

Sustainable Urban Planning in London: Issues and Challenges

London's urban planning challenges are complex and multifaceted, involving a range of stakeholders and interests. The city's unique geographical location and historical legacy present significant challenges for sustainable urban planning. This presentation explores the key issues and challenges facing London's urban planning and discusses potential solutions.

Presentation to the BRIDGE Community of Practice, 24th August 2009

World city : big problems

- Growing population – 800,000 more people in the next two decades
- Over 250,000 children live in ‘overcrowded’ homes
- Largest area of brownfield land within city limits in Europe
- Legacy of aged infrastructure – London Underground, water mains network and combined sewer system are already over 100 years old
- South-East of England is already classed as ‘seriously water stressed’
- South-East is expected to experience the greatest amount of climate change

Warmer, wetter, hotter, drier

Key findings for London, 2080s Medium emissions scenario

winter mean temperature

- 50% probability increase of 3°C
- 10% probability > + 4.7°C.

summer mean temperature

- 50% probability increase of 3.9°C
- 10% probability > + 6.4°C.

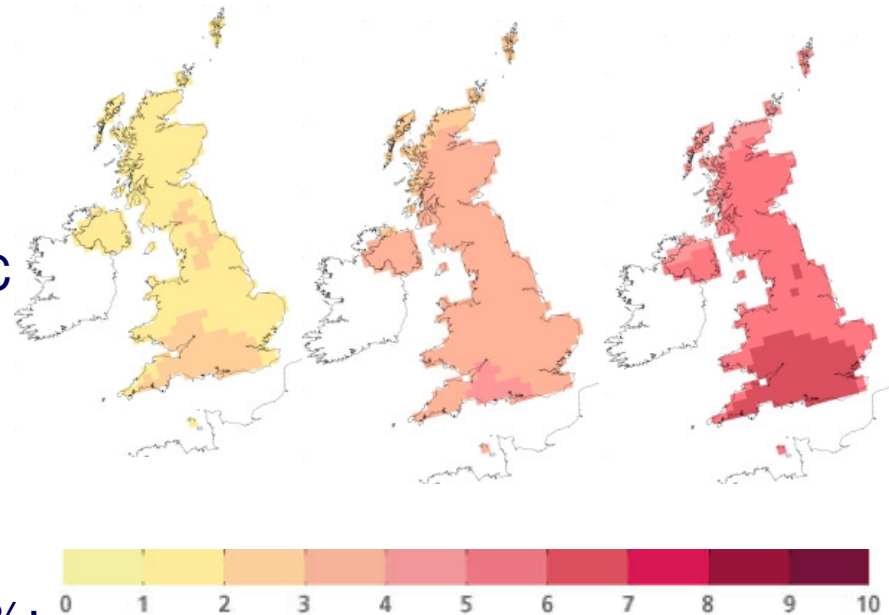
winter mean precipitation

- 50% probability increase of 20%
- 10% probability > +46%.

