“Welcome to Bolton Town Hall”

Our world, our Bolton Community Climate Change Conference

GROUNDWORK
CHANGING PLACES
CHANGING LIVES

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Our world, our Bolton

Community Climate Change Conference

Welcome and Introductions
Coucillor Ismail Ibrahim
Executive Member
Development, Regeneration and Skills
Bolton Council

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Community Climate Change Conference

- **Opening Remarks**
- **Councillor Sufrana Bashir-Ismail**
- **Executive Member**
- **Cleaner, Greener, Safer**
- **Bolton Council**

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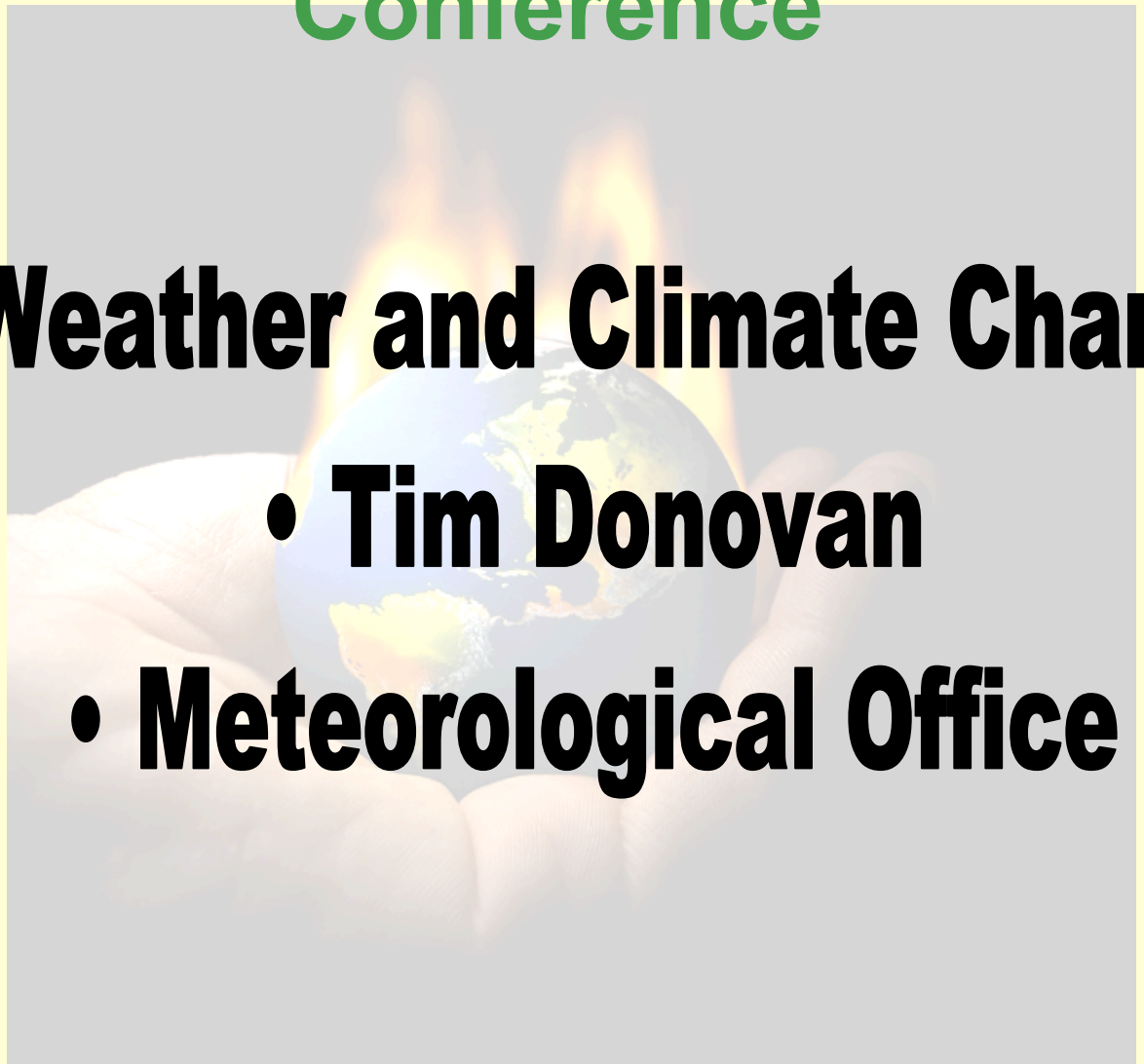

- **Weather and Climate Change**
- **Tim Donovan**
- **Meteorological Office**

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Smarter

Climate change, risk change, service change!

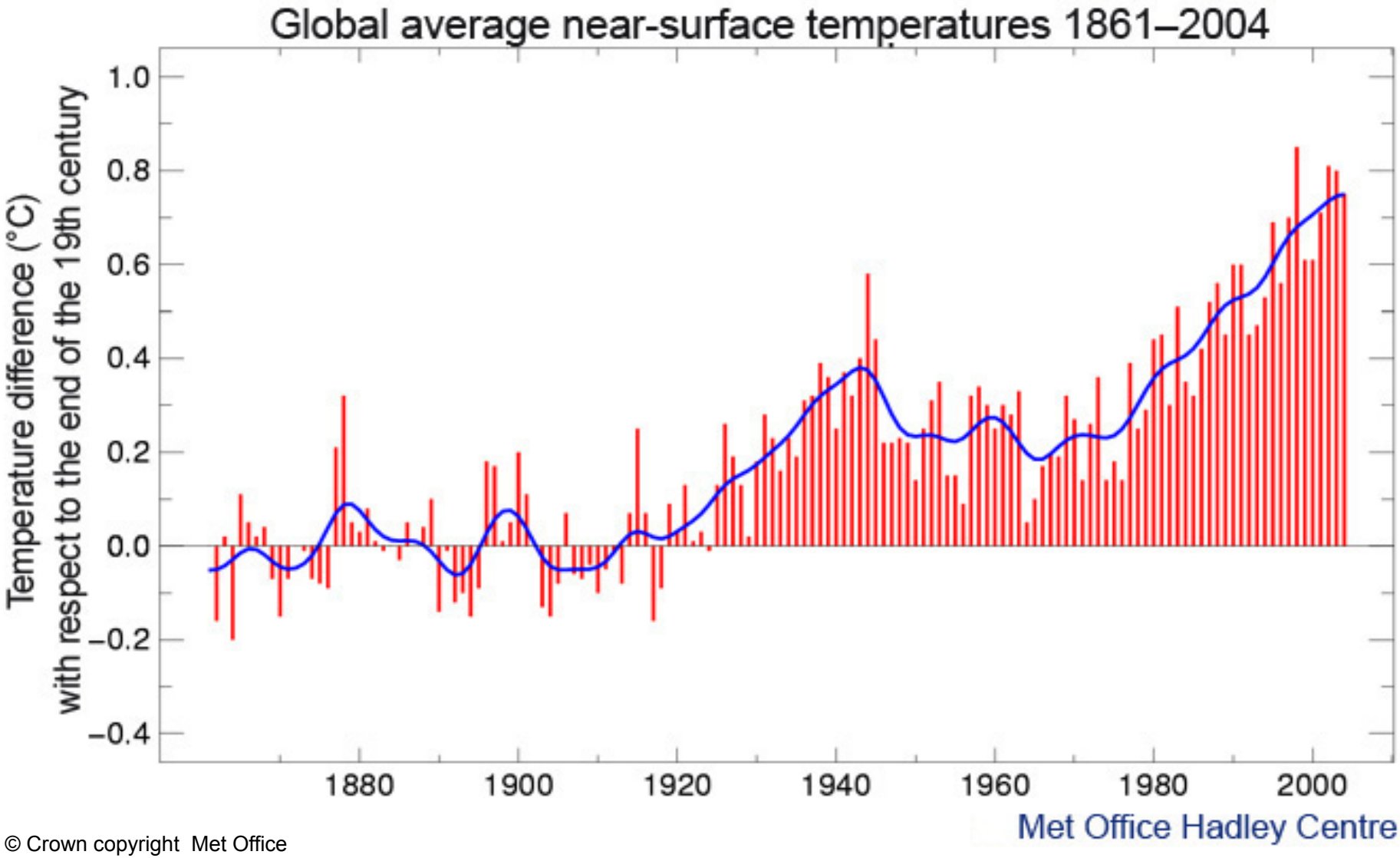
Who are the Met Office?

- Met Office founded in 1854
- MoD Trading Fund
- UK National Weather Service
- Customers include Public Weather Service, MoD, DEFRA, DECC, EA ...

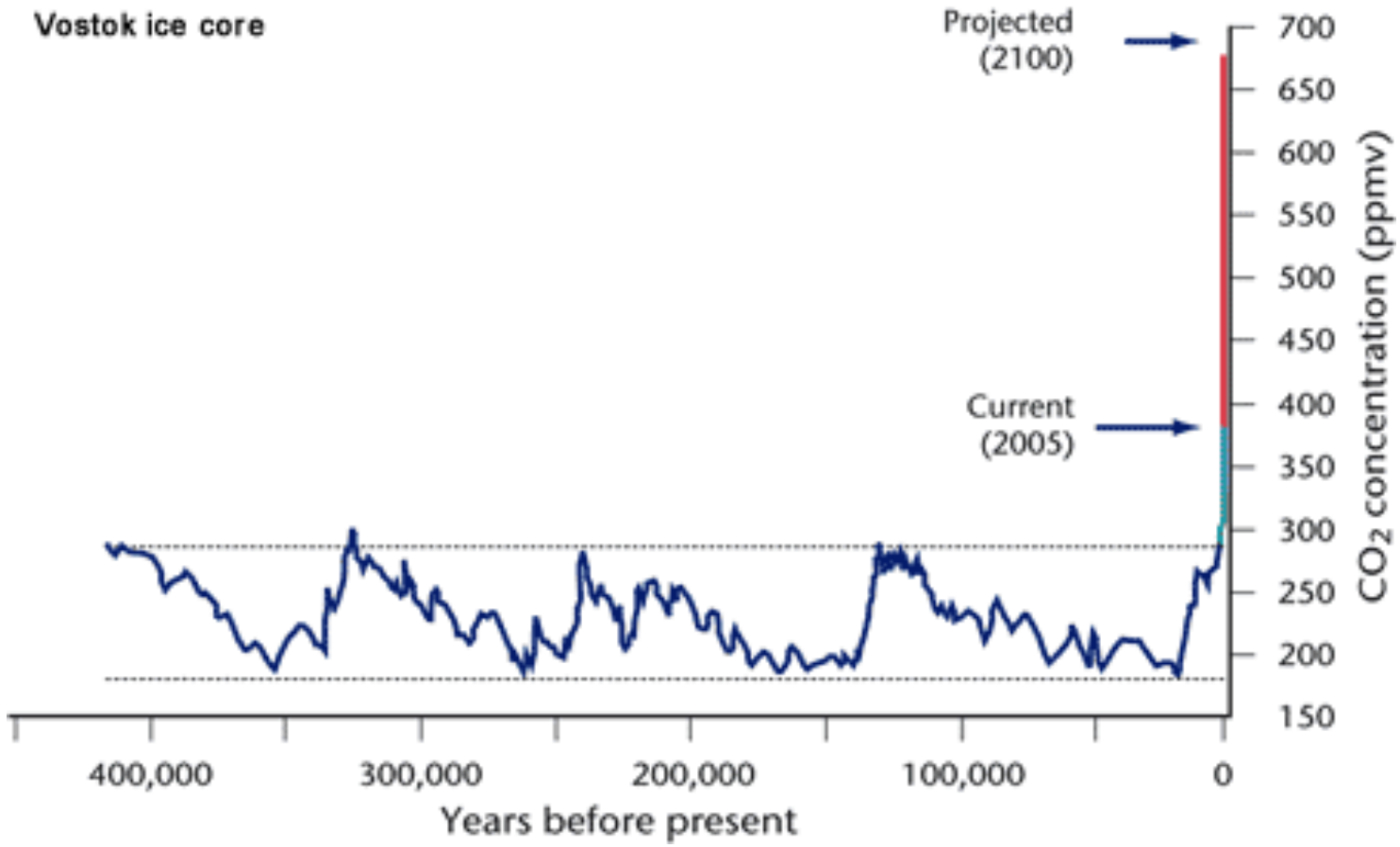
Climate change - evidence

Climate Change Observations

Global average temperature



CO2 Concentrations



Climate change - impacts

Weather impact

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Page last updated at 07:40 GMT, Wednesday, 21 April 2010 08:40 UK

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Hundreds of grass fires reported across south Wales

Fire services in south and mid Wales are being stretched by deliberately set grass fires, say control managers.

South Wales Fire and Rescue Service said it had received more than 1,000 calls over the weekend and 250 on Tuesday evening alone.

Grass fires have been reported from Newport to the Rhondda

Duty control manager Kay Carter said many members of the public who called reported that they could see people lighting the fires.

She added: "We want to prosecute these people because it is a criminal act."

Ms Carter said that despite the wet and mu
weeks ago the weather and the ground had

"It's causing us real issues," she told BBC Ra
are stretched.

"Both frontline crews and our control staff are exceptionally busy during these periods. There's no let-up with the continuing good weather."

Ms Carter said reports of grass fires on Tuesday evening had been received from the Newport, Aberdare, Ponty
Rhondda areas.

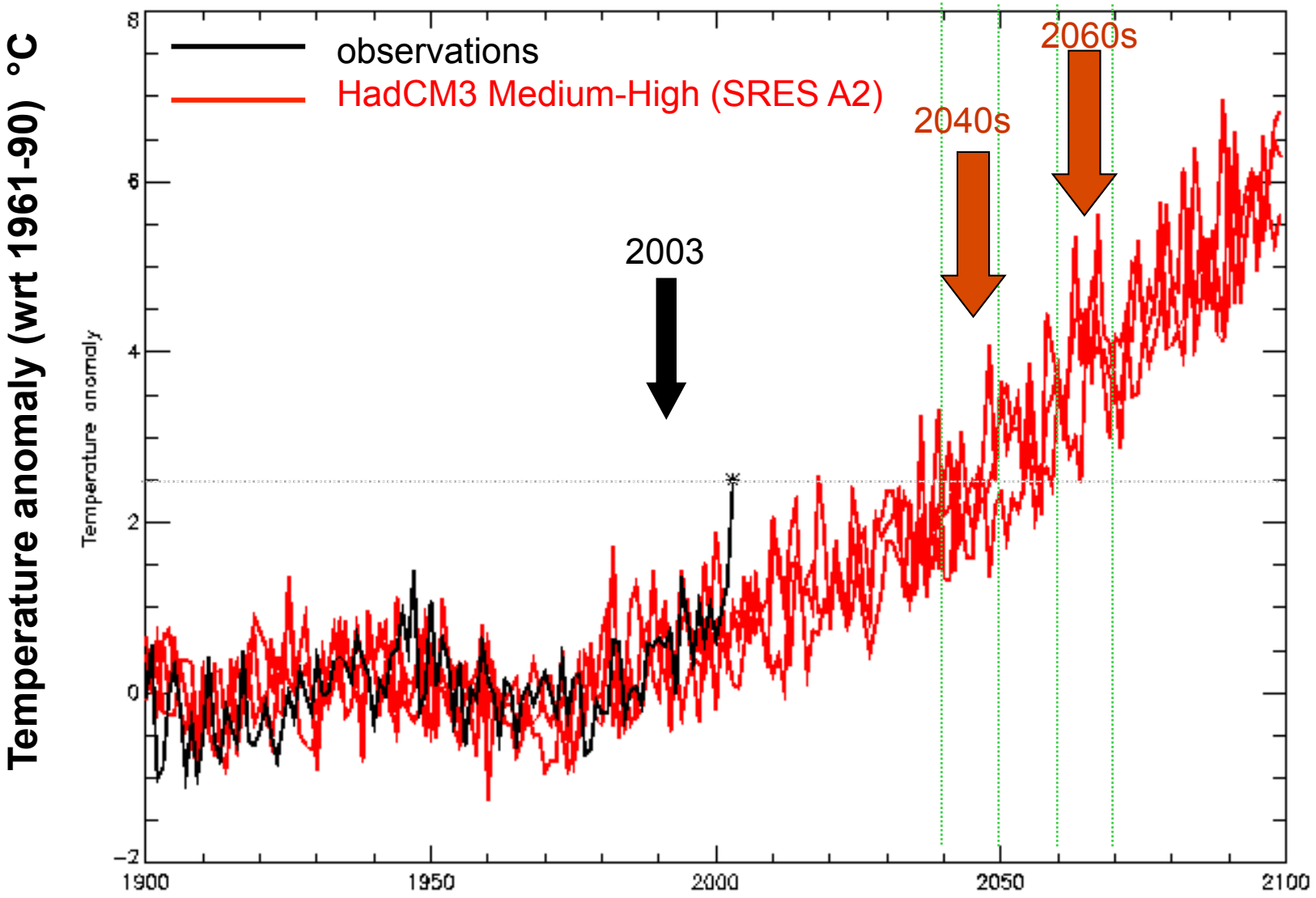
"Unfortunately all these grass fires are delibe
increasing in number," she added.

