



The Alliance for Resilient Cities

Eva Ligeti, Executive Director

Clean Air Partnership

ARC Webinar, November 27, 2007



What is **ARC**?

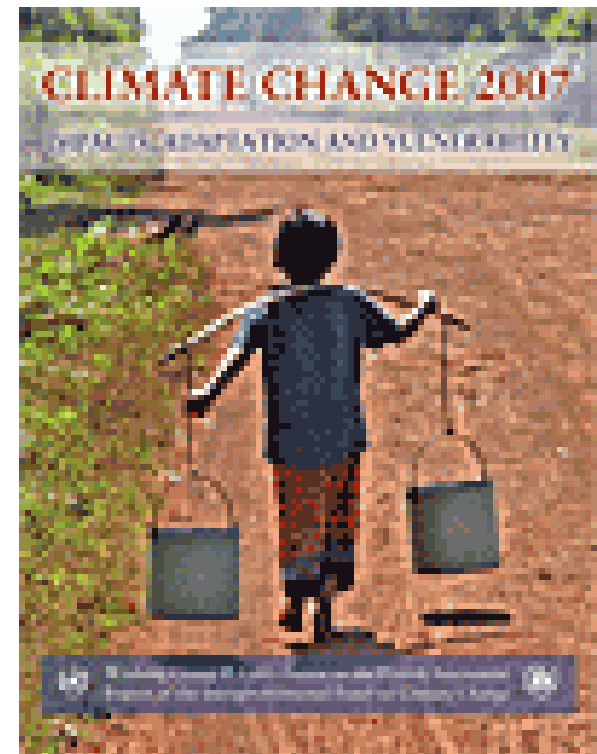


- Network of local governments and other decision-makers concerned about responding effectively to the impacts of climate change
- Why “**resilient cities**”? Resilience is the ability of a system to withstand stress and to adapt to changing conditions
- Climate change is creating a great deal of stress for cities and this will continue for the foreseeable future

2007 IPCC Report: Impacts, Adaptation and Vulnerability



- Observational evidence from all continents shows that natural systems are already being affected by regional climate changes
- Impacts of climate change will vary by:
 - Rate of temperature change
 - Adaptive measures put into place
 - Socio-economic group impacted by change



Power of Worldwide Network



- UKCIP – Climate Impacts Program
- US Urban Leaders Forum
 - Supports dialogue among partners, with tools and expertise to sustain local climate adaptation efforts
- Alliance for Resilient Cities
 - Will provide similar collaborative network for Canadian cities
 - Promote dialogue among urban decision makers on climate change impacts and adaptation strategies
 - Provide information and tools from outside experts
 - One-on-one work with partners

Resiliency ≠ Emergency Responses



- While responding to emergencies is very important, our focus is not on emergency planning
- **FOCUS:** to reduce the impacts of climate extremes on our communities by building our resiliency, reducing our emissions, understanding our vulnerabilities and taking action

Importance of Learning and Dialogue

Our intent:

- To allow plenty of time for dialogue and collaboration among all the participants, rather than simply listening to information
- To focus on *urban* impacts and strategies
- To link with the expertise of leading researchers
- To facilitate information sharing
- To showcase best practices
- (and, lessons learned.....)



The Role of the Clean Air Partnership



- Convene the Alliance for Resilient Cities
- Manage webinar meetings, recruit speakers
- Keep abreast of and communicate the latest developments and strategies
- Respond to member requests
- Provide one on one consultations



Who will participate in ARC?



- Representatives of local governments in Canada
- Other levels of government
- Businesses concerned about climate impacts
- Research institutions and non-governmental experts



Membership Fees



<i>For Fiscal Year 2008</i>	
Regional Governments	\$4000
Municipalities > 1 million	\$4000
Municipalities 500,000 – 1 million	\$3000
Municipalities 250,000 – 500,000	\$2500
Municipalities 100,000 – 250,000	\$2000
Municipalities 50,000 – 100,000	\$1500
Municipalities < 50,000	\$1000
Industry Associations & Professional Organizations	TBD

To cover costs of:

- Staff time
- Webinar technical services
- Teleconference costs
- Website management

Webinar Schedule



- First two webinars scheduled for:
 - **Tuesday November 27th, 1:00 – 3:00 p.m.**
 - **Tuesday January 15th, 1:30 – 3:30 p.m.**
- These webinars will be free of charge
- From March 2008, only ARC members and invited guests will participate in the webinars