summer mean precipitation

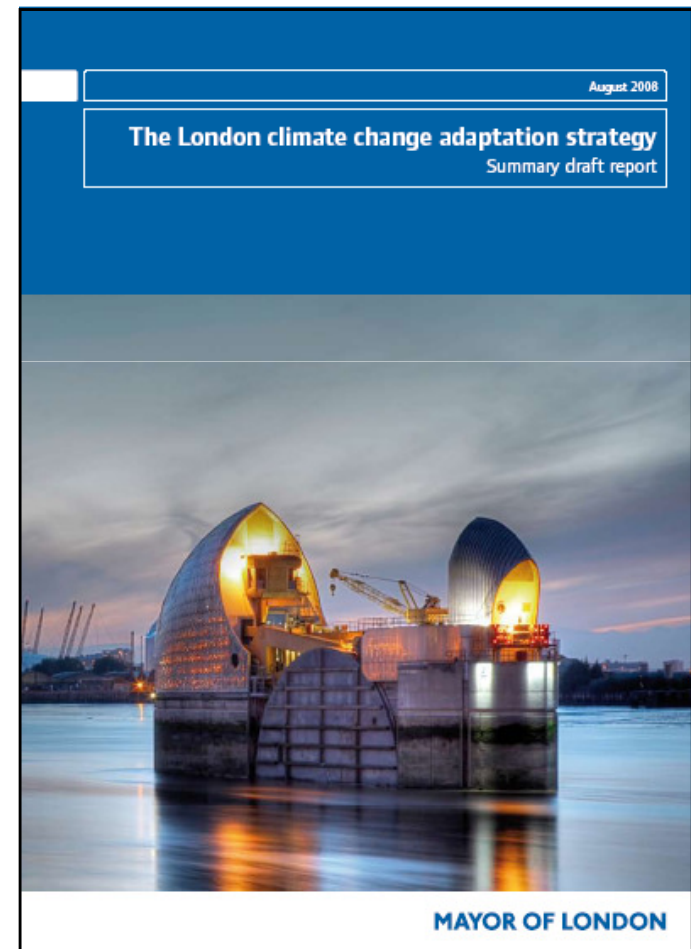
- 50% probability decrease is –22%;
- 10% probability > –46%

Change in summer mean temperature 2080s, medium emissions scenario