South East Wales
Find out more about what is going on across the region

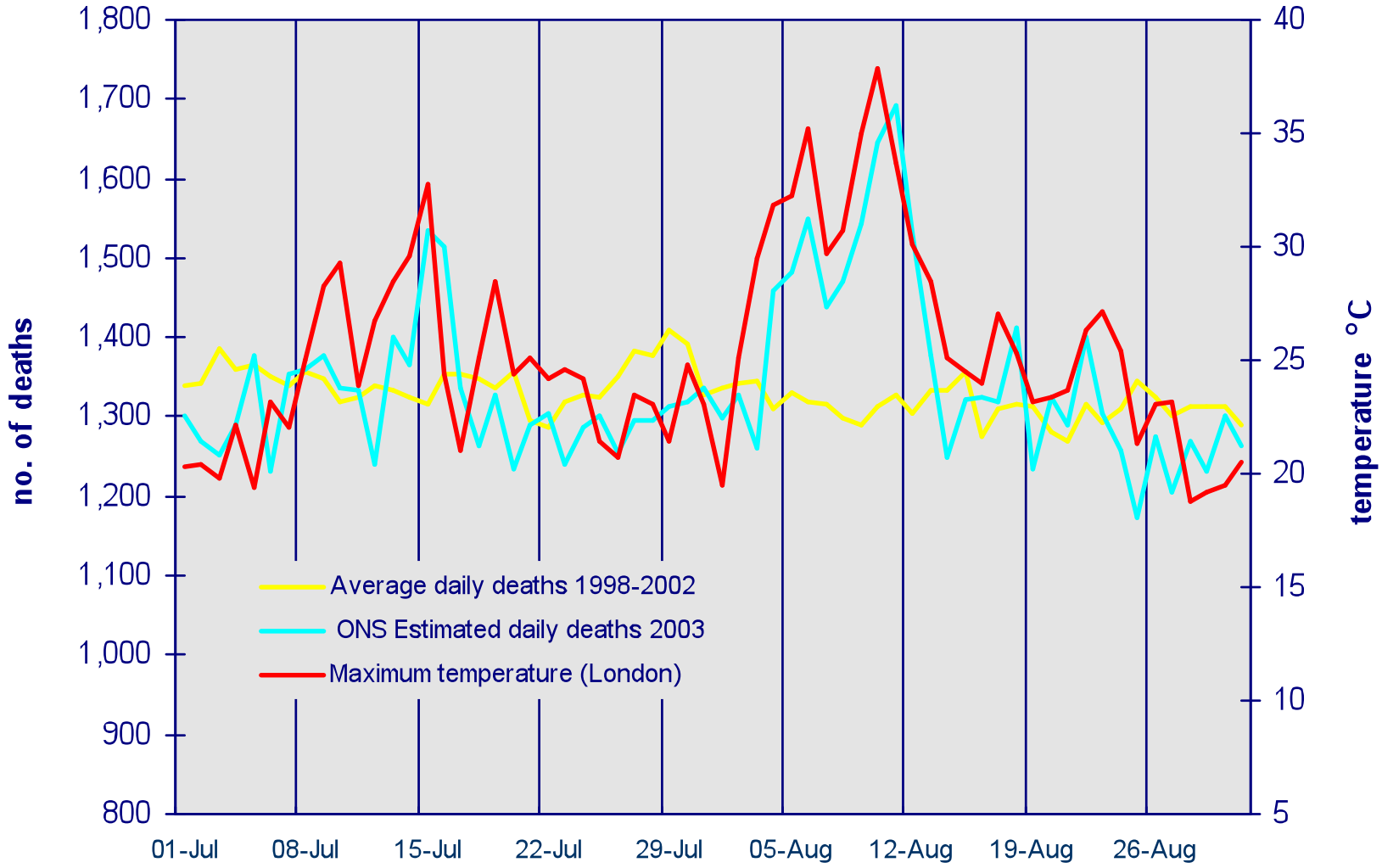
Mid Wales
Find out more about what is going on across the region

SEE ALSO

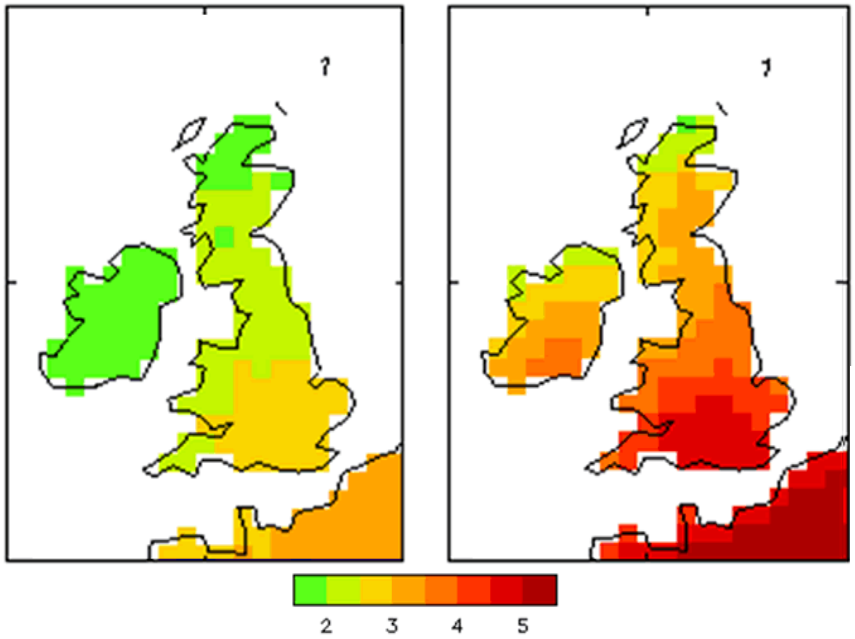
European 2003 summer temperatures: normal by 2040s, cool by 2060s



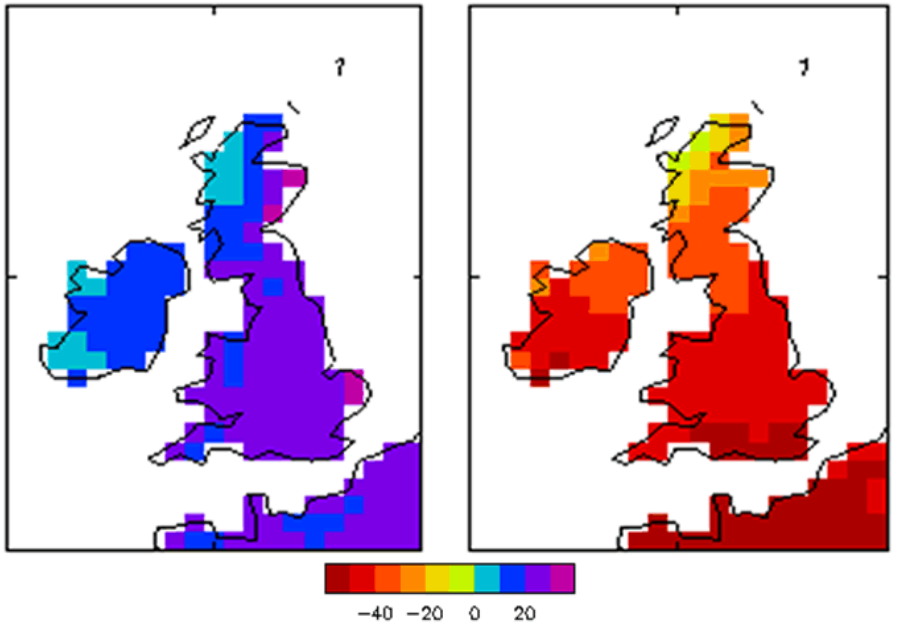
UK impacts
Heatwaves: Summer 2003



The future



UK temperature change



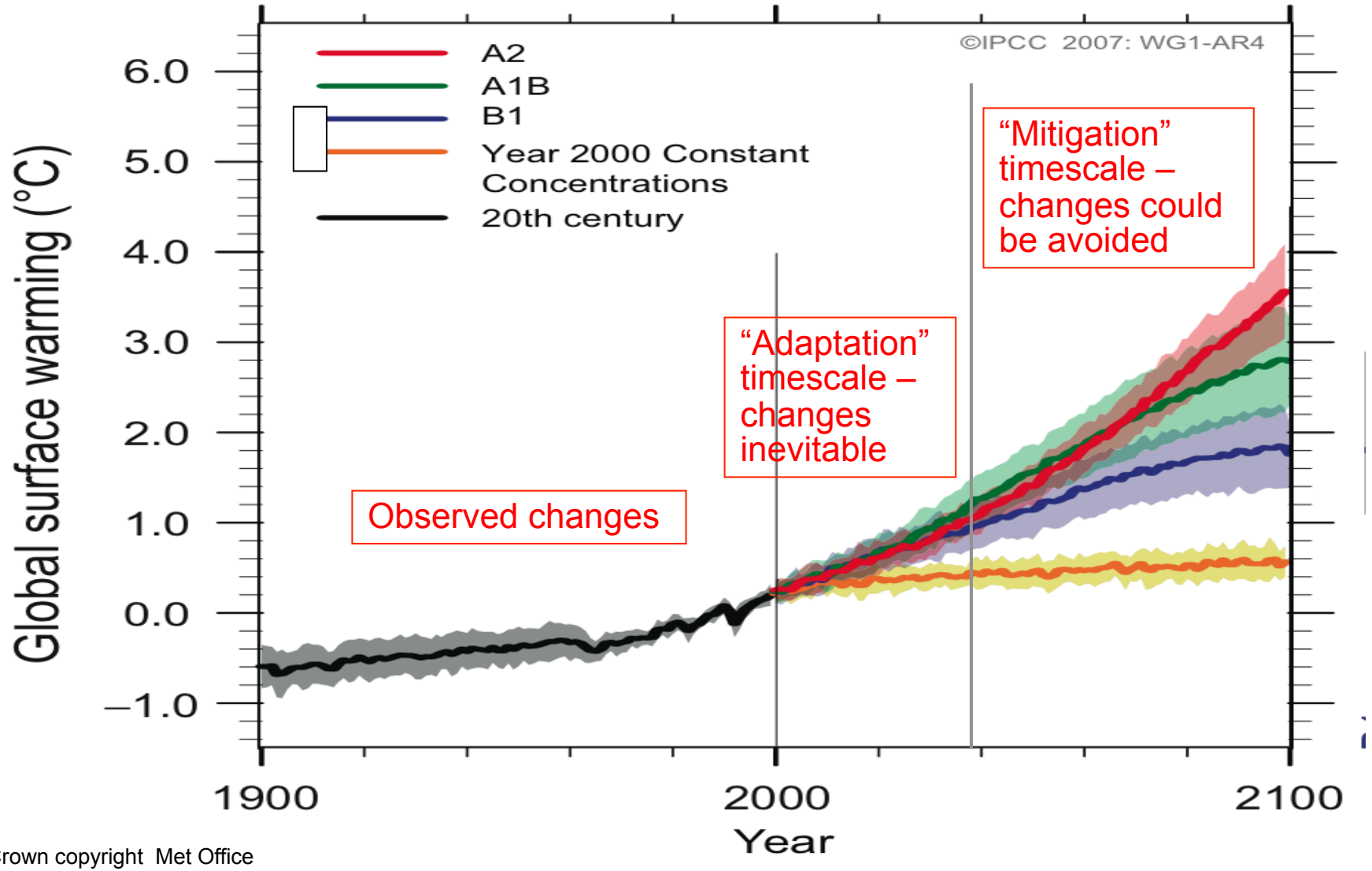
UK precipitation change

Climate change - adaptation

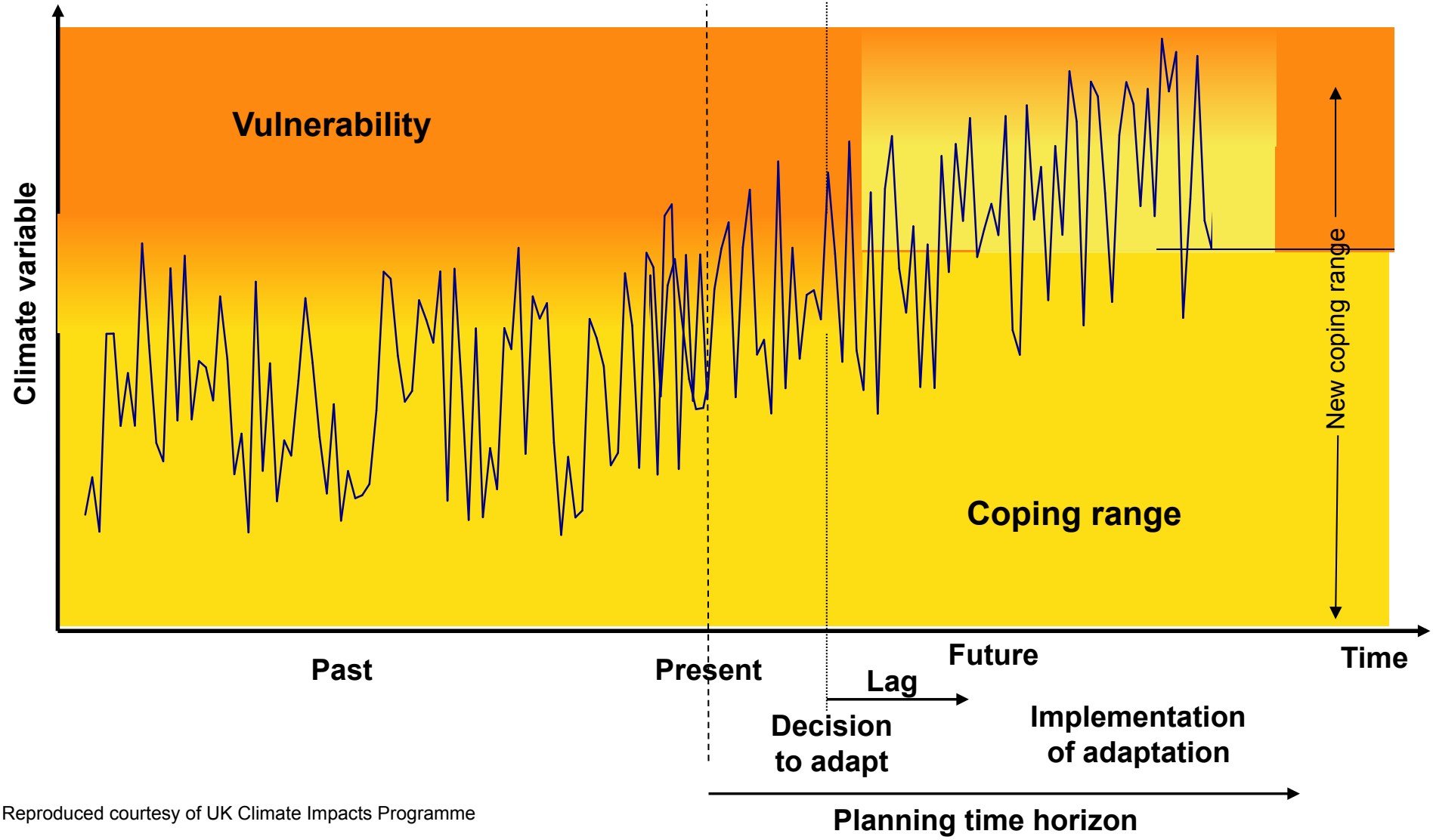
Mitigation and adaptation

Mitigation involves taking actions to reduce greenhouse gas emissions and to enhance sinks aimed at reducing the extent of climate change.