Alex Nickson



- Climate Change Strategy Manager, Greater London Authority, UK
- Key Note Speaker - *Lessons from London's Climate Change Adaptation Process and Strategy*
- London has been working on climate change adaptation since 2001 and has recently prepared a comprehensive climate change adaptation plan
- Alex Nickson has participated in this process since the beginning and led the development of the adaptation plan

Registered Webinar Participants



Organization	Participant
BC Ministry of Environment	Various
Cement Association of Canada	Wayne Dawson
Center for Clean Air Policy	Various
City of Burlington	Various
City of Coquitlam	Jennifer Wilkie
City of Hamilton & Clean Air Hamilton	Various
City of London	Shawna Milanovic
City of Oshawa	Suzanne Elston
City of Ottawa	Various
City of Toronto	Various
City of Vancouver	Various
City of Vaughan	Rebekah McGurran
Enbridge	Tim Adamson
Federation of Canadian Municipalities	Devin Causley
Fraser Valley Regional District	Bob Smith
Halton Region Health Department	Various

Organization	Participant
Health Canada	Kaila-Lea Clarke
Insurance Bureau of Canada	Robert Tremblay
Metro Vancouver	Brent Burton
Natural Resources Canada	Various
Ontario Ministry of the Environment	Carol Salisbury
Peel Region - Peel Public Health	Various
Regional District of Central Okanagan	Leah Hartley
The Regional Municipality of Durham	Nestor Chornobay
The Regional Municipality of York	Dr. Erica Weir
Town of Ajax	Stev Andis
Town of Oakville	Cindy Toth
Township of King	Jane Underhill
University of Toronto	Blake Poland
Ville de Montreal	Herve Loge
Adaptation Expert	Ian Burton
Adaptation Expert	Michelle Laurie

Introductions of Participants



If there is more than one person participating from your location, we would ask that one person introduce the group and provide the requested information

Introductions of Participants



Please provide the following information:

- Your name and title
- Your (or your group's) affiliation
- Name and title of each member of your group
- Please **state 1- 3** climate impacts that are **expected** to be a problem in your community

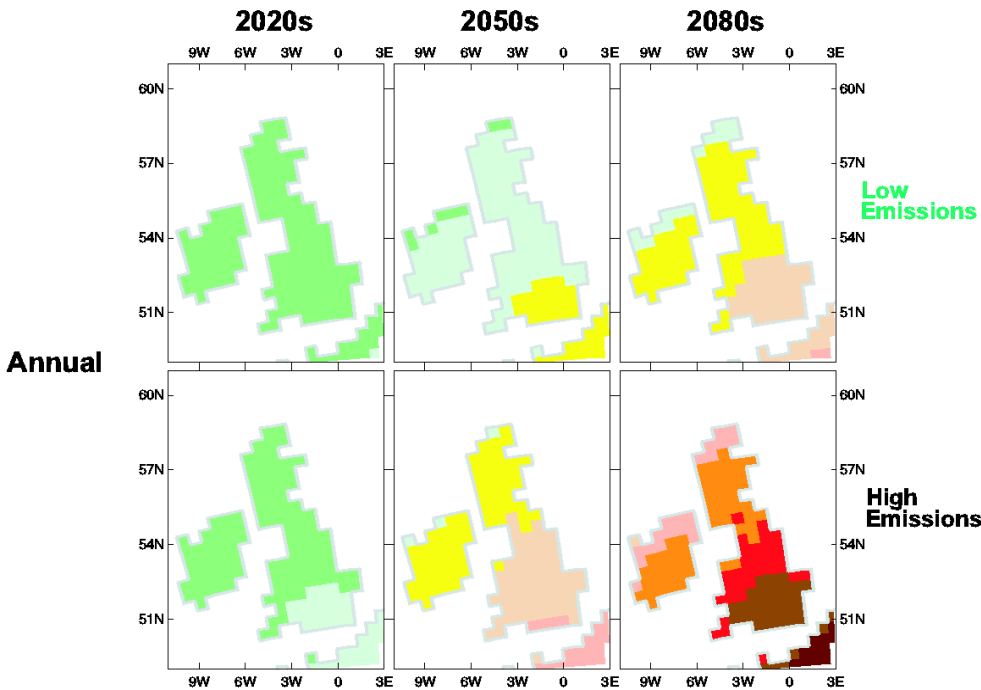
Preparing London for inevitable climate change

Alex Nickson, Strategy Manager, Climate Change Adaptation & Water

Email : alex.nickson@london.gov.uk

Tel. 00 44 207 983 4322

Warmer, wetter winters and hotter, drier summers



Summer 2050's (high emissions)

- +3°C
- - 30-40% rainfall

Winter 2050's (high emissions)

- +1.5 - 2 3°C
- + 25-30% rainfall

Summer temperatures



How is London vulnerable to CC ?