How is London vulnerable to CC ?

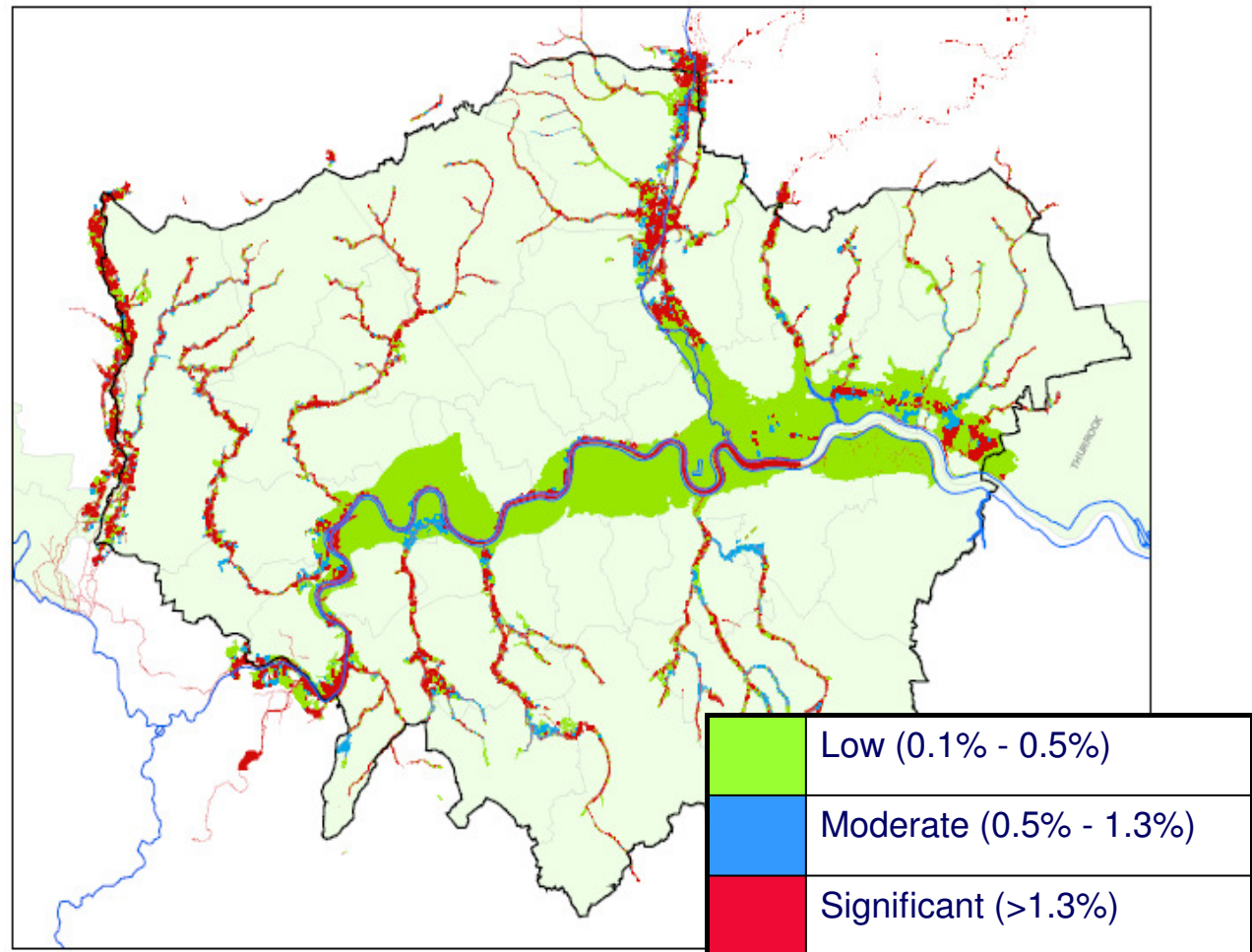
- Flooding
- Overheating
- Water resources
- Air Quality
- Subsidence and heave
- Wind storms
- Global climate events