This is in distinction to **adaptation** which involves taking action to minimise the effects of unavoidable climate change.



Climate sensitivity, vulnerability and adaptation



Reproduced courtesy of UK Climate Impacts Programme

Climate change - response

Climate Impact & Risk Assessment Framework

Risk = Hazard x Vulnerability

Climate change impacts

Bangladesh

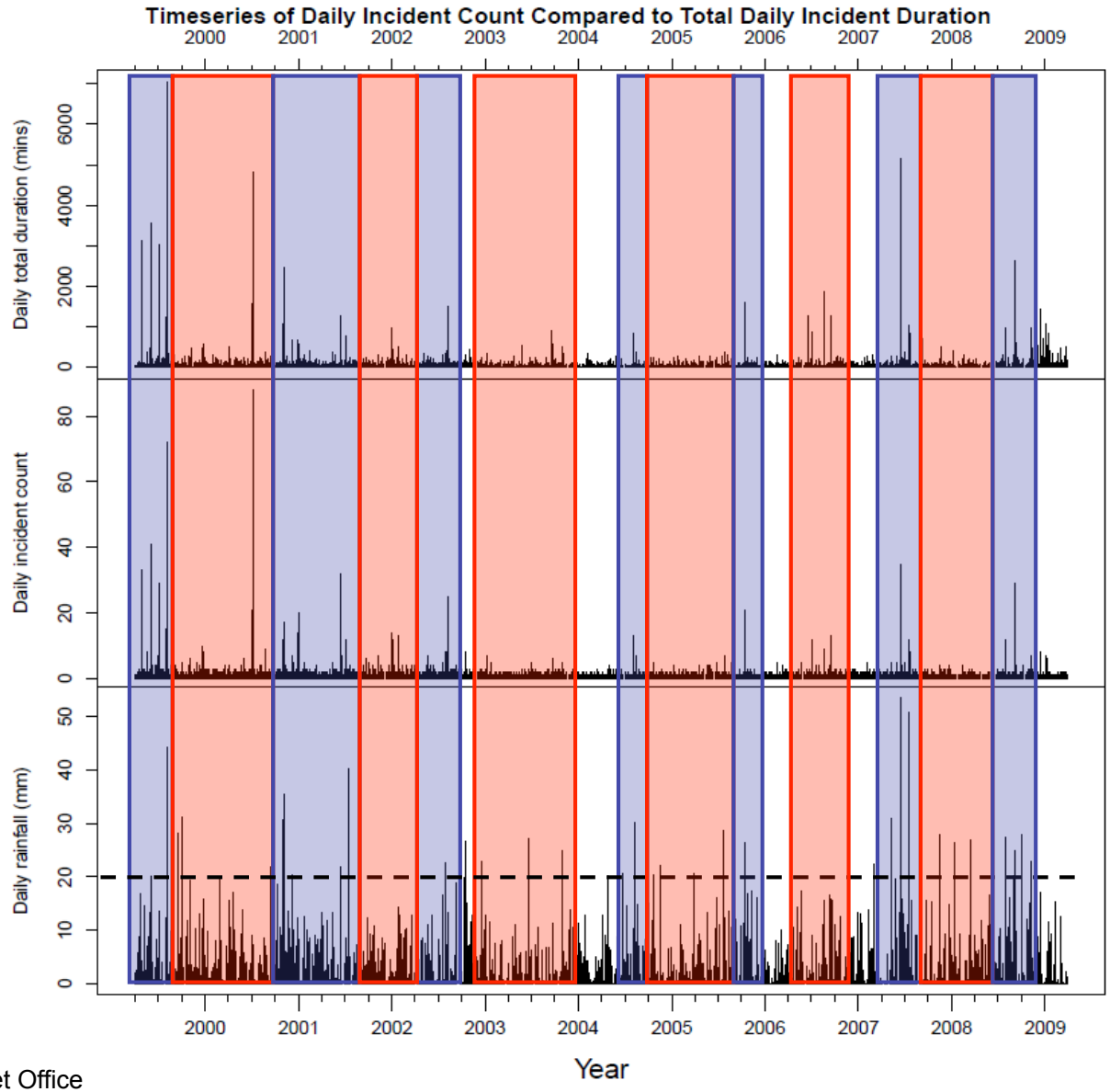
1970 Cyclone Bhola: 500,000 people killed

Climate change impacts

Bangladesh

2007 Cyclone Sidr: 3,300 people killed

Introduction

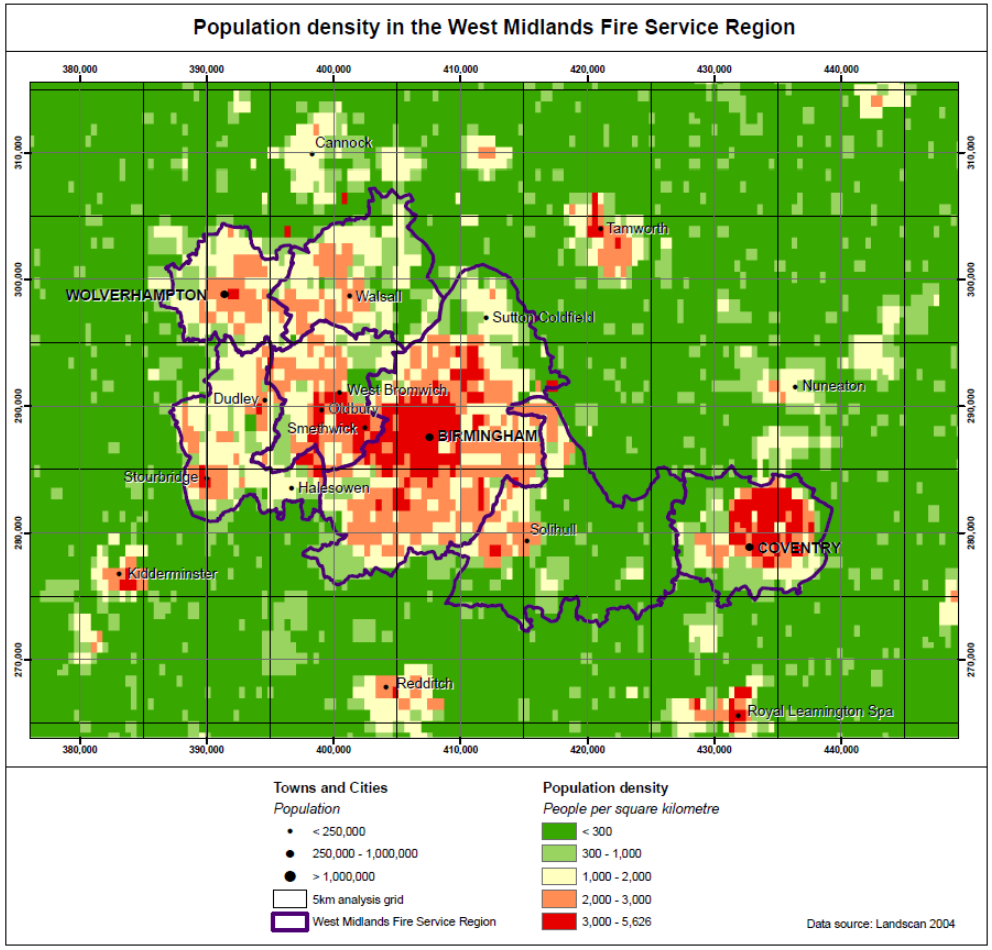


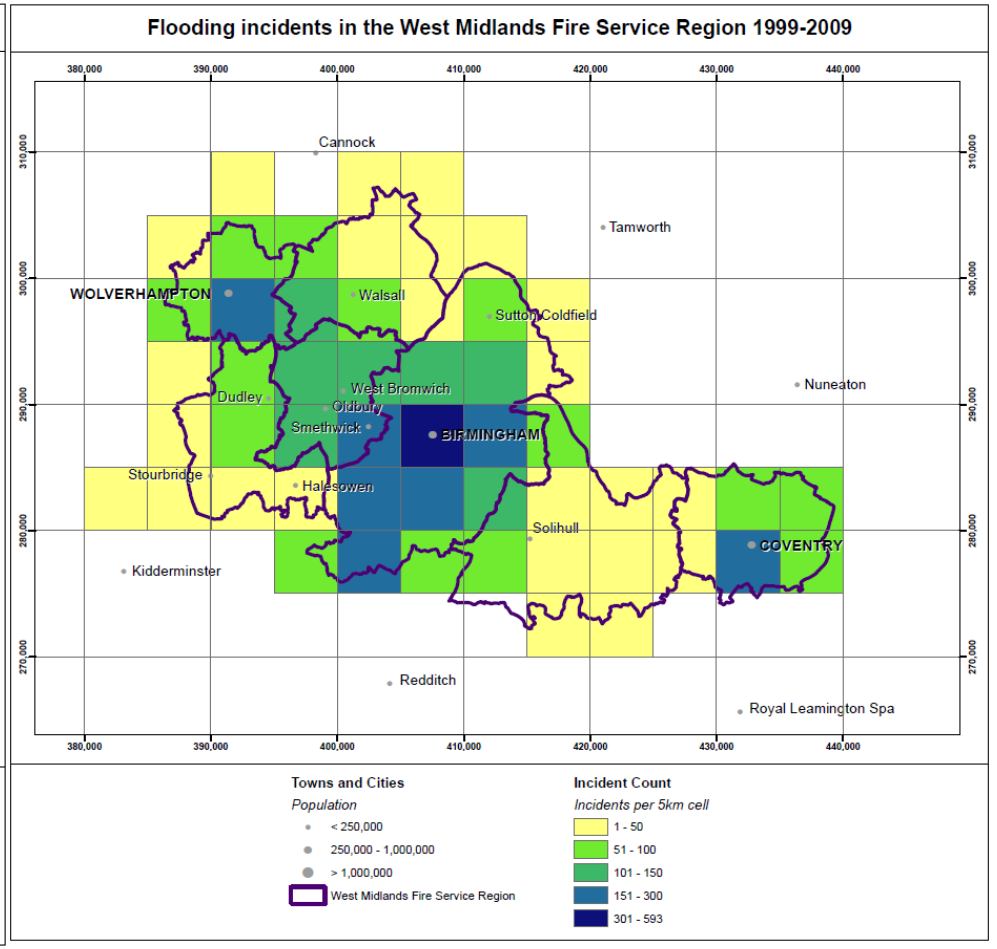
Vulnerability

Population density and other factors that may influence magnitude of risk

Population density and incident count

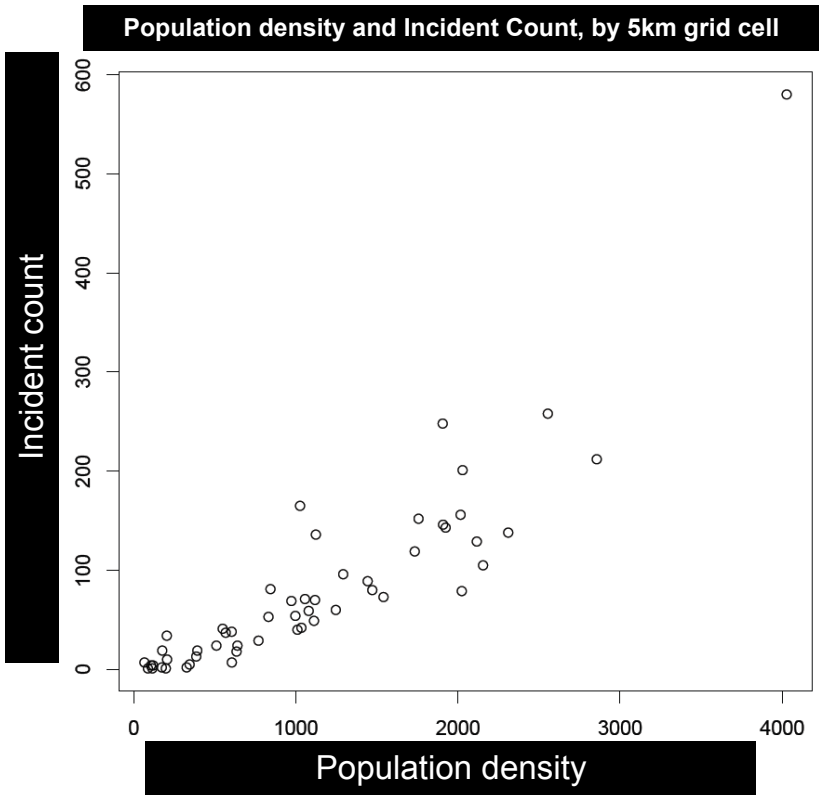
- Population density strongly influences the number of incidents …