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

Flooding

4 flood sources

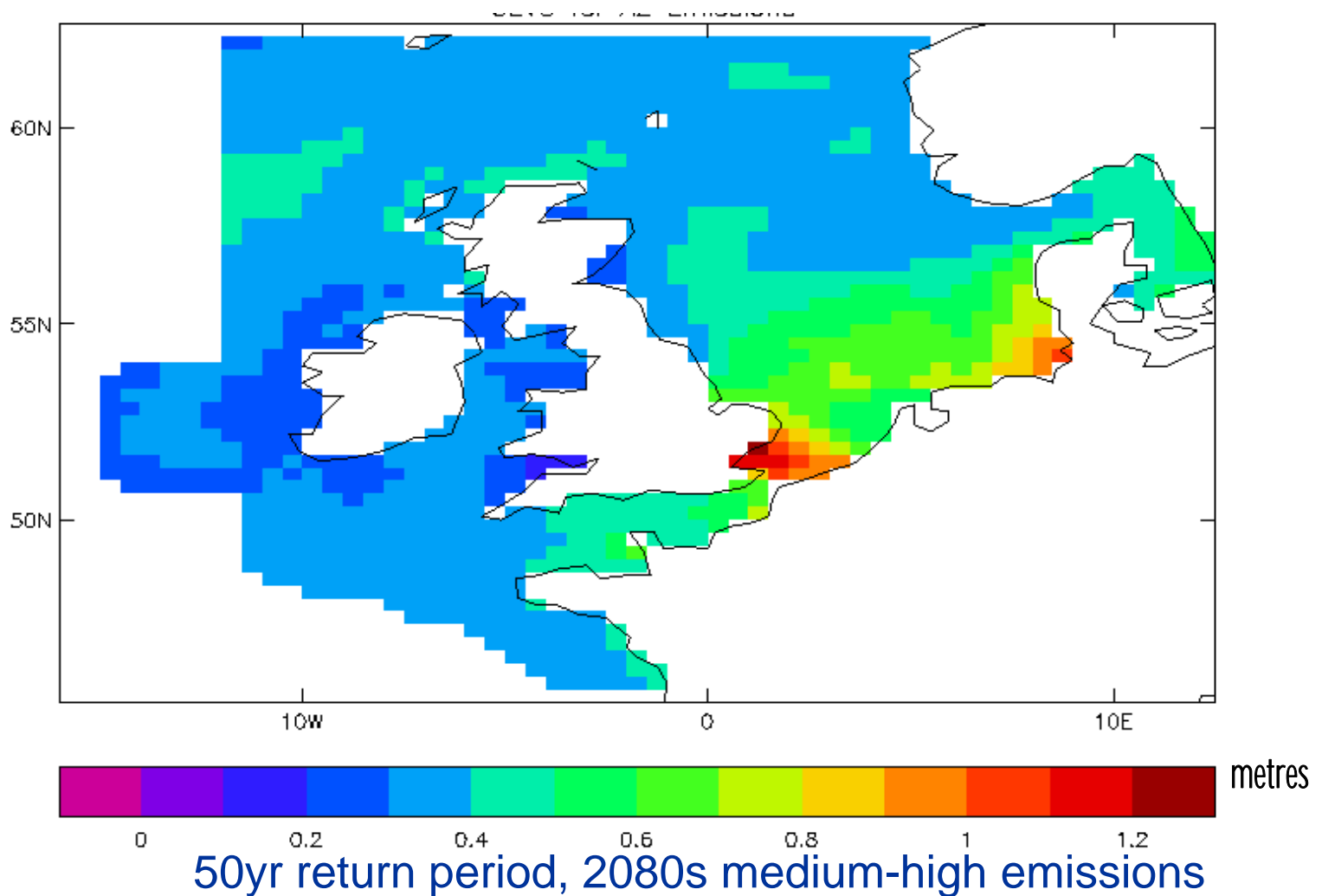
- Tidal
- Fluvial
- Surface
- Sewer

(Groundwater)