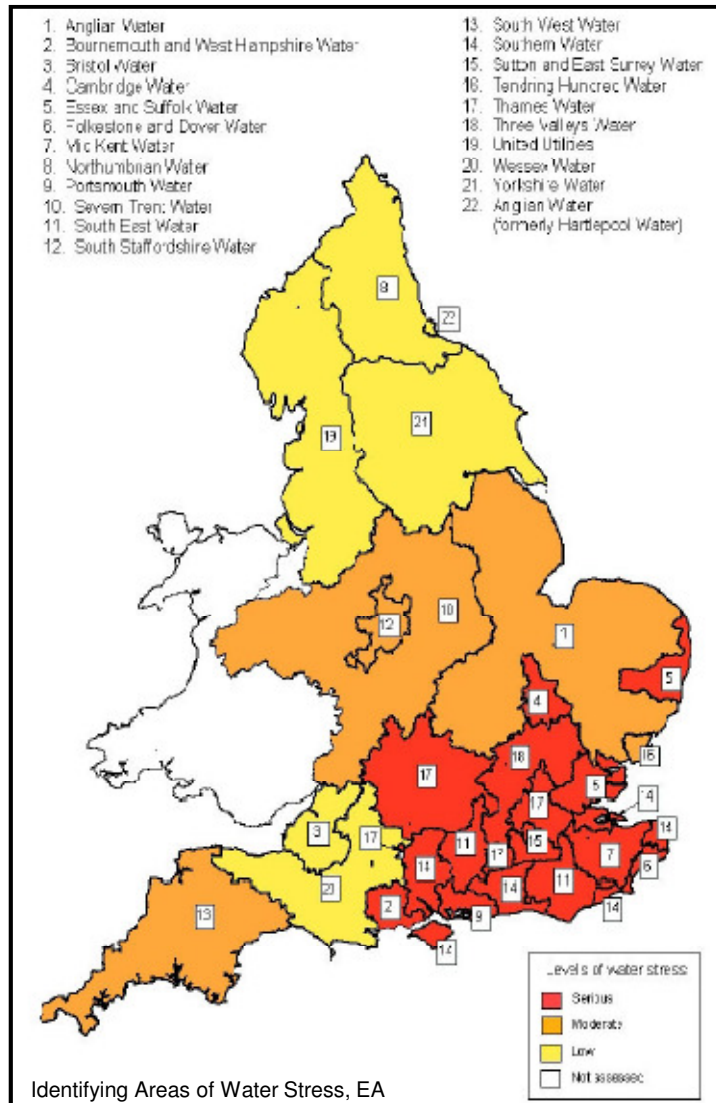
Flood

3 flood sources

- Tidal
- Fluvial
- Surface



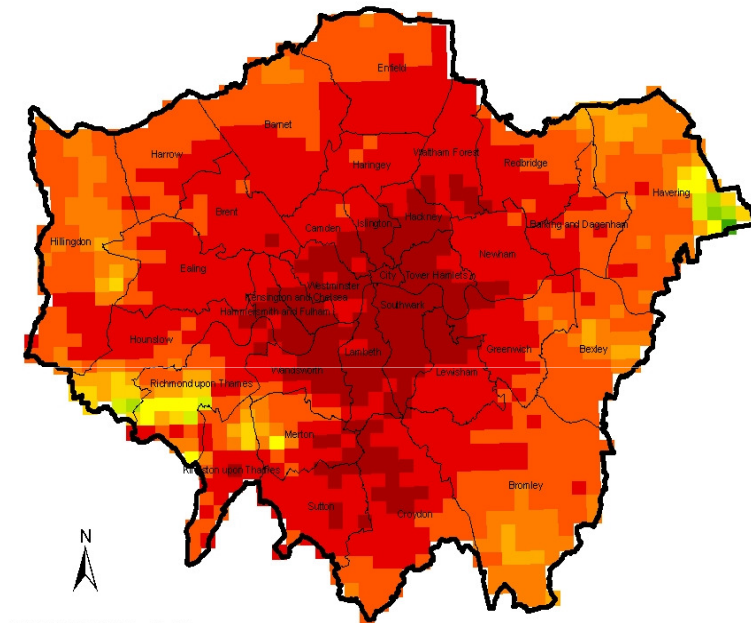
Drought



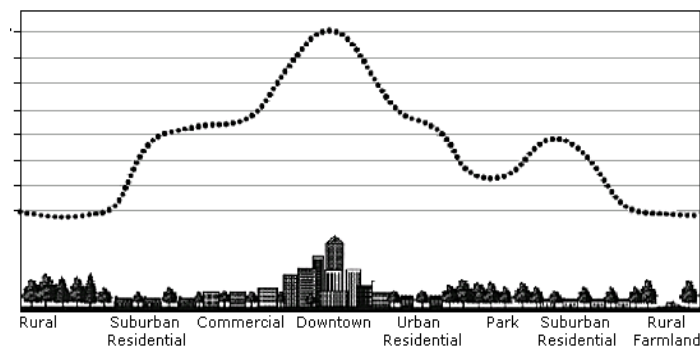
- The south east of England is already seriously 'water stressed'.
- London's water resources are already over-abstracted, or over licensed.
- 80% of London's water supply from Thames and Lea, 20% from aquifer
- In a dry year, Thames Water forecast that current demand would be 80MI/d greater than available supply
- London's growing population and changing demographics will increase demand
- Climate change will reduce supply and increase demand for water