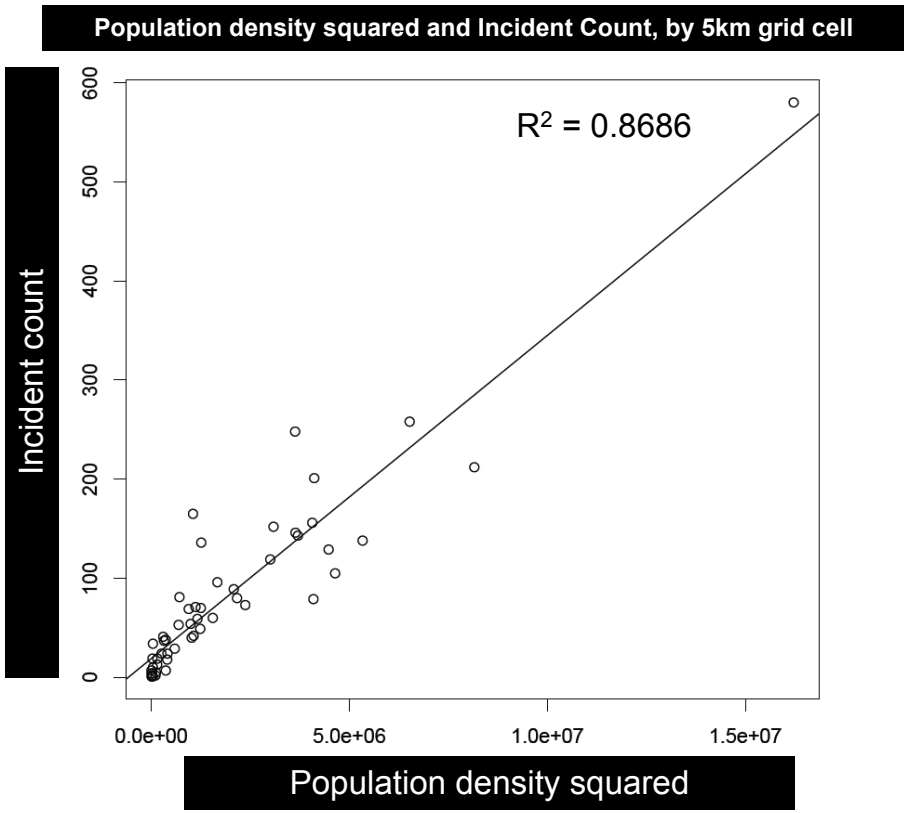




Population density and incident count

Strong exponential relationship between incident count and population density





Response (dependent) variable: Incident count

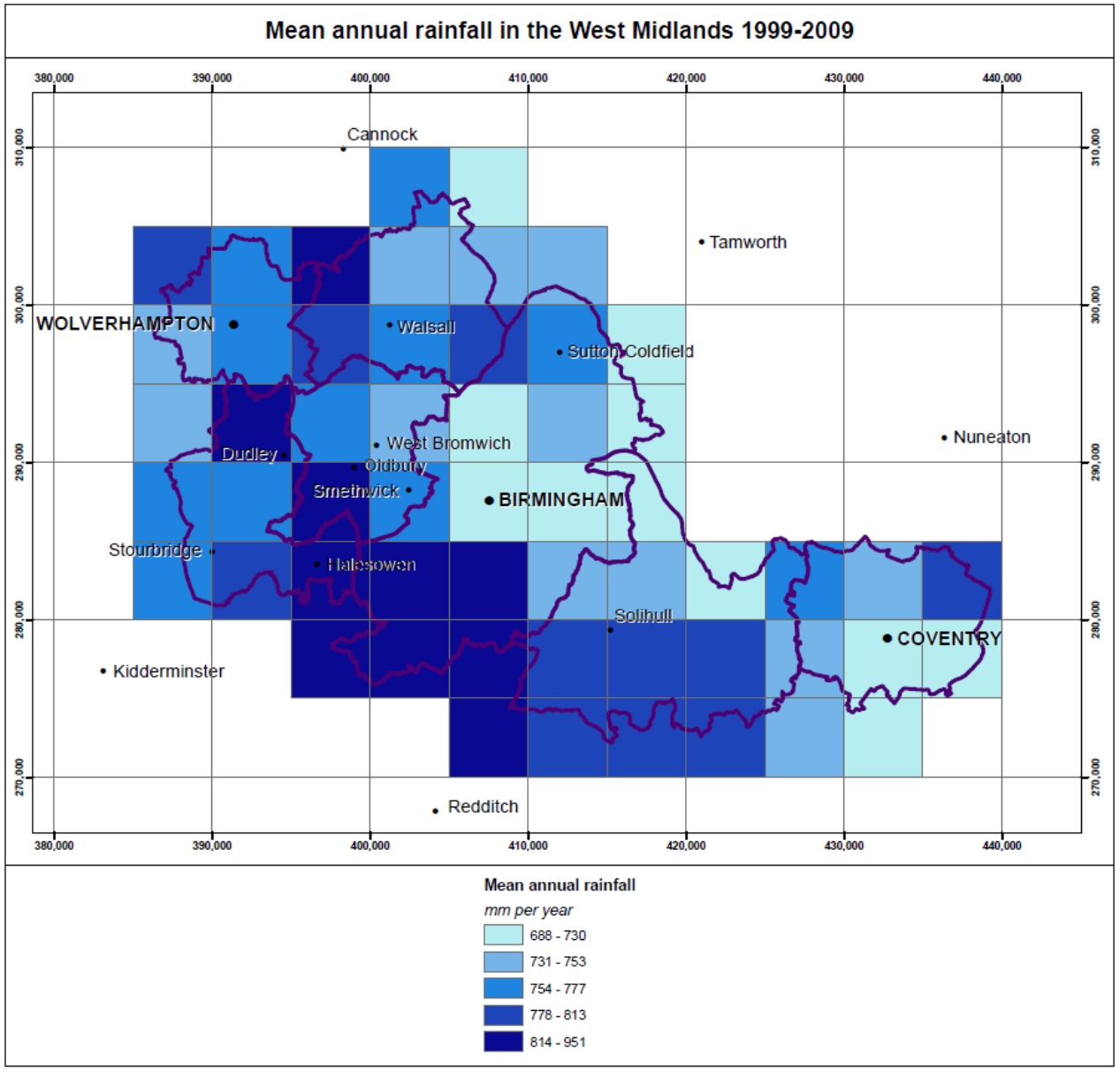
Explanatory (independent) variable: Population density

Hazard

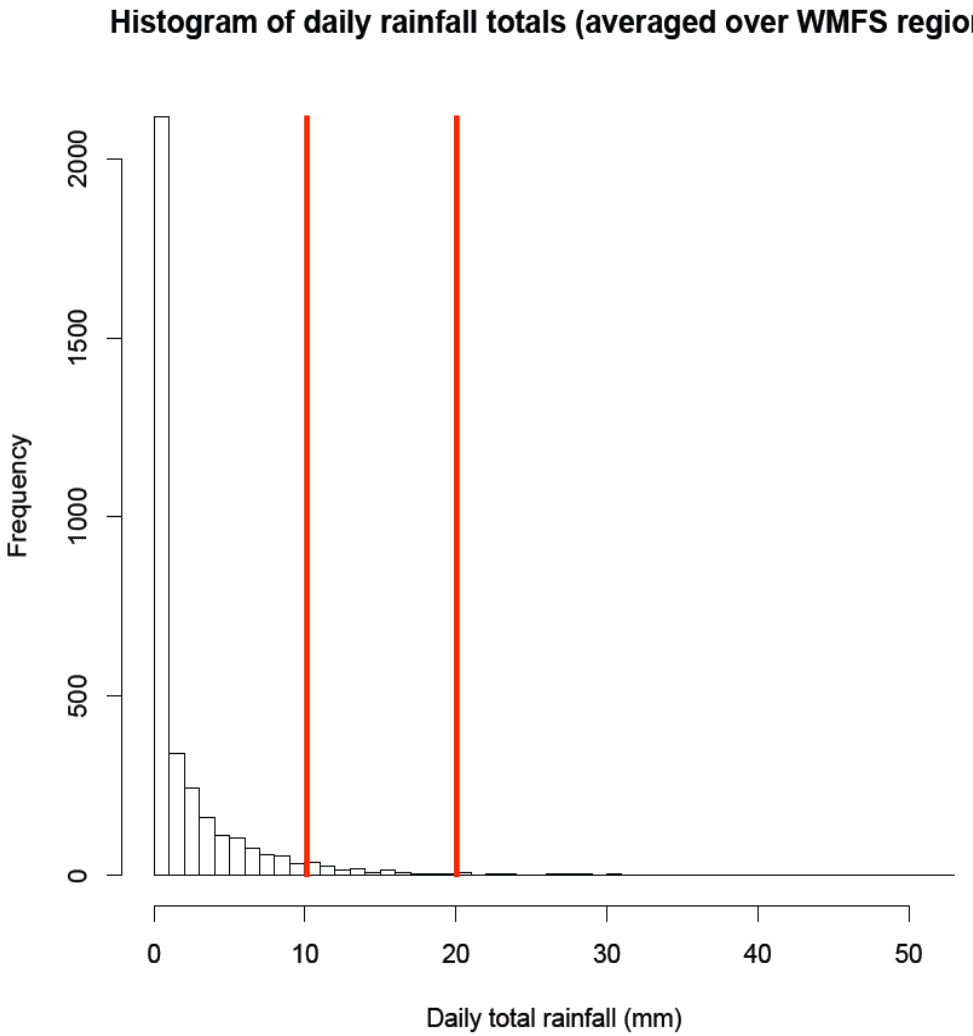
Spatial distribution of rainfall in the WMFS region

Assuming that rainfall is the best measure of flood hazard

Even though, we assume most flooding related incidents are pluvial flooding events, have you found that some areas are particularly susceptible to fluvial flooding?



Daily rainfall thresholds



Based on the West Mids rainfall data, we set the following daily rainfall thresholds:

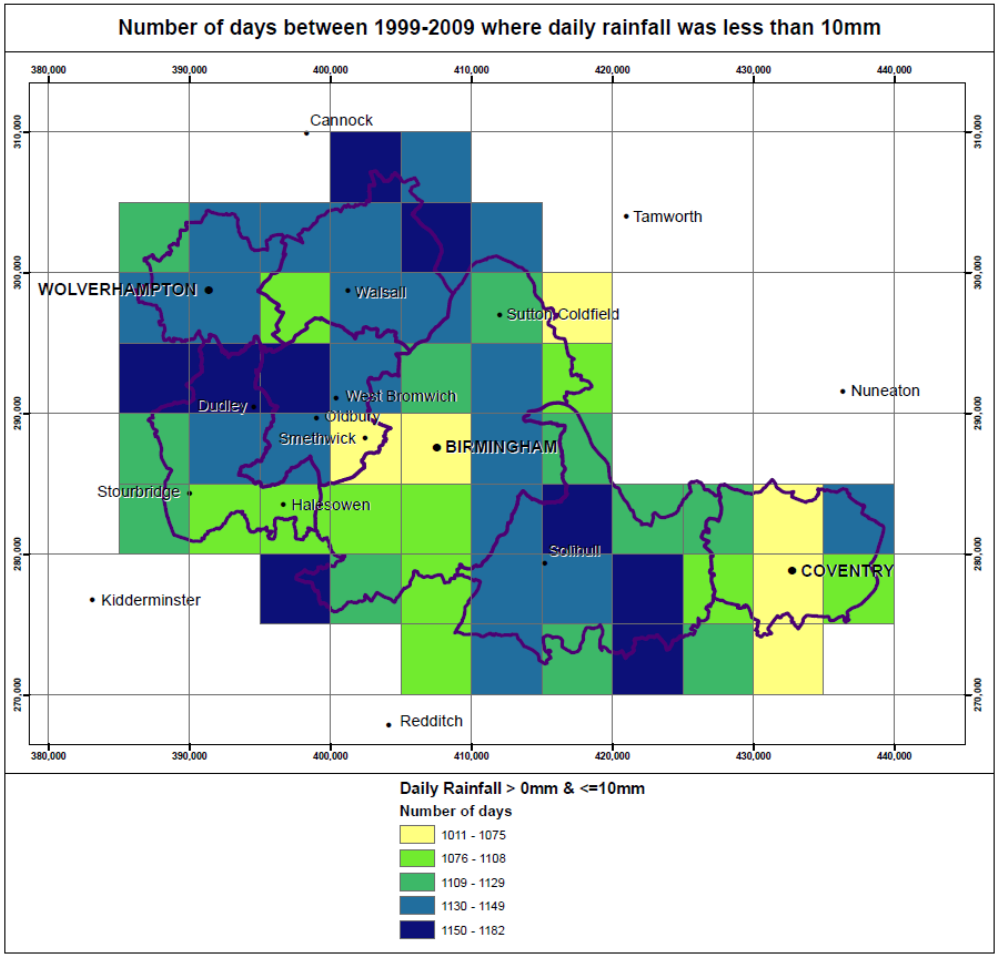
Low: 1mm to 10mm
Medium: 11mm to 20mm
High: > 20mm

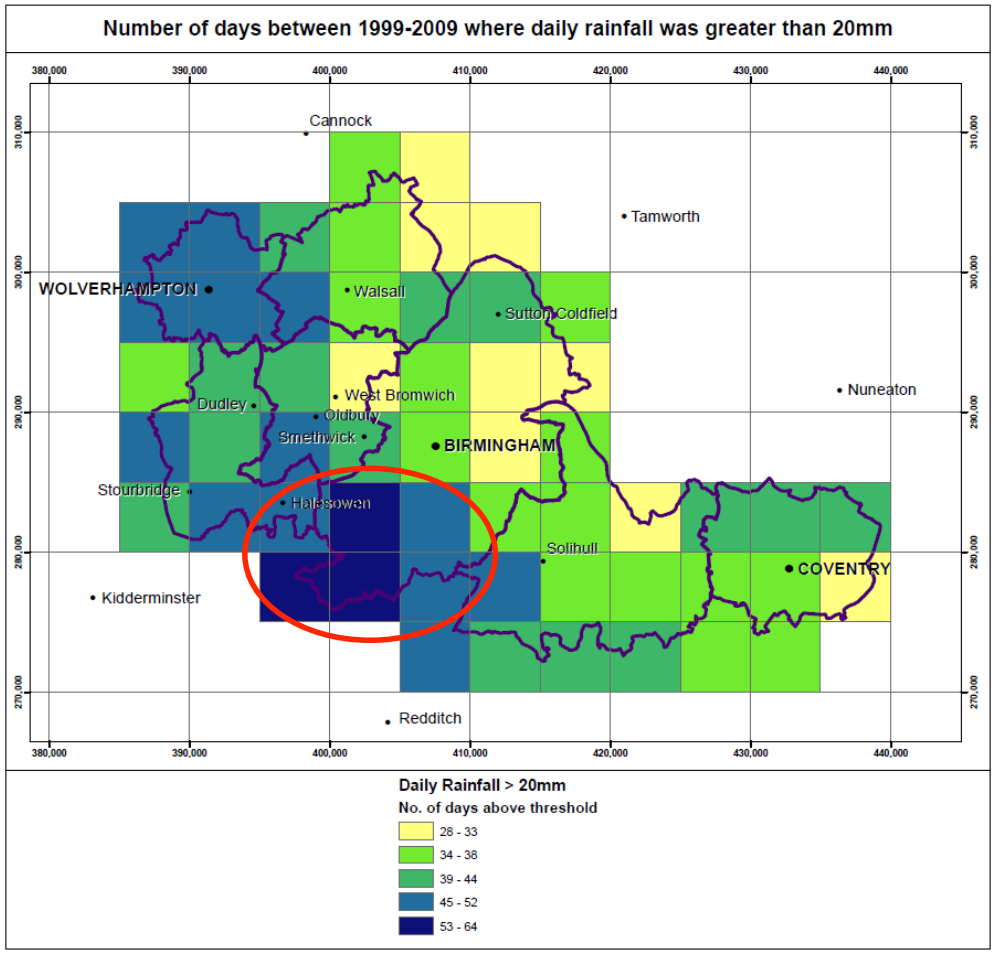
> 20mm is also a threshold (30 min) defined by the National Flood Forecasting Centre

	No. of days
Low	3297
Medium	146
High	38
Total	3653

High and low rainfall spatial distributions

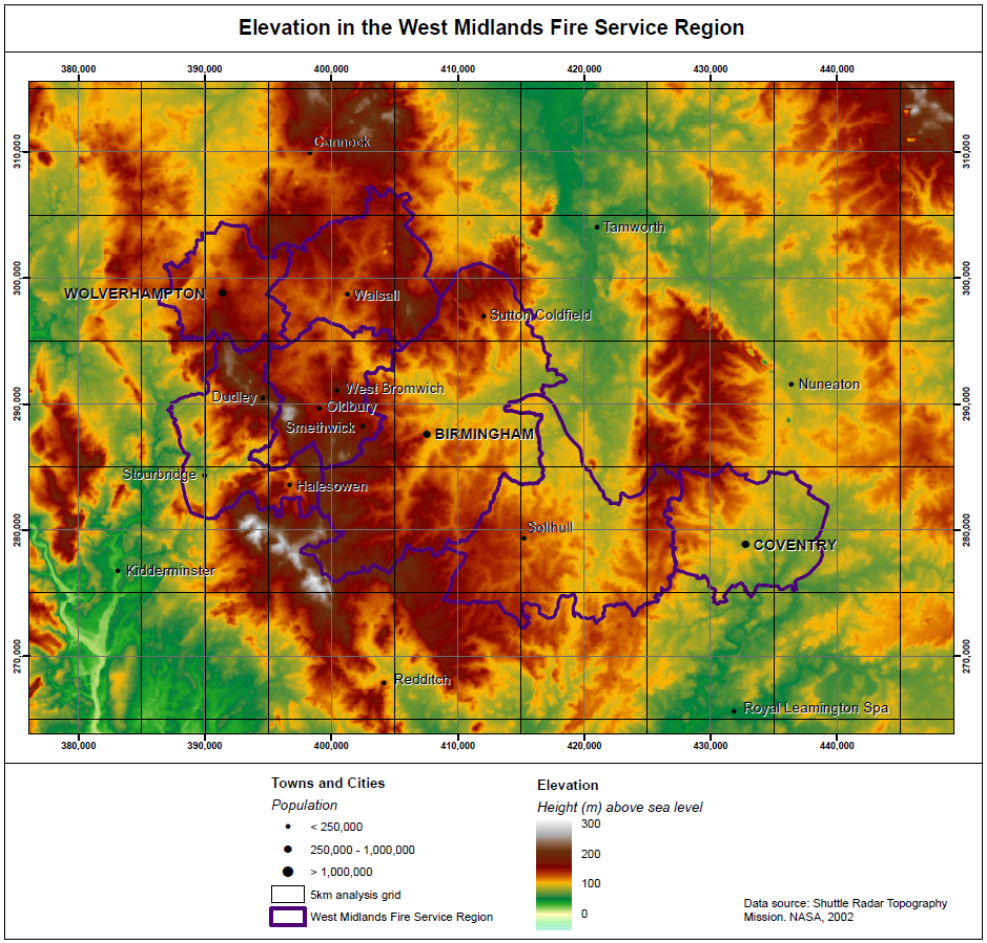
- Spatial distribution of high rainfall is different from that of low rainfall