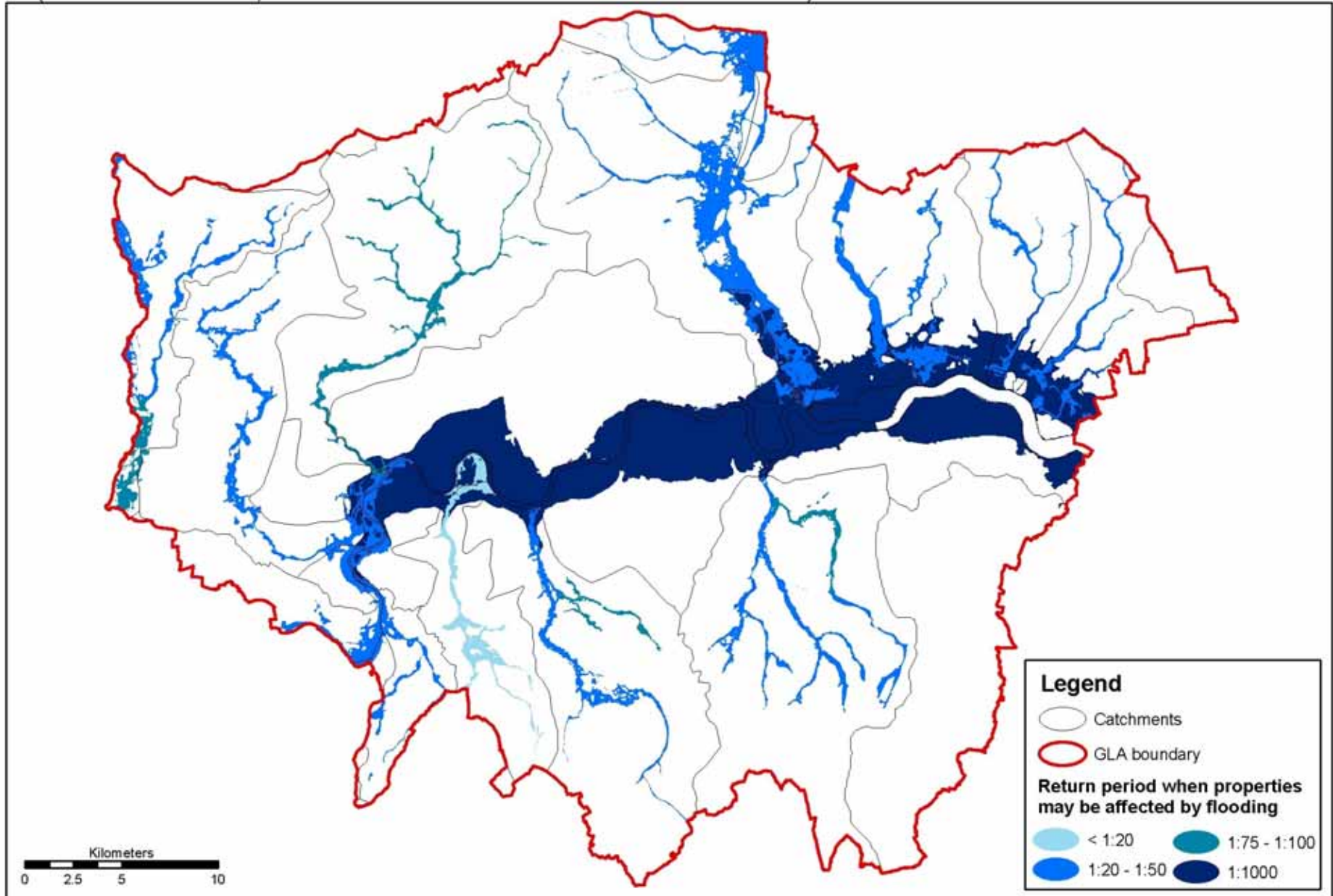
Frequently experience flooding from more than one source (combined flooding)

Climate change will increase probability, London's growth may increase consequence and vulnerability

Coastal areas will be increasingly threatened as sea levels rise



Map to show the return period when properties may be affected by flooding (at a catchment scale, within flood zone 2 and from fluvial and tidal sources)



Water, water everywhere ?

London already faces limited water resources.