Temperature distribution in London, August 2003

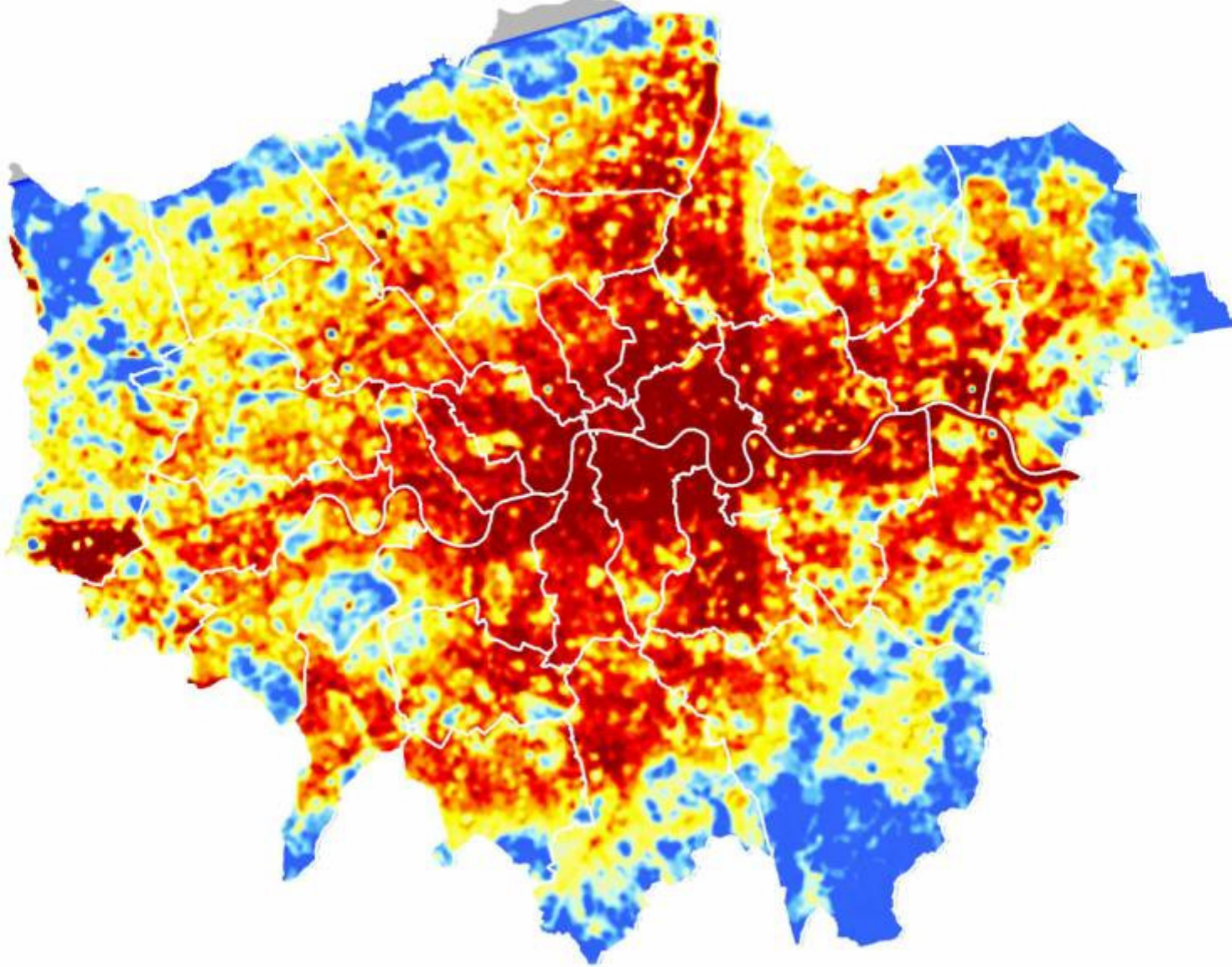


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- 600 people died in the 2003 heatwave
- London's microclimate amplifies the impact of hot weather (London is up to 10°C warmer than the greenbelt on summer nights)
- Intensification of development may increase the 'urban heat island effect'. Urban greening may offset the UHI effect
- Increasing demand for air-con will intensify the UHI effect and may affect energy supply (brown outs)