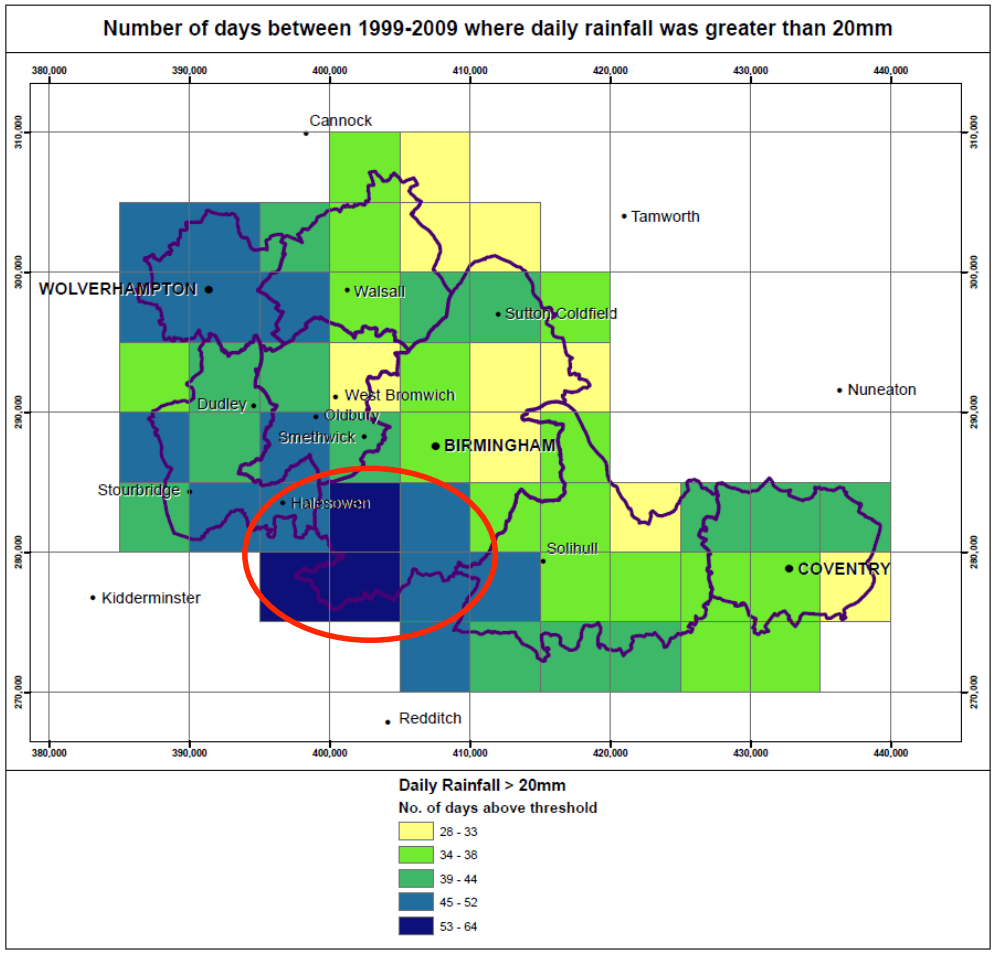




High rainfall and elevation

- High rainfall appears to occur most frequently on higher ground



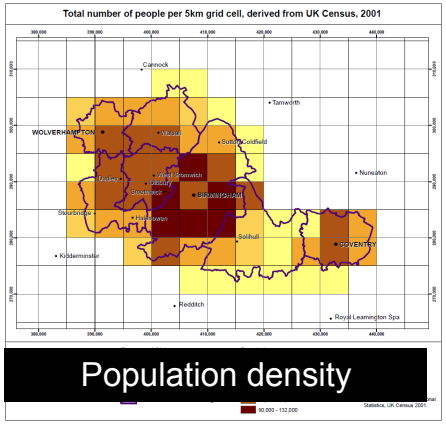


A risk model

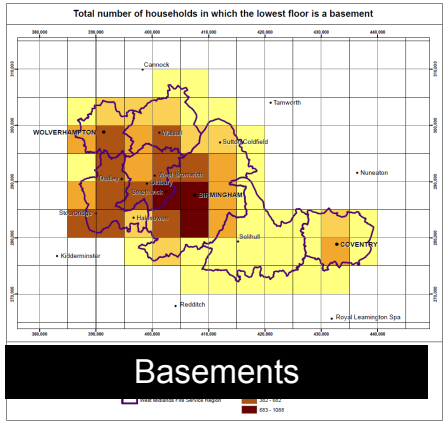
Establishing relationships between indicators of hazard and vulnerability

Multiple regression: input variables

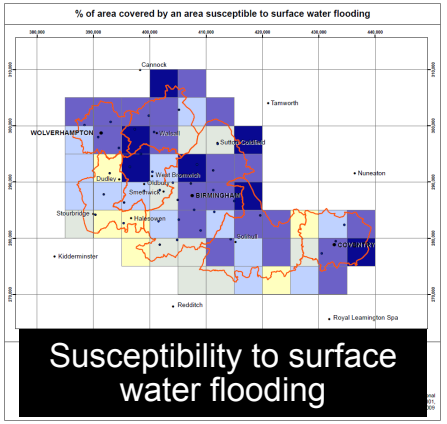
Vulnerability



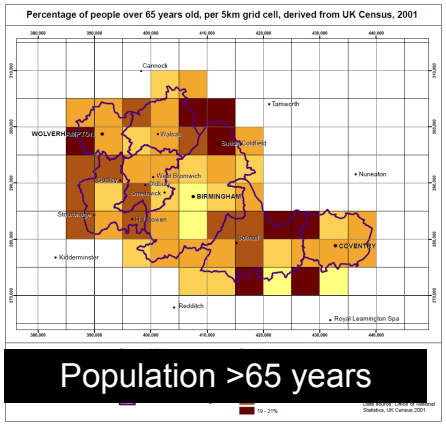
Population density



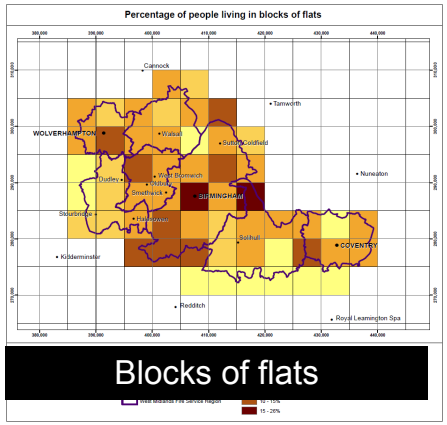
Basements



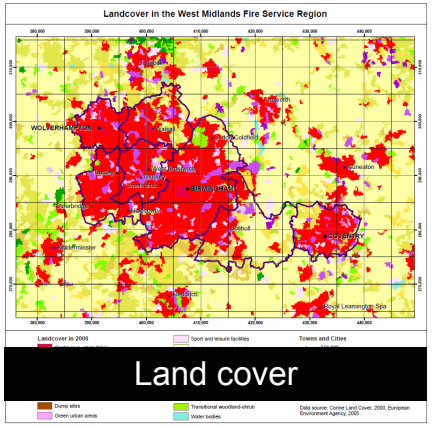
Susceptibility to surface water flooding



Population >65 years



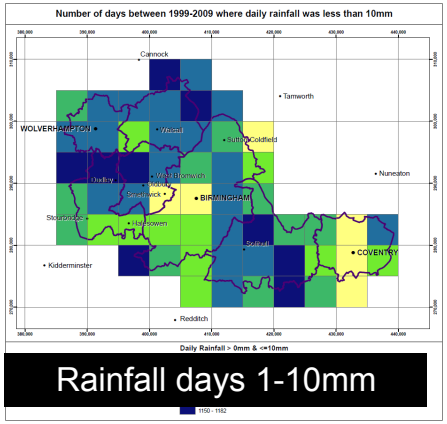
Blocks of flats



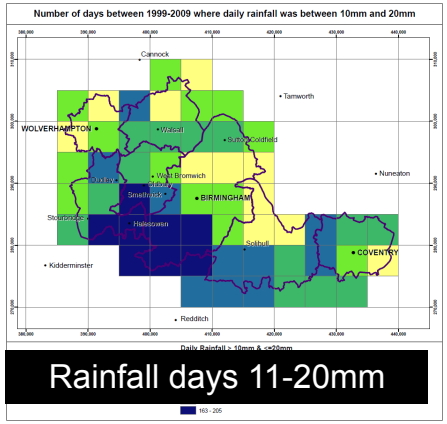
Land cover

Vulnerability

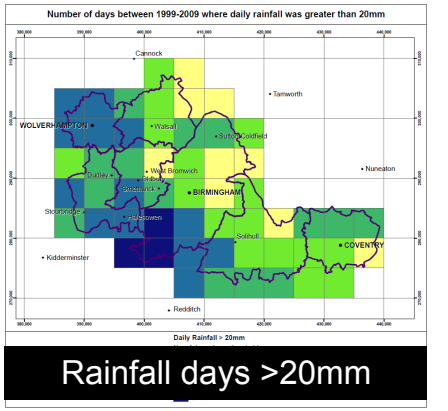
Hazard



Rainfall days 1-10mm



Rainfall days 11-20mm



Rainfall days >20mm

Hazard

Multiple regression risk model

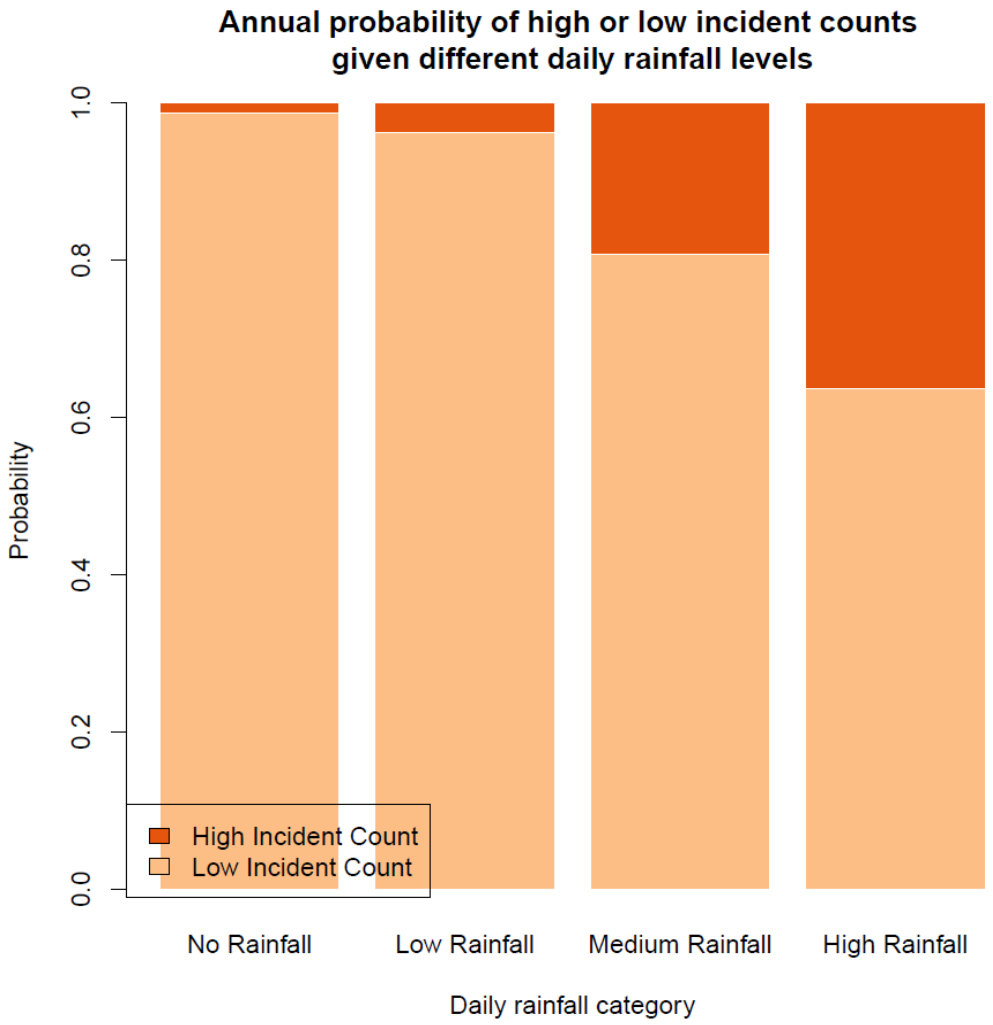
87% of the spatial variation in ***total incident count*** is explained by the spatial variation in the following variables:

- Total population (P=0.000424 ***)
- Number of people living in terraced houses (P=0.005313 **)
- Number of days >20mm rainfall squared (P=0.009719 **)
- Number of households with basements (P=0.010482 *)

NB: Significance codes: 0 '***' 0.001 '**' 0.01 '*'

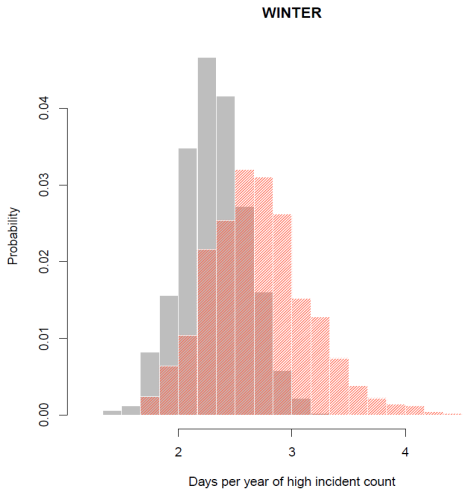
$$\text{Incident count} = -24.36 + 0.0009x_{pop} + 0.0547x_{basement} + 0.0014x_{terraced} + 0.0144x^2_{rain>20mm}$$

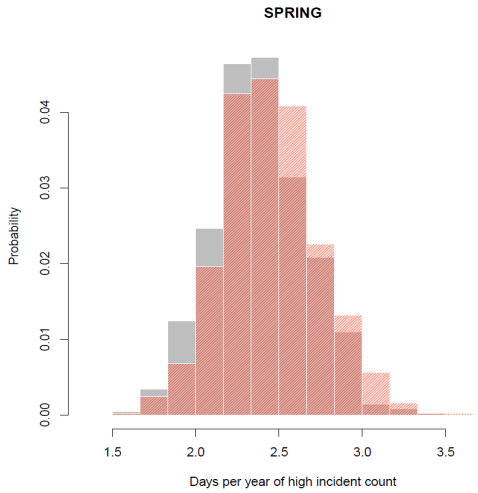
Probability of a high risk day

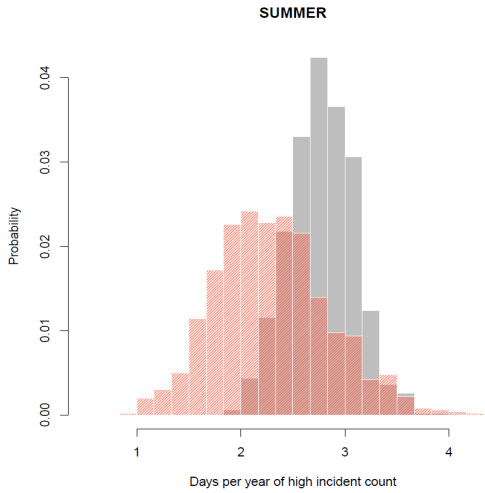


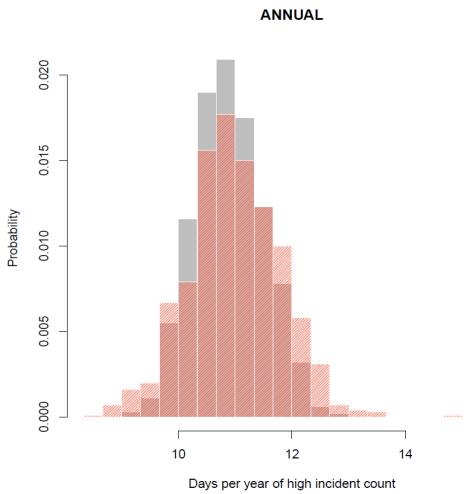
High incident count = high risk

Future change in flood risk









- Seasonal risk changes due to changes in seasonal patterns of low, medium and high rainfall
- Annually, there is no change in flooding risk
- Risk reduces in summer, due to an increase in dry days
- Risk increases in winter due to an increase in high rainfall days

Contact details:

tim.donovan@metoffice.gov.uk
or 07753-880260

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- **Climate Change:**
- **The Impact on Flood Risk**
- **Andrew Cameron**
- **Environment Agency**

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Environment
Agency

We are the Environment Agency. It's our job to look after your environment and make it a better place – for you, and for future generations.