CC will affect water availability through :

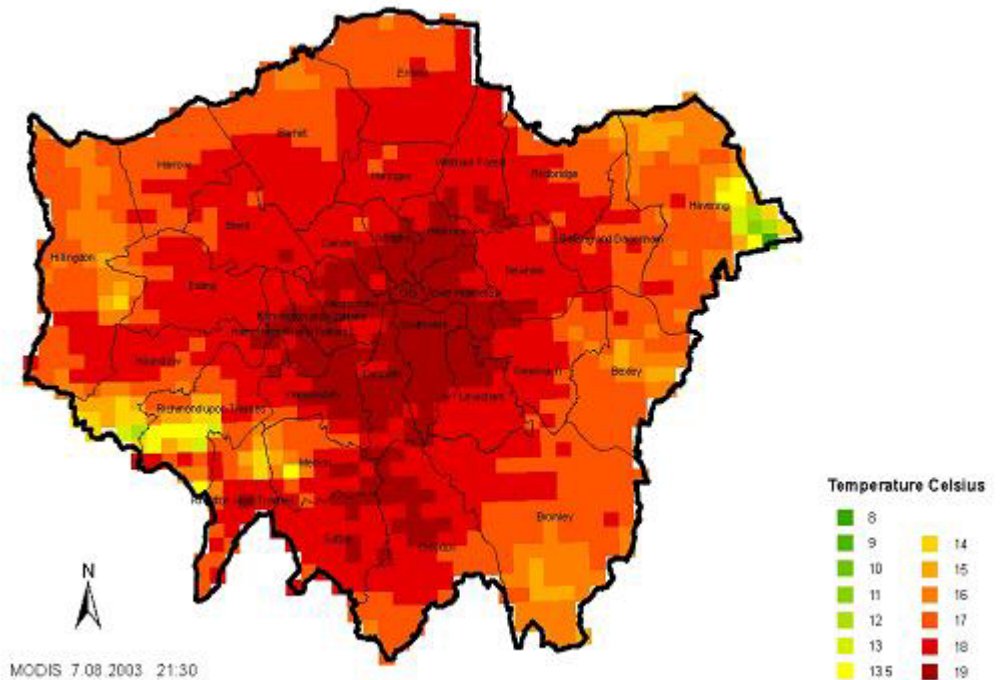
- Reducing ground water recharge
- Reducing river flows
- Increasing loss from broken mains (subsidence)
- Increasing evaporation
- Increasing demand

NB. This is just to existing consumers / users

Hot in the city

- 600 people died in the August 2003 heatwave
- London had highest numbers of deaths for any UK region
- London's urban heat island means inner London can be up to 9°C warmer than the greenbelt
- Further development may intensify the heat island effect
- Anthropogenic contributions need to be minimised

Temperature distribution in London, August 2003



London Climate Change Partnership



The LCCP is a stakeholder group, coordinated by the Greater London Authority, consisting of over 30 key organisations, with representation from national, regional and local government, the Environment Agency, UK Climate Impacts Programme, emergency services, residential and commercial developers, transport providers, financial institutions, and the health, utility, voluntary sectors.

LCCP Objectives:

- **Raise awareness of climate risks and opportunities across all sectors**
- **Encourage decision makers to mainstream climate issues in formulating plans and policies**
- **Commission research and develop sector specific guidance**
- **Increase the level of adaptation in new and existing development**
- **Provide simple, accessible information on climate impacts and adaptation options**

LCCP Engagement

Thematic Sub-Groups

- **‘Three Regions’ Climate Change Group**



South East Climate Change Partnership
A partnership of the public, private and voluntary sectors
President: Sir Crispin Tickell CCMG KCVO
Patron: John Craven OBE



- **Financial Services Group**

(Lloyds, Carbon Disclosure Project, Financial Services Authority, Institutional Investors Group on Climate Change, Universities Superannuation Scheme, Barclays)

- **Transport Group**

(Transport for London, Department for Transport, Network Rail, Tubelines, Metronet, Association of Train Operating Companies, Rail Safety Standards Board)

Steering Group

- **Chaired by a mayoral appointment**
- **Meets every 2 months**
- **Reports from sub groups**
- **Manages the ‘direction’ of the Partnership**
- **Responds to consultations**

LCCP Forum

- **Held biannually**
- **Open to wider audiences**
- **Guest Speaker**

London's Warming: The Impacts of Climate Change on London



Launched in 2002

Scoping Report identifying the principle change impacts for London.