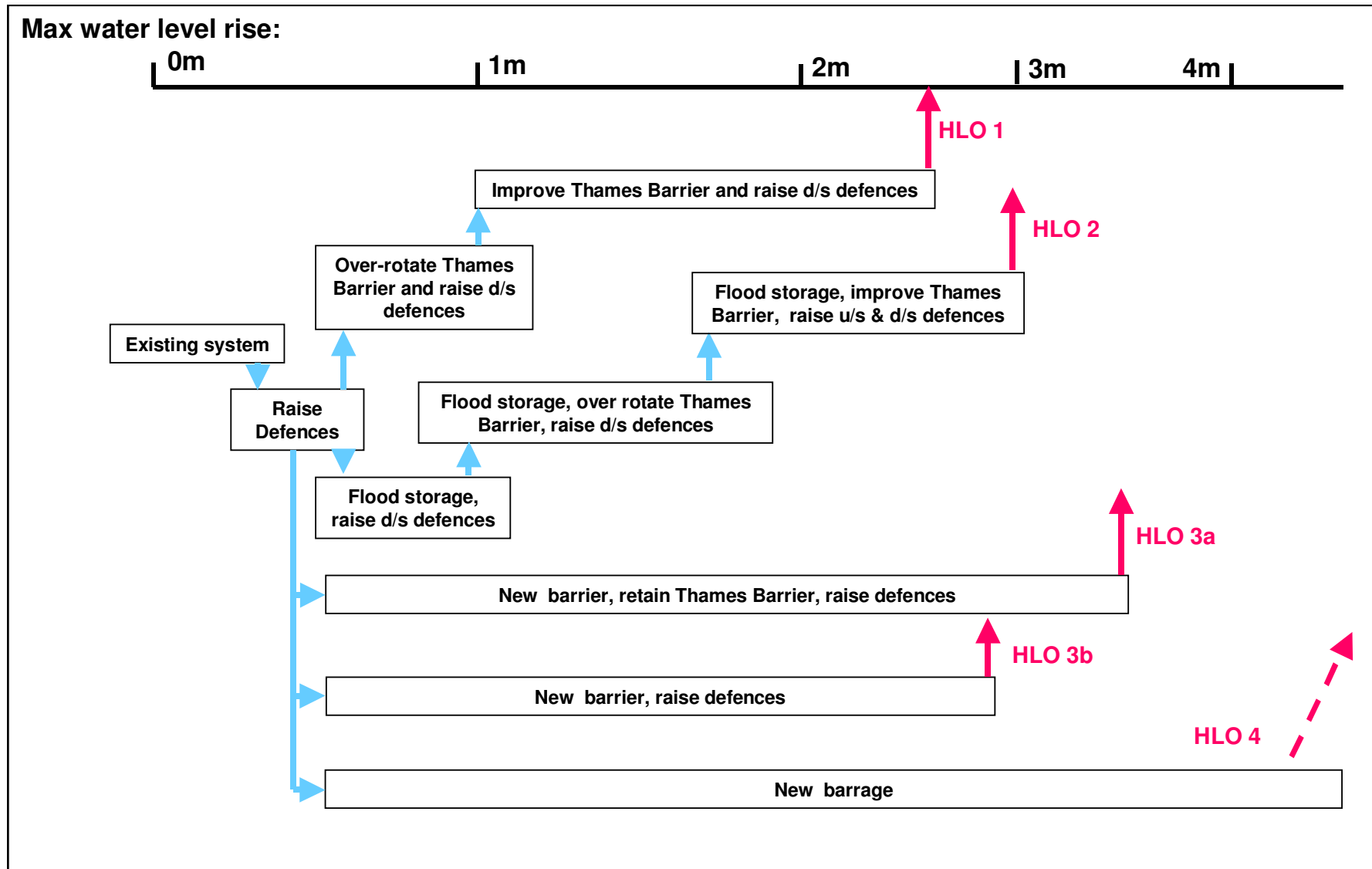
Urban heat island action area



When to adapt & how much to adapt to ?

- We need to generate 'flexible adaptation pathways' for each of the major impacts
- To do that we need to understand the thresholds where existing and new measures fail to provide an acceptable level of protection
- We need to apply the latest probabilistic projections to understand how the risks change through the century

Thames Estuary 2100 : Flexible Adaptation Pathways



Max water level rise:



All four approaches can manage water levels in 2100