The Environment Agency. Out there, making your environment a better place.

Climate Change:
The Impact on Flood Risk

Andrew Cameron
Development and Flood Risk Technical Specialist
20 October 2010

Setting the Scene risk?

- How does this affect me?
- How will Climate Change affect flood risk?
- What does this mean for Bolton?
- What we are doing
- What can you do?

Environment Agency

How will Climate Change affect flood risk?

- River Flows
  - Winter flows expected to increase by up to 20%
  - Shorter, more intense summer storms
- Sea Levels
  - Expected to rise by up to one metre by the end of this century

Environment Agency

How does this affect me?

- Currently 490,000 properties in England at significant risk of flooding (that's roughly 1 in 6)

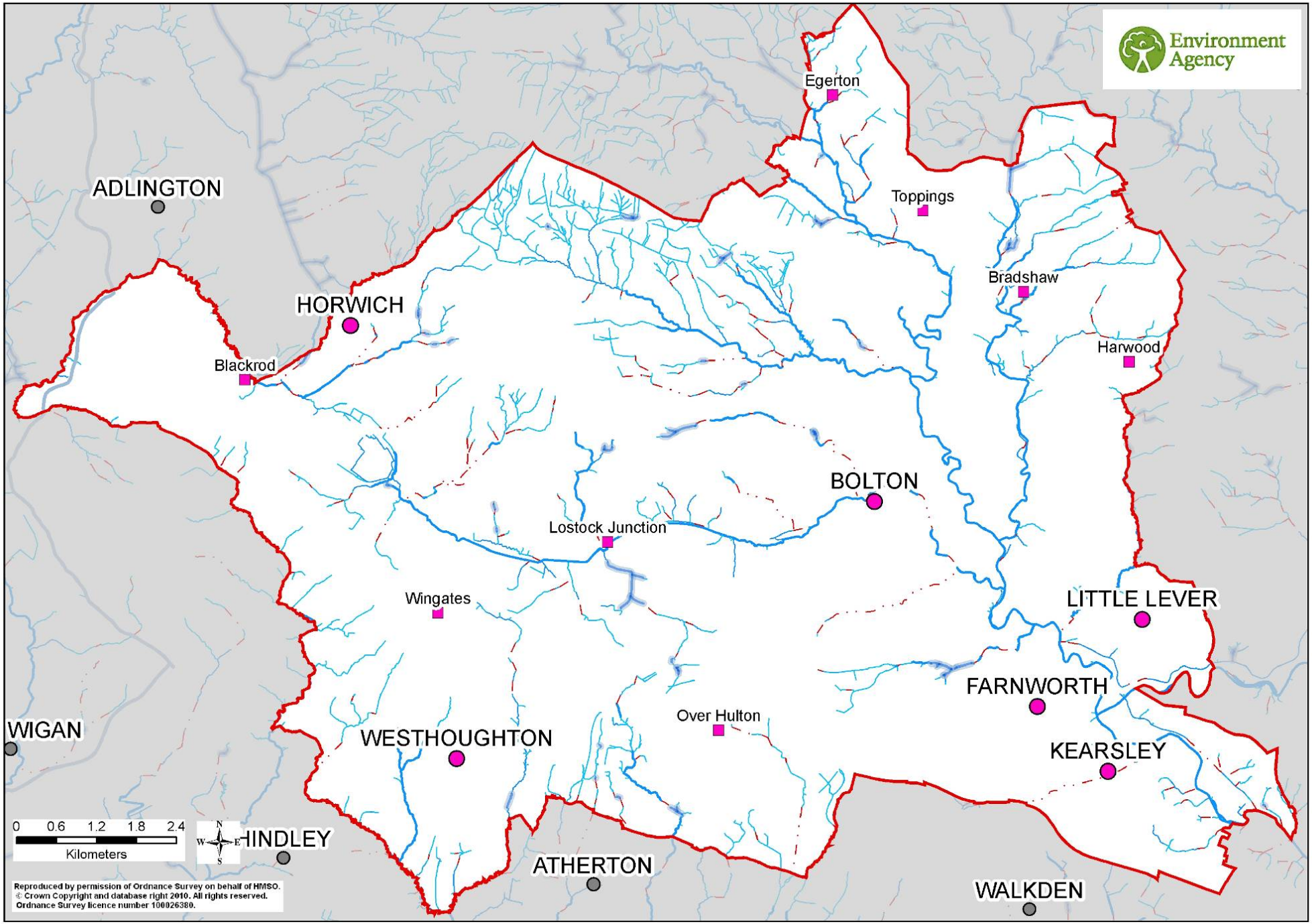
- Could increase by up to 350,000 by 2035

(EA Long-term Investment Strategy, 2009)

Environment Agency

What does this mean for Bolton?

Environment Agency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Harwood
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Blackrod
BOLTON
Lostock Junction
Wingates
LITTLE LEVER
FARNWORTH
Over Hulton
WIGAN
WESTHOUGHTON
KEARSLEY
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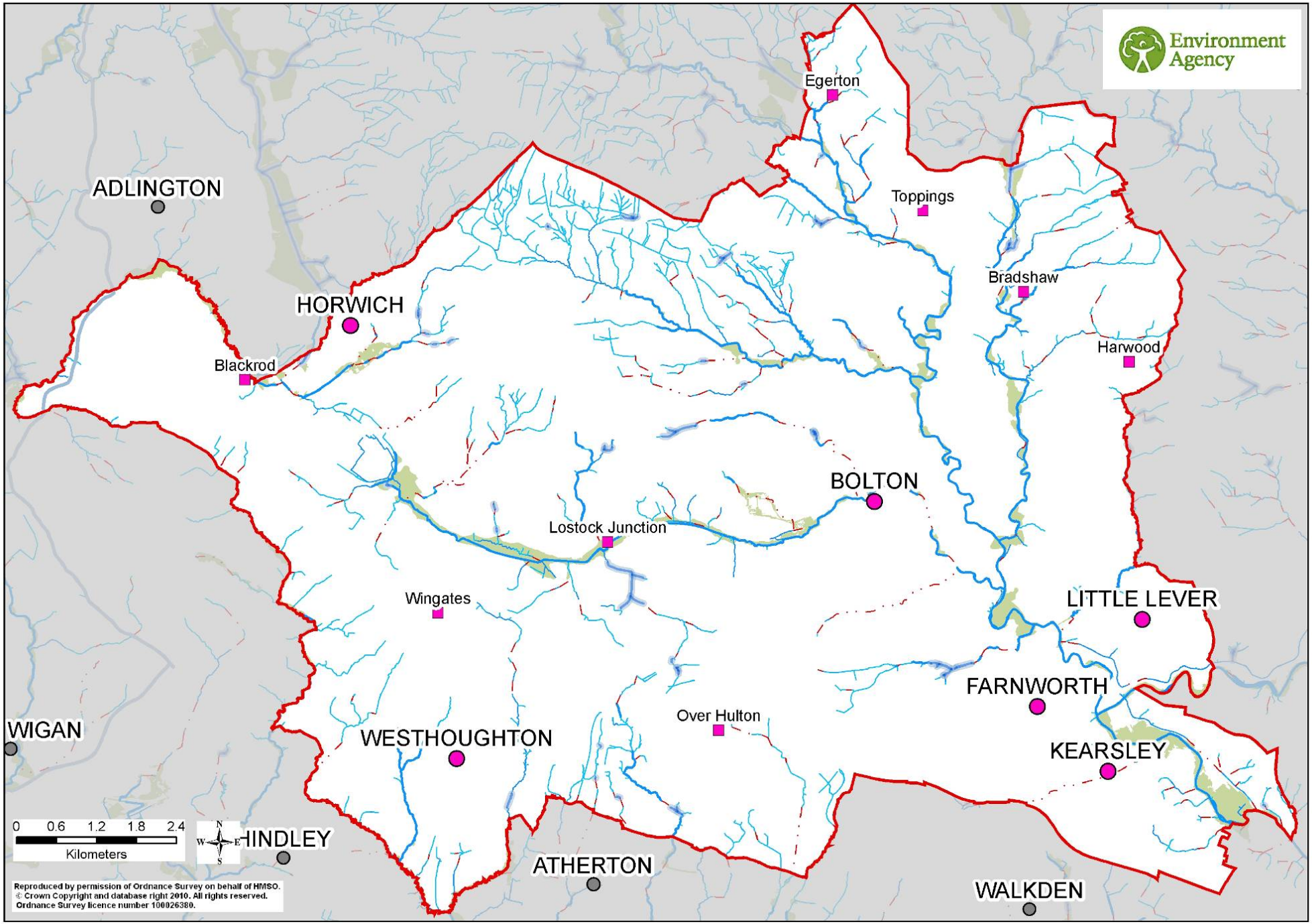
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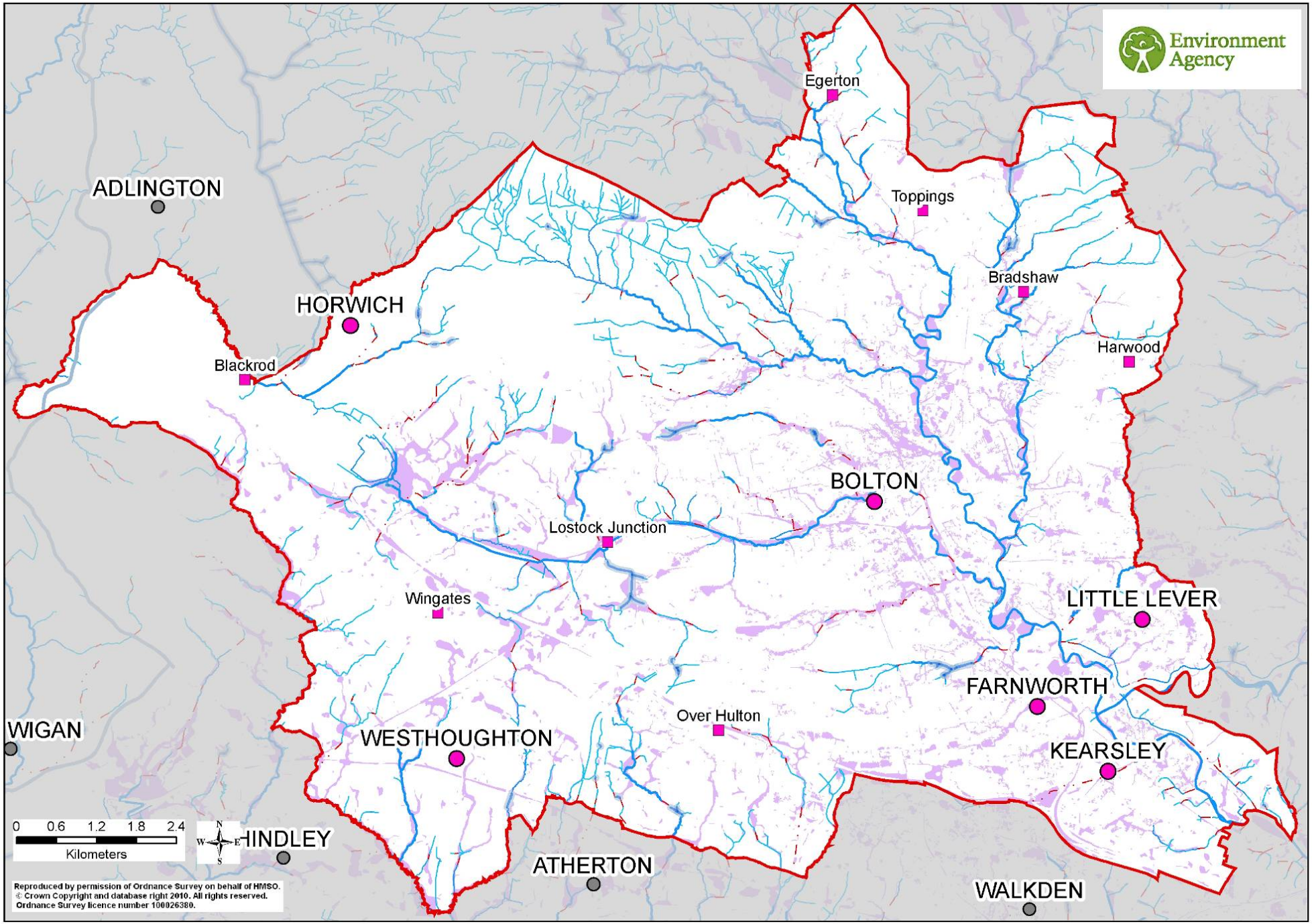
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River Irwell - Flows at Kearsley

Chance of Flood Occurring	Flow in m^3/s	Chance of same flood in 2110
1 in 10	356	1 in 5
1 in 25	406	1 in 10
1 in 50	444	1 in 25
1 in 100	483	1 in 25
1 in 200	523	1 in 50

Environment Agency

What we are doing

Dealing with existing risk:

- Flood Warning Service
- Flood Alleviation Schemes

Adapting for future risk:

- Advice for developers and Local Planning Authorities
- Catchment Flood Management Plans

What can you do?

- Be Prepared Call the Environment Agency's Floodline 0845 9881188 to find out:
  - If your home or business is at risk of flooding
  - Information on preparing your own flood safety plan
  - If you can register to receive free flood warnings

- Reduce your own impact on the environment
  - Find out more at www.environment-agency.gov.uk

Environment Agency

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Community Climate Change Conference

- Questions and Answers

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(Refreshment Break)

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Community Climate Change Conference

- **Greater Manchester (GM)**
- **Private Finance Initiative Project**
- **and the Wider Context**
- **Paul Dunn**
- **Executive Director**
- **GM Waste Disposal Authority**

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Bolton Community Climate Change Conference
20th October 2010

Greater Manchester PFI Project

Paul Dunn, Executive Director, GMWDA

recycle for Greater Manchester

GMWDA

Scope

- About GMWDA
- Overview of the Contract
- The facilities
- The climate and green energy benefits
- The CO_2 case to recycle more

LGC Awards 2010 WINNER
Award for Sustainable Environment

Public:Private AWARDS 2010 WINNER
Best Waste Project
Greater Manchester Waste PFI Project

EUROMONEY ProjectFinance 2009
Deals of the Year
European Waste Deal of the Year

Public:Private AWARDS 2010 WINNER
Judges Award for Innovation
Greater Manchester Waste PFI Project

LGC Awards 2010 HIGHLY COMMENDED
Award for Innovation

Providing a World Class Solution for Greater Manchester's Local Authority Collected Waste

9 Collection Authorities

2.2m population

973k households

1.1m tonnes p.a. of local authority collected waste

recycle for Greater Manchester

GMWDA

What is GMWDA?