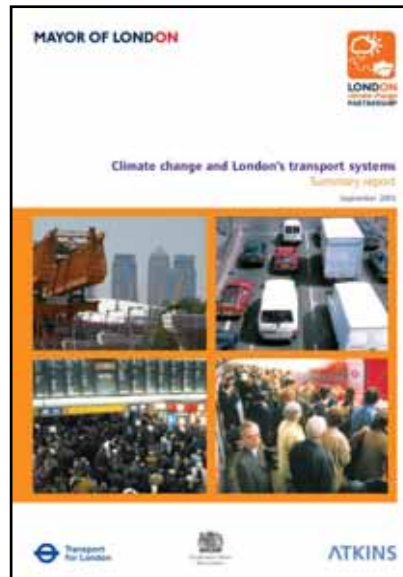
Key messages and future climate prediction (UKCIP02).

Summary of climate change impacts for all London's stakeholder sectors

Identified 'priority' areas for further research

- New development in 'growth areas'
- Transport infrastructure in London
- Influence the Mayor's spatial development strategy for London (London Plan)

Climate Change and London's Transport Systems



Launched in 2005
Summary & Technical
Reports

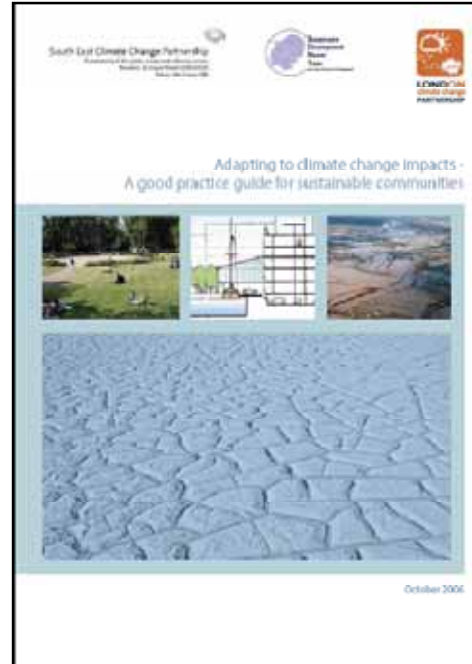
Four case studies :

- Tidal and fluvial flood risk in London Thames Gateway
- Infrastructure damage and station closure by local flooding
- Infrastructure damage in hot weather
- Passenger comfort on the Underground

A Checklist for Development



A Good Practice Guide for Sustainable Communities



A Case Study Companion to the Checklist for Development



Launched 2005. Guidance for local planners & developers

Launched 2006. Guidance for local planners & developers

Launched 2006. Guidance for local planners and developers

Key Issues to Consider

- Location
- Site Layout
- Buildings
- Ventilation & Cooling
- Drainage
- Water
- Outdoor spaces
- Connectivity

Case Studies

- Town Centres (Bedford)
- City Centre (Wood Wharf)
- Urban Extension (Queenborough & Rushenden, Isle of Sheppy)

Highlights case study where adapting to climate impacts (heat, water shortage, flood risk) are already put into practice.

Adapting to Climate Change: Business as Usual



Launched in 2006
Highlights key climate risks and opportunities for London's Financial Services Sub-sectors

Poses questions for financial leaders of the Insurance, Banking, Pension, Fund Manager, Infrastructure & Utilities sectors.

Adaptation Summary & Recommendations for Finance Sectors

Catalyst for Round Table Event with Mayor, Sir Nick Stern and heads of London's Financial Services

Adapting to Climate Change: Lessons for London



Launched in 2006. Focus on Adaptation for:



Flooding



High Temperatures



Limited Water Resources

Delivers 12 Recommendations to:

- Policy & decision-makers
- LCCP Stakeholders
- Mayor of London
- Greater London Authority
- Govt. Departments
- Developers
- Utilities & Regulators

Retrofitting existing homes for climate change



House



Single flat



Block Of Flats

- Database of adaptation measures
- Costed case studies for typical house, flat and block
- Online resource
- High-level summary report

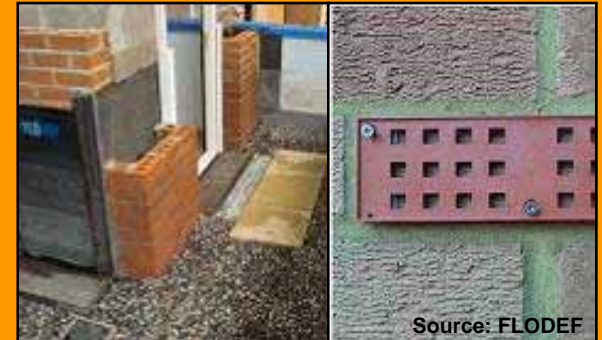
Launch: January 2008

- Summary for Policy Maker's Report
- Online Resource



Source: Environment.gov.au

Water Conservation



Source: FLODEF

Flood Risk



Source: Buildingsupplies.com.au

Overheating

Adaptation as a mayoral priority

- Tackling climate change is a stated mayoral priority
- The Mayor believes that London has a responsibility to be an international exemplar
- The Mayor believes that cities have the opportunity to go ‘further and faster’ than national governments
- The government has given the Mayor a ‘climate change duty’
 - Includes a statutory requirement to produce a ‘climate change mitigation and energy strategy’ and an ‘climate change adaptation strategy’
- Tackling climate change was central to the review of the Spatial Development Strategy
- Mitigation has been ‘mainstreamed’ within GLA Group – now need to repeat for adaptation

Mainstreaming adaptation

Internally

- 'Strategy Co-ordination Group'
- Commenting on GLA Group plans and strategies
- Mayoral budget approval process
- Demonstration projects

Externally

- Holding sectoral workshops
- Working with GLA-led Partnerships
- Presentations at conferences
- Sitting on Steering Groups of research projects
- Commenting on London Borough spatial plans
- Presentations to national government departments
- Responding to government consultations
- Submitting evidence to government Select Committee Hearings



Possible **Webinar** Topics

Jennifer Penney,
Director of Research
Clean Air Partnership

Possible Areas for Discussion

Climate change science, e.g.

- Downscaling climate data for specific regions

Expected areas of impact, e.g.

- Heat waves, flooding
- Financial impacts on municipalities

Assessing vulnerability to climate change, e.g.

- How to conduct a climate change risk assessment

Getting organized, e.g.

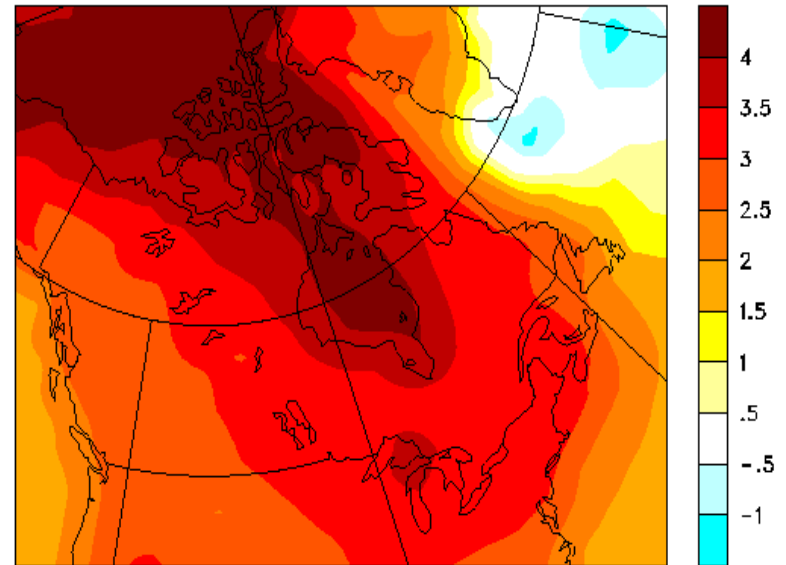
- Reaching and engaging stakeholders

Reducing impacts & increasing resilience, e.g.

- Tackling the urban heat island
- Reducing damage to buildings from storms

Climate Change Science

- *2007 IPCC report on emissions and effects*
- *Heat, precipitation, storms & sea level rise in 2020, 2050, 2080*
- *Certainty & uncertainty in climate change predictions*
- *Downscaling climate models to local regions*



Expected Areas of Impact

- *Rising temperatures & air quality, health, energy demand...*
- *Impacts of higher wind speeds*
- *Flood risks from intense precipitation*
- *Coastal communities & sea level rise*
- *Financial impacts on municipalities, local economies*



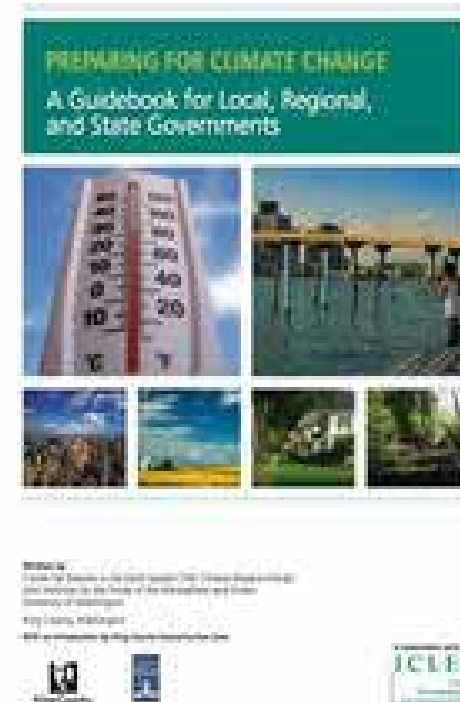
Assessing Local Vulnerability

- *How Halifax & other cities assessed their vulnerability*
- *Problems in depending on the past to predict the future*
- *Identifying priority areas for action*

		PROBABILITY		
		LOW	MEDIUM	HIGH
IMPACT SEVERITY	HIGH	M	H	H
	MEDIUM	L	M	H
	LOW	L	L	M

Getting Organized

- *How other cities are tackling adaptation*
- *Preparing for Climate Change: King County guide for local governments*
- *Lessons from B.C. on engaging stakeholders*
- *Working with other levels of government in the Maritimes*



Reducing Impacts & Increasing Resilience

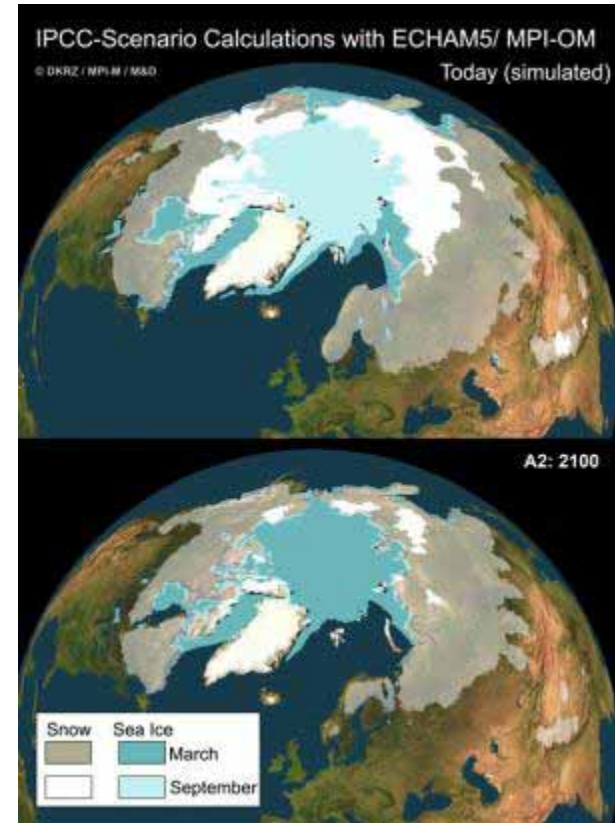
- *Urban planning for adaptation*
- *Sustainable flood management*
- *Increasing resilience of urban green spaces under climate change*
- *Strategies that reduce emissions and impacts*



Sample Webinar Topics:

Developing Visual Imagery to Enhance Local Climate Change Decision-Making in the Greater Vancouver Area

- Stephen Sheppard,
Sustainable Landscape
Planning, University of British
Columbia



Sample Webinar Topics:

Climate Change Adaptation Planning for New York City's Water System

- Kate Demong, New York City Department of Environmental Protection
- Cynthia Rosenzweig, Center for Climate Systems Research, Columbia University



Sample Webinar Topics:

Water Management and Climate Change in the City of Kelowna

- Stewart Cohen, Adaptation and Impacts Research Division, Environment Canada
- John Vos, Director of Water and Utilities, Kelowna, City of Kelowna, B.C.



Sample Webinar Topics:

Report from the First National Engineering Vulnerability Assessment

- Public Infrastructure Engineering Vulnerability Committee
- Examining infrastructure vulnerability to climate change with focus on:
 - ❖ Buildings
 - ❖ Roads & associated structures
 - ❖ Stormwater & wastewater systems
 - ❖ Water resources



Sample Webinar Topics:

*Awareness and
Engagement Strategies
used in Developing the City
of London's Climate
Change Adaptation Plan*

- Alex Nickson, Climate Change Adaptation Strategy Manager, Greater London Authority (UK)

LONDON
CO₂
N