?

NURSERY STREET

BLONK STREET

INVESTMENT SITE
RIVER DON

Extra rent per month for a property with a view of green infrastructure: large area of green space

...allow new buildings close to the river



...maintain the current appearance of the area



...include a large area of green space



...allow new buildings set back from the river



Area surveyed



...maintain new footbridge, riverside walkway and flood defence works



...additional landscaping

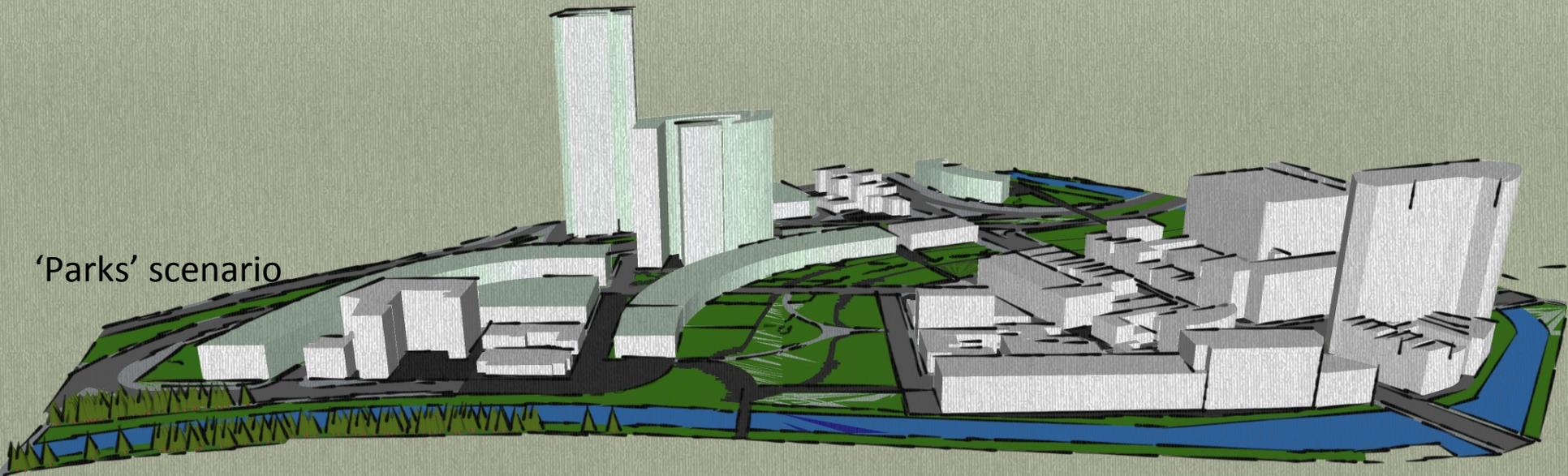


...re-establish natural riverside vegetation

Extra Council Tax per month for GI: re-established natural vegetation

How much extra would you be willing to pay per month for the cost and maintenance of Green Infrastructure investments?

'Parks' scenario



Development viability

(expressed as developer profit on development costs)

- **Developer's Profit = Development Value - (Construction Costs + Land Costs)**

'Streets' scenario



Establishing the 'green premium'

<p>'Streets' scenario</p> 	<p>Mell <i>et al</i> (2012) <i>Willingness to pay:</i> property with a view as offered by 'Streets' would command prices <u>1% higher</u></p>	<p>If this is factored into the appraisal then the <u>development value</u> increases by ~£1m (from £112.8m to £114.1m) Costs approximately same</p> <p>Scheme profit? Developer Loss: <u>-£10.9m</u> (-8.69%)*</p>
<p>'Parks' scenario</p> 	<p>Mell <i>et al</i> (2012) <i>Willingness to pay:</i> property with a view as offered by 'Parks' would command prices <u>5% higher</u></p>	<p>If this is factored into the appraisal then the <u>development value</u> increases by ~£5m (from £112.8m to £117.5m)</p> <p><u>But</u> costs go up: £13m higher Developer Loss: <u>-£20.5m</u> (-14.84%)*</p>

*typical target return for a development is 20% of costs)



BUSINESS IMPROVEMENT DISTRICT LEVY PAYER ZONES

WHO IS AFFECTED.

The principles on which the BID area has been defined are explained in detail in Section 4.2 of the BID Business Plan

Those businesses which would be flooded by river water in a 1 in 100 year flood event (1% annual likelihood) unless flood defences were installed and an appropriate ongoing river management arrangement were implemented

Those businesses on the edge of the 1 in 100 year flood area which would not themselves be flooded by such a flood but would have access and escape routes cut off, and would therefore suffer disruption to operations

Those businesses not falling within the blue category which would be flooded by river water in a 1 in 100 year flood event (1% annual likelihood) unless an appropriate ongoing river management arrangement were implemented

Those businesses not falling within the above categories but which are adjacent to the river bank where there is a legal responsibility to maintain their section of the river channel (riparian responsibility)



SHEFFIELD
LOWER DON VALLEY

FLOOD DEFENCE
PROJECT

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DEFENCE PROJECT.
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LEARN MORE



The River Stewardship Company is a social enterprise working to improve waterways for people and wildlife.

Revitalising Waterways

Call 0114 354 0012 or email us – [click here](#)



About River Stewardship Company

River Stewardship Company (RSC) was established by a group of public and third sector partners to develop a response to the problem of litter and dereliction on the waterways in Sheffield.



Based in Sheffield, we provide a three-point approach to managing waterbodies:

- Maintaining waterways using our successful “little and often” approach
- Securing sustainable investment from local riparian landowners to support environmental stewardship.
- Involving local communities in all aspects of our work; from volunteer work days to educational workshops, taking the river into the schools and taking the schools to the rivers.

Values of UGI



#12

- Many commercial interests benefit from positive externalities in the form of public goods, e.g. cafés
- This cash flow is not very well captured by standard accounting or in city budgets
- UGI benefits best captured by multiple types of evidence
- Different rights to these public goods can be fitted with clearer obligations for their maintenance



Sheffield
The
Outdoor
City

Run Walk Climb Ride More

Top 10 Outdoors
Hire a set of wheels and go for a ride



The Outdoor City Economic Strategy



“MAKING A DIFFERENCE
TO PEOPLES LIVES THROUGH
LANDSCAPE & HERITAGE”

Green Estate is a not for profit social enterprise based in Sheffield working for people, place and a fairer way of doing business

NEWS



Menu 



Meadow Seeds and Turf

We are expert creators of designer meadows from both seed and PM Turf. Visit our Online Shop to find the right mix for you.



Deculverting - daylighting 'buried' urban rivers

(Wild et al 2011; 2018)



Conclusion: private sector alone unlikely to deliver full range of benefits from re-greening investments in market failure settings or deprived districts



AO VIVO

JORNALISMO

VÍDEOS

NA WEB



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NO AR
20:00

Programa Silvio Santos

A SEGUIR
00:00

SBT



GRADE



PESQUISAR

Thank you!