- A Statutory Joint Waste Disposal Authority – one of 6 nationally.
- Formed in 1986 on the demise of Greater Manchester Metropolitan County Council.
- Serves 9 of AGMA's districts including Salford City.
- England's biggest WDA – we dispose of 5% of the nation's waste.

recycle for Greater Manchester

GMWDA

Our Key Aims

‘Our aim is zero waste’

- Deliver the Greater Manchester Municipal Waste Management Strategy - with the priority of:
  - reduction > reuse > recycling/composting > resource recovery and energy use.
- The provision of quality services - responsive to users, give value for money and equality of access.
- Recognise and contribute to the climate change agenda.
- The prevention of waste - engaging, influencing and campaigning.

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Municipal Waste Management Strategy

- 2002/03 consultation (1m leaflets).
- 2003/04 strategy agreed by 9 authorities.
- Objectives:
  - To meet Landfill Directive targets (LATS) for Biodegradable Municipal Waste (BMW).
  - 33% recycling/composting by 2010, 50% by 2020.
  - Reduce growth in waste arisings to 1% by 2010 and 0% by 2020.

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The Challenge

- In 2008 the emissions resulting directly from waste were **22.7 $MtCO_2e$** = **4 %** of total UK emissions.
- **90 %** of these emissions were from landfill (60 % methane (CH_4), 40 % carbon dioxide (CO_2).
- Methane is 23 times more damaging in terms of global warming than carbon dioxide.
- **75 %** of landfill gas is assumed to be captured for energy recovery or burnt on site (flared).
- **25 %** of landfill gas is therefore assumed to escape to the atmosphere.
- The rest of the waste sector emissions are from waste incineration or dealing with waste water from homes and businesses.

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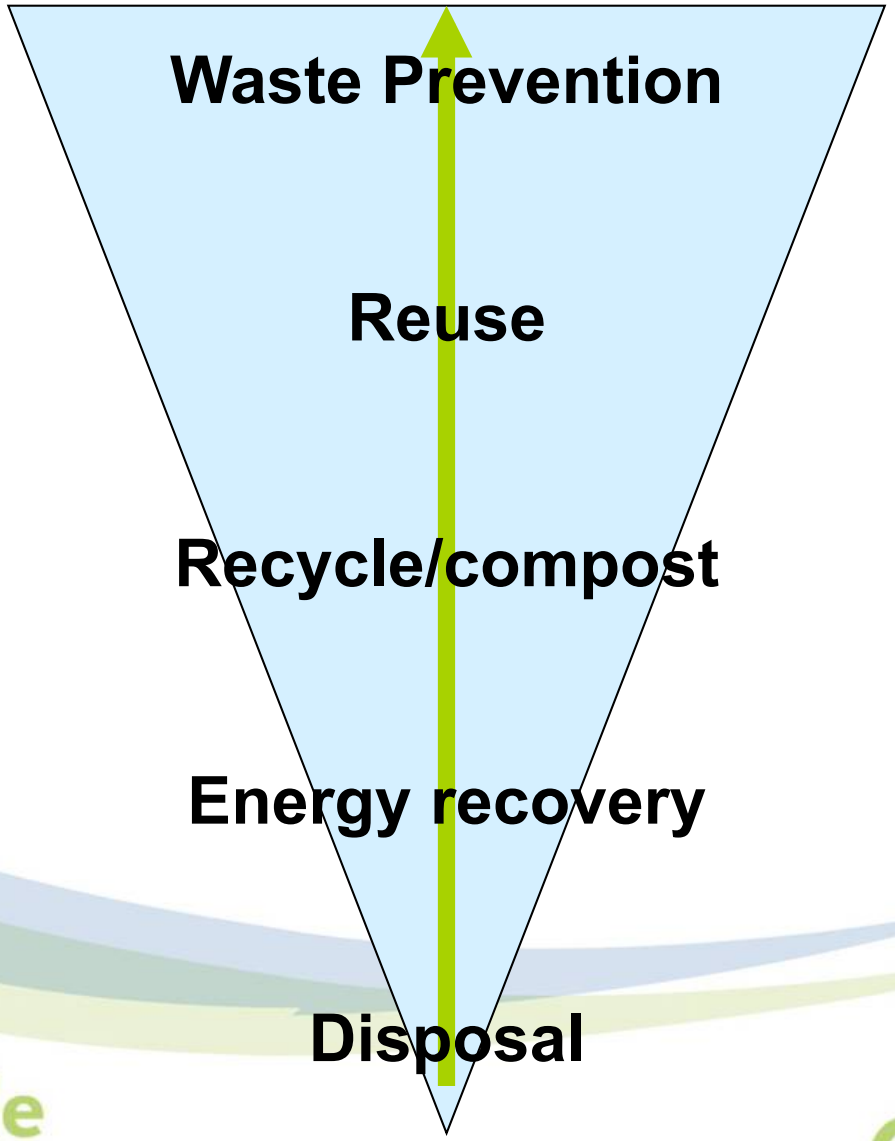
Waste Hierarchy



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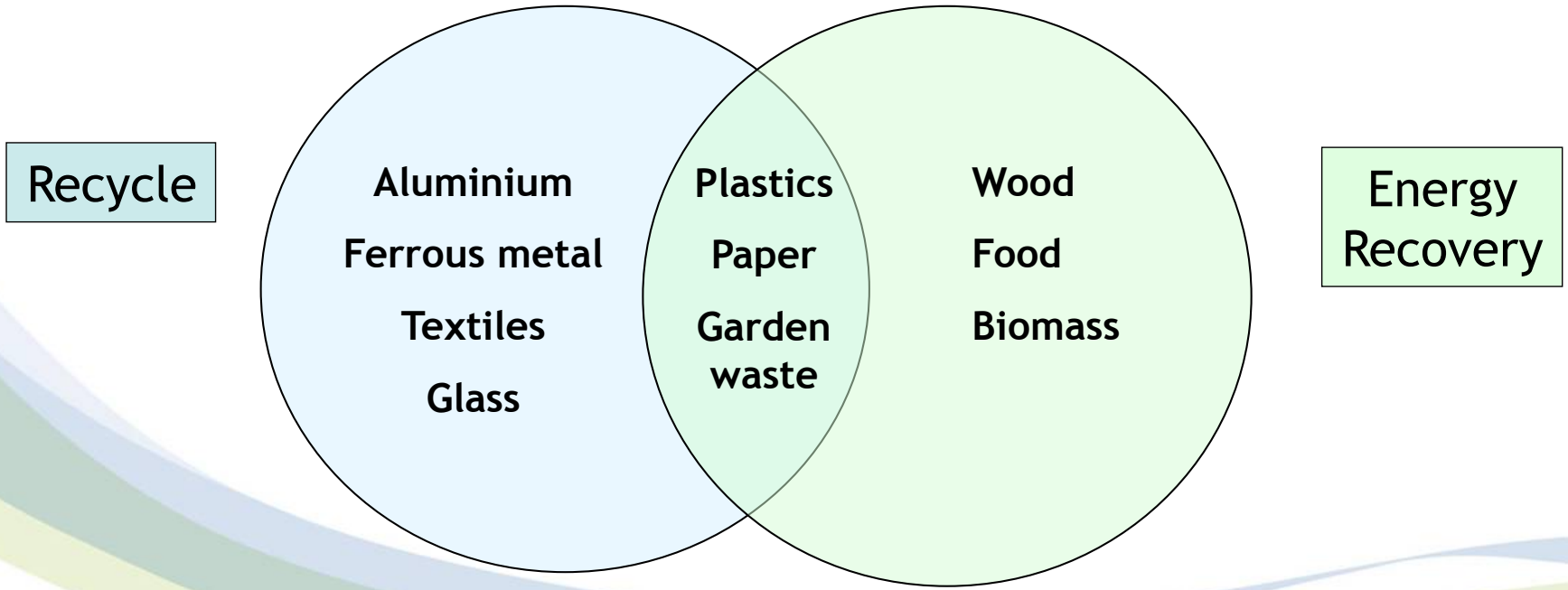
Finding The Right Balance

Value / Cost / Carbon emissions



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The Collection System a Four Way Solution

Green waste

In-Vessel Composter (IVC)

IVC facilities break down garden and food waste* in sealed vessels to produce quality compost.

This reduces the amount of waste we send to landfill, and the harmful greenhouse gases produced.

Compost

Paper and cardboard

Baling and bulking

Paper and cardboard

Glass, plastics and cans

Materials Recovery Facility (MRF)

MRFs receive, separate and prepare kerbside materials.

The clean, sorted materials are sent for recycling into new products.

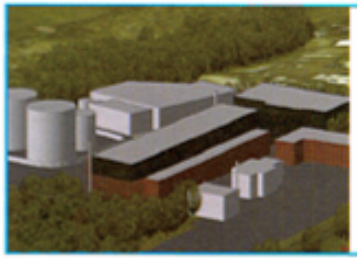
Plastics

Metals

Glass

Mixed waste

Mechanical Biological Treatment (MBT)



MBT facilities separate and treat mixed waste to extract valuable recyclable materials.

Some of the remainder is treated onsite by Anaerobic Digestion, with the rest taken away for use as fuel in a combined heat and power plant. Both processes produce green electricity.

Fuel and energy

Recycling and Waste in Bolton

		2005/06	2006/07	2007/08	2008/09	2009/10
Residual	Domestic (t)	73,111	68,634	70,300	66,802	65,807
Recycling / Composting	Green (t)	8,687	11,677	12,262	11,901	11,418
	Pulpables (t)	11,183	11,272	11,273	9,954	9,537
	Commingled (t)	5,106	7,285	8,939	9,598	8,783
Recycling Performance (%)		16.88	18.77	19.31	19.15	17.80
Composting Performance (%)		8.00	10.75	11.18	11.36	11.17
Total Performance (%)		24.88	29.52	30.49	30.51	28.97

Household waste (grey bin)
Garden waste (green bin)
Paper and cardboard (beige bin/clear sack)
Glass containers, cans, plastic bottles (burgundy bin/green box)

The Contract

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What is the Greater Manchester PFI Contract?

- A 25 year contract with Viridor Laing (GM) (VLGM).
  - Primary SPV: Viridor Waste Management Limited (50%), John Laing Investments Limited (50%)
- A £631 million construction programme, creating a network of state-of-the-art recycling and waste management facilities over the next 5 years.
- A long-term sustainable solution for the 1.1 million tonnes of local authority collected municipal waste which GMWDA handles each year (with a capacity for 1.4 million tonnes).
- The first of its kind in the UK on this scale.
- With the 9 WCAs offers a cradle-to-grave collection and disposal solution.

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What the Contract will Deliver (1)

- At least 50% recycling and composting of all waste by 2015.
- Guaranteed contractual diversion of more than 75% of Greater Manchester's waste from landfill by 2015.
- A powerful contribution to ensuring that the UK complies with its requirements under the European Union Landfill Directive, in turn producing important carbon benefits.

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What the Contract will Deliver (2)

- Climate and green energy benefits.
- In 2008/09 GMWDA on behalf of Greater Manchester made an estimated net saving equivalent to 92,000 tonnes of CO_2 per year.
- Through the Contract GMWDA aims to increase carbon emission savings to approximately 400,000 tonnes per year by 2020.

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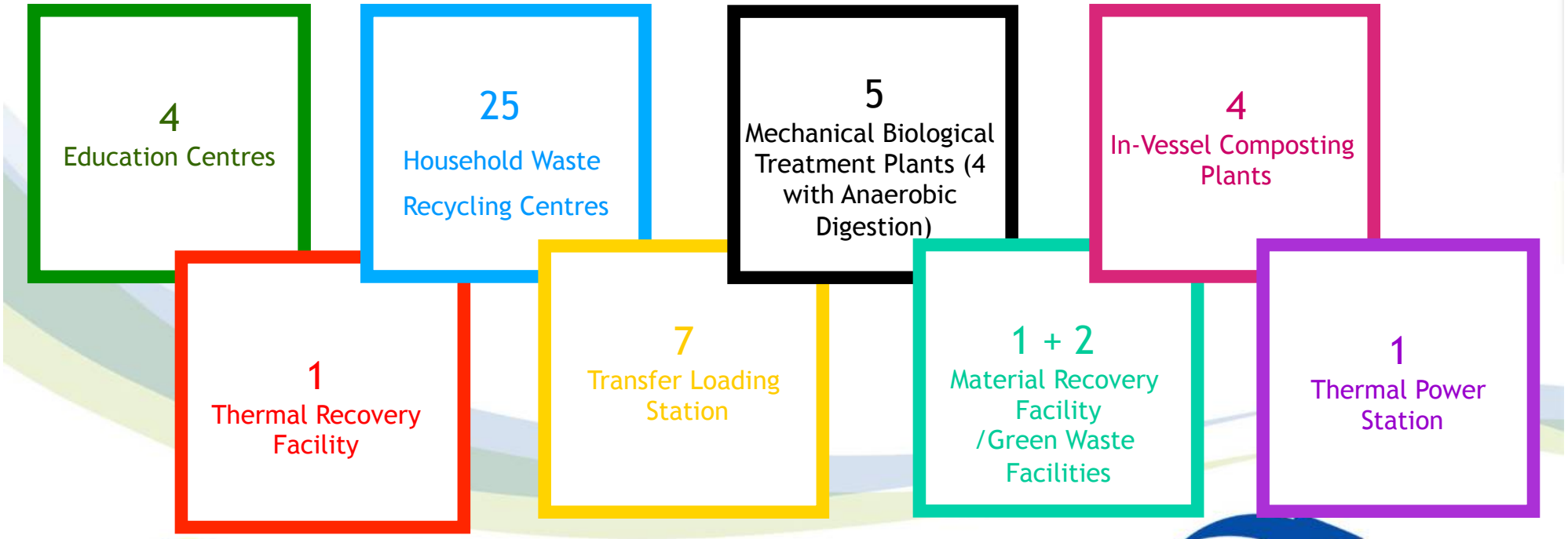
The New Facilities at a Glance

Completion – January 2012
Total capital cost of new construction: £631 million
Capacity for 1.4 million tonnes per annum



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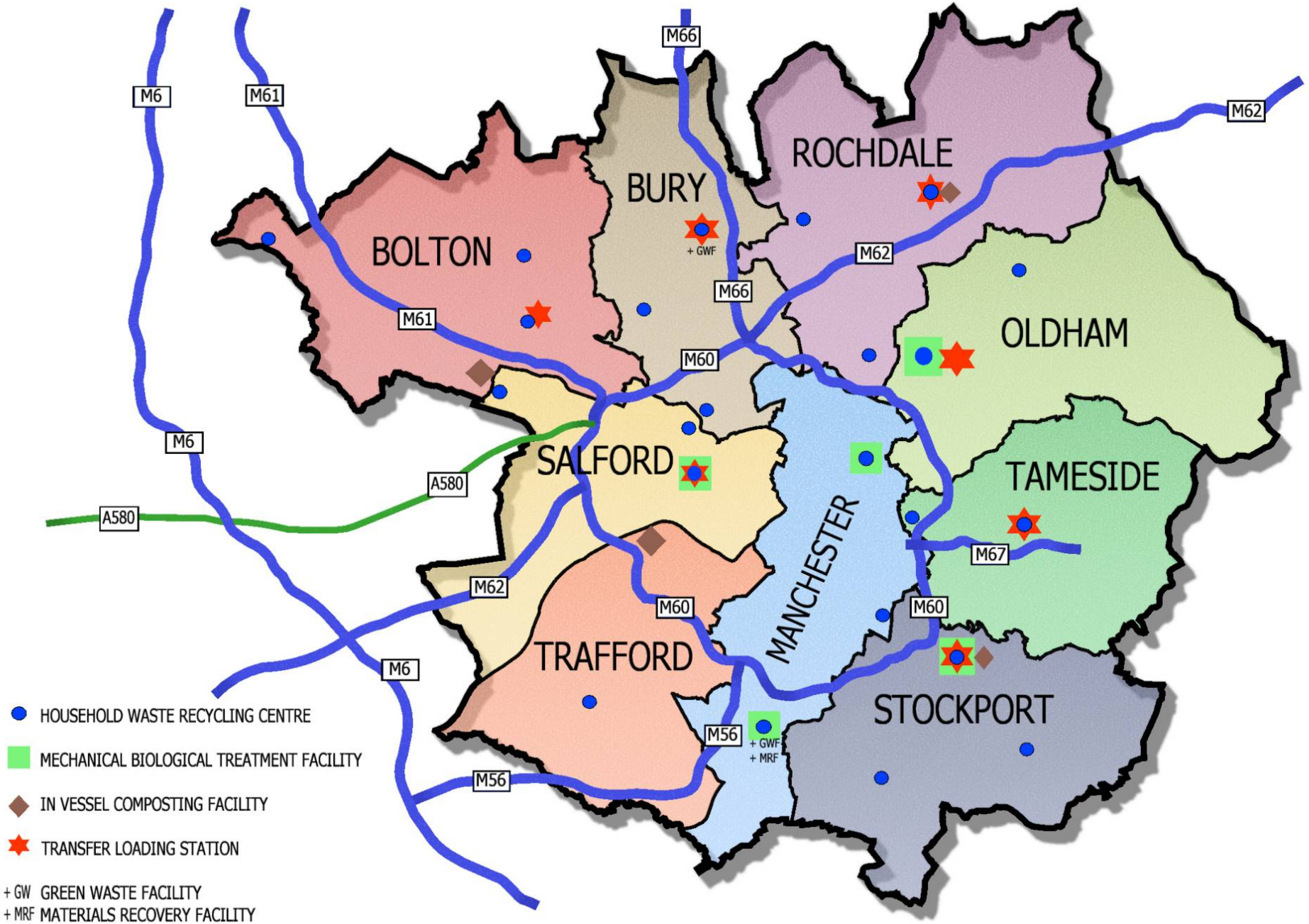
M6
M61
M66
M62
ROCHDALE
BURY
+ GWF
BOLTON
M62
M66
M61
M60
OLDHAM
M6
SALFORD
TAMESIDE
A580
A580
MANCHESTER
M67
M62
M60
M60
M6
TRAFFORD
STOCKPORT
M56
+ GWF
+ MRF
M56
HOUSEHOLD WASTE RECYCLING CENTRE
MECHANICAL BIOLOGICAL TREATMENT FACILITY
IN VESSEL COMPOSTING FACILITY
TRANSFER LOADING STATION
+ GW GREEN WASTE FACILITY
+ MRF MATERIALS RECOVERY FACILITY

Bolton's New Facilities

- Union Road HWRC, completed April 2009

- Hurstwood Court
  - HWRC, completed September 2010
  - Education centre, existing

- Raikes Lane
  - TLS, completion anticipated for July 2011 (work yet to begin)
  - Bolton TRF, continued operation

Union Road HWRC

Hurstwood Court HWRC

Bolton TRF

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Contract Timeframe

- The Contract was signed on 9th April 2009.
- There are currently 29 of the 42 facilities completed:
  - 21 HWRCs
  - 4 TLSs
  - 2 GWFs
  - 1 IVC
  - 1 MRF
- All construction in Greater Manchester is projected for completion in January 2012.
- The Runcorn Combined Heat & Power (CHP) Thermal Power Station (TPS) is due for completion early 2012 with handover, following commissioning, early 2013.

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Waste Education

- Key part of our ‘behavioural change’ approach
- Showcase the Contract technologies
- Raise awareness of waste prevention by reducing, reusing and recycling in the local community
- Key Stage 2 pupils up to university students
- Catering for general interest groups
- Full day or half day (am or pm) visits, or site tours only



Education Centre
Hurstwood Court, Bolton

- Visits incorporate a site tour of Bolton Thermal Recovery Facility, following the process of residual waste through the tipping hall, furnace and energy from waste/electricity generation processes.
- Demonstrates how environmental impacts are minimised.
- Visits are suitable for community groups and school groups with a minimum age of 7 years (year 3 and above for school parties).

- The facility also has :
  - A 40 seat auditorium for presentations
  - An interactive display area
  - A classroom which can accommodate a full class
  - Welfare facilities

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Household Waste Recycling Centre (HWRC)

Arkwright Street

Waithlands

Cemetery Road

- Major redevelopment – 12 sites
- New build – 2 sites
- Minor redevelopment – 11 sites
- Split level design, recycling only lanes, increased staffing
- Total of 25 sites, with the vast majority of citizens within a 3 mile drive

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Transfer Loading Station (TLS)

Cobden Street

Chichester Street

Bayley Street

- 7 TLSs
- Strategically located across Greater Manchester to service collection authority rounds (proximity principle)

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Materials Recovery Facility (MRF)

Longley Lane

- Capacity for 90,000 tonnes per annum.
- Sorting glass, plastic bottles and cans.
- Mechanical separation methods:
  - Magnetic, eddy current, infra red, density separation, air classification techniques.

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Green Waste Shredding (GWS) Facilities

Longley Lane

- 2 facilities
- Continued use, with upgrades and improvements
- Shredding and sorting of green waste for composting

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In-Vessel Composting (IVC)

Waithlands

- Capacity for 170,000 tonnes per annum.
- Treatment of kitchen waste/green waste.
- Animal By Products Regulations compliant using fully enclosed systems.
- Odour/environmental controls.

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Mechanical Biological Treatment (MBT)/ Anaerobic Digestion (AD)

Capacity for 540,000 tonnes per annum

Longley Lane

Treatment of residual waste into 2 output streams:

- Organic rich to Anaerobic Digestion > Methane > green electricity
- Solid Recovered Fuel (SRF) to Runcorn CHP > steam and green electricity

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Residual Waste – Existing Facilities
Bolton Thermal Recovery Facility (TRF)

- Bolton TRF to receive 115,000 tonne pa of mixed waste.
- Generates c.7.3 MW net electricity, but unfortunately no steam demand yet.

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Combined Heat and Power (CHP) at Ineos Chlor, Runcorn

- SRF used to produce electricity and steam for the Ineos Chlor chemical plant at Runcorn
- Two stage (4 line) scheme providing total capacity of 750k tpa.
- Phase 1 relates to GMWDA - 375k tpa capacity against waste flow forecast of 275k tpa.

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CHP, Runcorn

- Phase 1 (2 line) will supply
  - 20% of their energy need
  - Meet 100% of their steam requirements
- Built in 2 phases of 375k tonnes capacity, with GMWDA utilising Phase 1.
- Once fully developed the plant will have a total power output of approximately 100 MW and 140 tonnes per hour of steam for use at the Ineos Chlor site.
- Power station receives SRF from 2nd quarter 2012.
- Scheme attracts green energy credits - Levy Exemption Certificates and single Renewables Obligation Certificates for the 'deemed biomass' proportion under the good CHP assessment.

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Climate Benefits

- Facilities to reduce landfill from 65% to 15%.
- Diversion from landfill will reduce methane emissions (landfill responsible for approximately 4% of UK emissions).
- Solid Recovered Fuel (and waste to landfill) mostly moved by rail and detailed road transport planning will reduce transport emissions.
- Materials recovered by recycling & composting (at least 50% by 2015) will reduce emissions from processing virgin materials and exceed the national recycling & composting target for 2015.

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Green Energy Benefits

- Anaerobic Digestion produces methane which can be combusted to generate electricity &/or heat, & displace fossil energy sources.
- Combined, the plants will generate approx 8 MW (4 MW goes to the grid).
- Saves c.170,000 tonnes CO_2 when compared to landfill.
- Ineos Chlor CHP plant at Runcorn will provide 20% of site energy needs (equivalent to 1 million homes) and will displace significant current fossil fuel usage.

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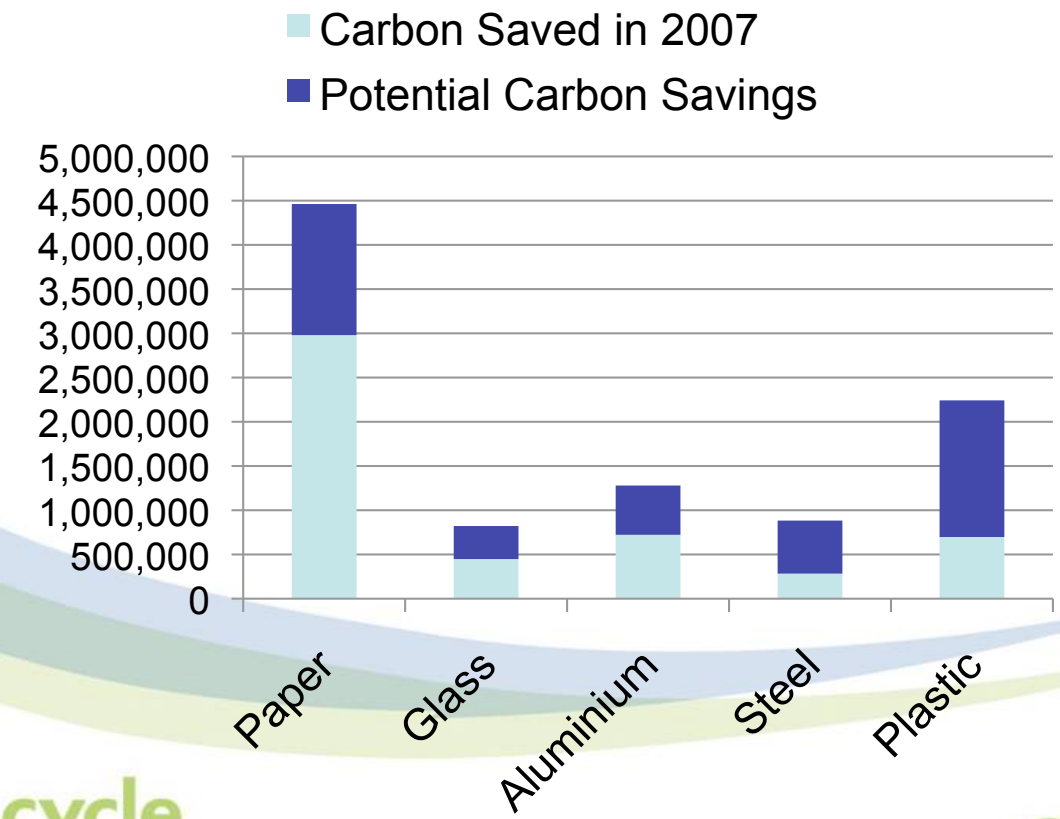
The CO_2 Case To Recycle More

Actual and potential CO_2 equivalent savings from recycling (CO_2eq tonnes)



Source DEFRA

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GMWDA

Thank You

paul.dunn@gmwda.gov.uk
0161 770 1700

Medtia Chambers
5 Barn Street
Oldham
OL1 1LP

LGC Awards 2010 WINNER
Award for Sustainable Environment

Public:Private AWARDS 2010 WINNER
Best Waste Project
Greater Manchester Waste PFI Project

EUROMONEY ProjectFinance 2009
Deals of the Year
European Waste Deal of the Year

Public:Private AWARDS 2010 WINNER
Judges Award for Innovation
Greater Manchester Waste PFI Project

LGC Awards 2010 HIGHLY COMMENDED
Award for Innovation

Our world, our Bolton

Community Climate Change Conference

- Promoting environmental sustainability
- Tim Hill - Chief Planning Officer
- Bolton Council

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Creating a sustainable Bolton

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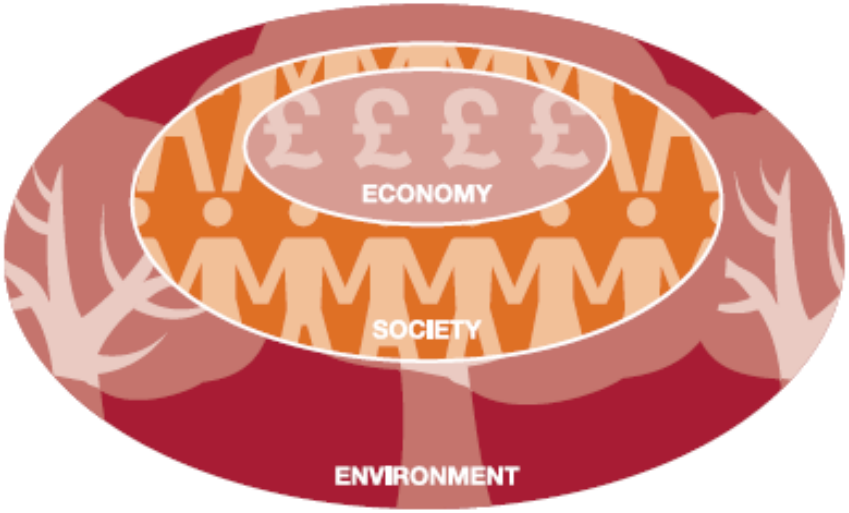
Bolton Council

What is sustainable development?

The goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life, without compromising the quality of life of future generations.

Securing the Future –

the UK Sustainable Development Strategy



The UK carbon challenge

- The UK's direct emissions of CO_2 are **560 million tonnes** ($MtCO_2$) a year

- **40%** of UK CO_2 emissions are created by business
- **5%** are from the public sector

- The Government's target is to reduce the UK's emissions by **80% by 2050**

- The move to a low carbon economy presents significant challenges but huge opportunities

Jonathan Porritt .....

Why is Bolton Council concerned?

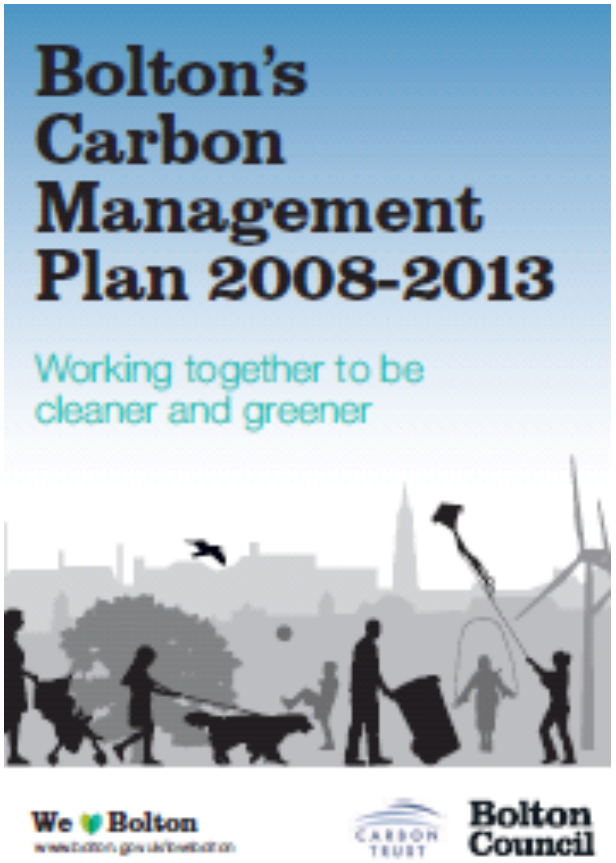
- Audit reports - more to do on ‘environmental sustainability’
- LAA + new Reporting Framework and National Indicators eg NI185
- Our role as community leader in delivering Bolton Vision
- Economics of sustainability post ‘Stern’ report and in recession
- Tougher legislation emerging from National Government, including the Carbon Reduction Commitment
- **Because it is the right thing to do!**

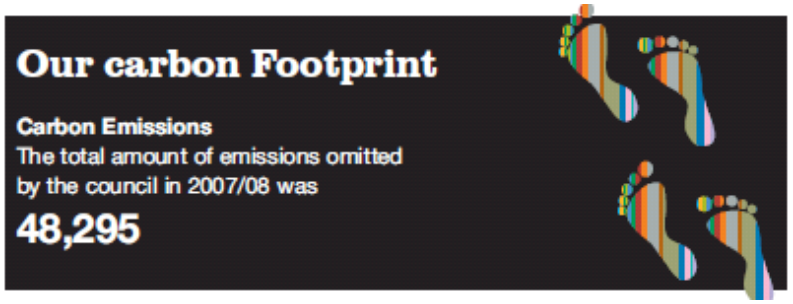
Key Priorities

1. Understanding Bolton's environmental limits
2. