London's response to climate change

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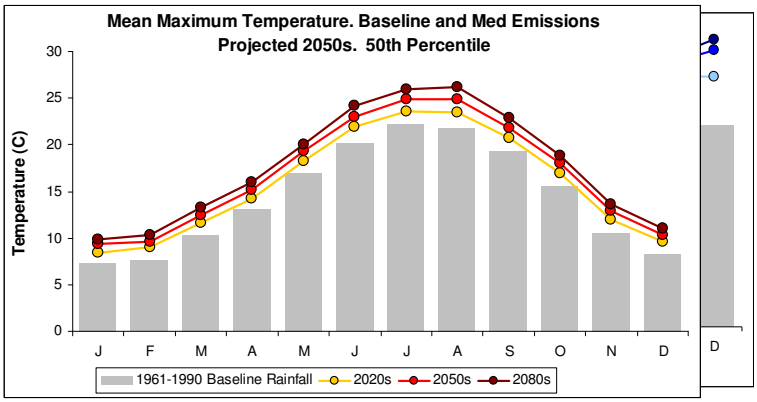
Session DS 4 : Thames Estuary

Deltas in times of climate change. Rotterdam 2010

Why adapt ?

1. We are not very well adapted to our current climate
2. Our climate is already changing and further changes are now inevitable
3. Cities are particularly vulnerable to climate impacts
4. Proactive action is always cheaper and more effective than reaction
5. Adaptation actions can provide wider benefits
6. Some adaptation options are complex and require coordination of a large number of partners over a range of scales.

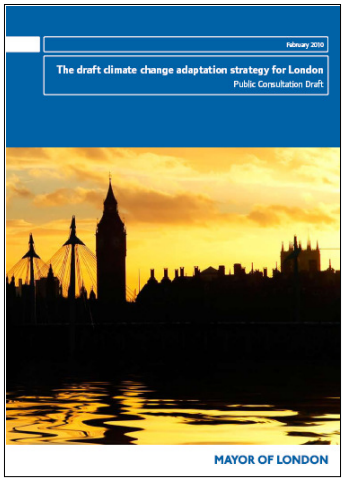
Warmer, wetter, hotter, drier



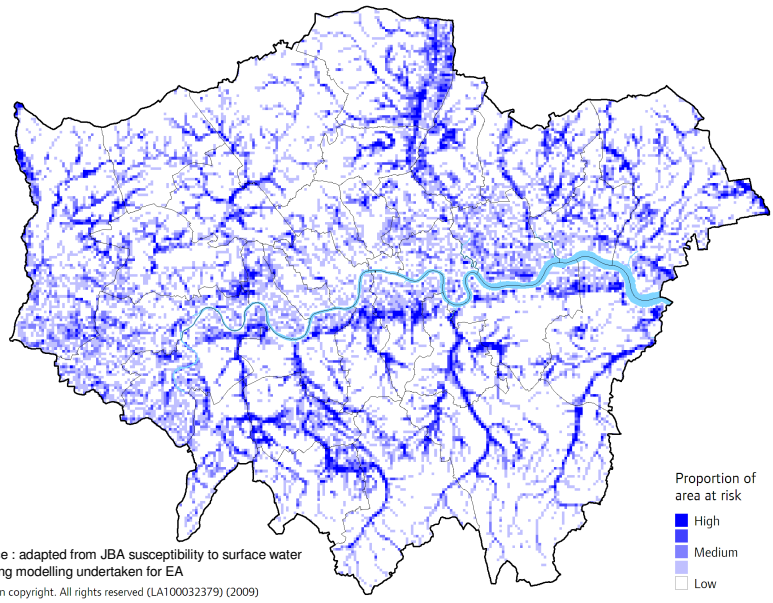
From UKCP09. Points generated show 50% probability

How is London vulnerable to CC ?

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



The challenges : flooding



Source : adapted from JBA susceptibility to surface water flooding modelling undertaken for EA

Managing surface water flood risk in London

What ?

Developing flexible adaptation pathways for managing surface water flood risk

How ?

- Assess future 'flood gap'
- Compare 'hard' and 'soft' options
- Optimise combination of measures
- Develop community flood plans for communities at highest risk
- Identify critical assets and critical interdependencies

When ?

- Variable, some measures are long term – eg.urban greening, others can be achieved now e.g. requiring green roofs on new development, developing community flood plans etc

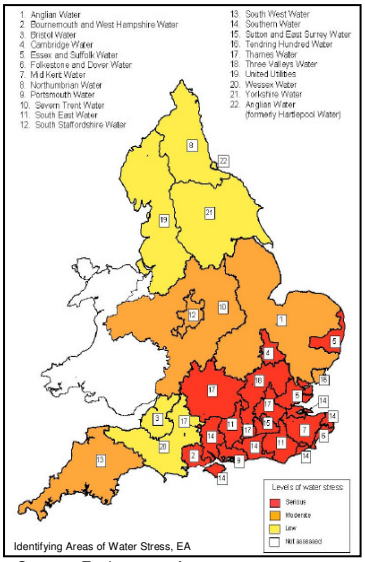
Assessing the range of options

Proactive ← **Reactive**

Strategic ↓ **Local**

	PREVENT	PREPARE	RESPOND	RECOVER
SOURCE	e.g. SUDS Green Roofs Urban Greening			
PATHWAY		Directing overland flow		
RECEPTOR	Building flood resilience measures	SFRAs SWMPs CFMPs	Emergency Response Plan	Recovery Plan

The challenges - drought



Identifying Areas of Water Stress, EA

Source : Environment Agency

- The south east of England is already seriously 'water stressed'.
- 80% of London's water supply from Thames and Lea, 20% from aquifer
- London's water resources are already over-abstracted, or over-licensed.
- In a dry year, Thames Water forecast that current demand would be 80Ml/d greater than available supply
- Londoners use more water than the national average (161 l/p/d vs 150 l/p/d)
- Only 1 in 5 homes has a water meter
- The Victorian-era water distribution network loses over 1/5 water in leakage

Balancing supply and demand

What ?

Multi-faceted programme aimed at changing behaviour and improving infrastructure.

How ?

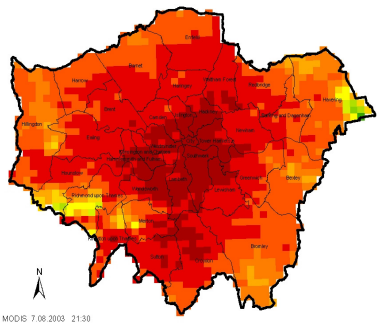
- Aim for 'water neutrality'
  - Ensure all new homes are 30% more water efficient
  - Improve water efficiency of existing homes and workplaces
- Push water companies to move more quickly to 'universal metering' and combine with retrofitting programme
- Encourage water companies to develop tariffs that reward water efficiency but protect vulnerable customers
- Work with water companies to improve information provided on water bill
- Work with water companies to increase rate of mains replacement

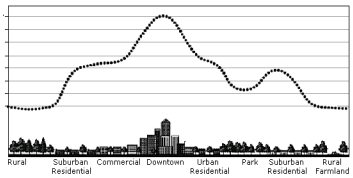
When ?

- Retrofit up to 200,000 homes by 2012, 1.2million by 2015

The challenges - overheating

Temperature distribution in London, August 2003





- 600 people died in the 2003 heatwave
- London's microclimate amplifies the impact of hot weather (London is up to 10ºC warmer than the greenbelt on summer nights)
- Londoners are more resilient to rising temperatures than other UK regions, but suffer most when temperatures exceed 24ºC.

Urban Greening Programme

Targeted urban greening programme :

- Increase greenery in the centre of London by 5% by 2030 and a further 5% by 2050
- Increase tree cover by 5% by 2025
- 100,000m^2 of green roofs by 2012
- enhance 280ha of greenspace by 2012 – especially in east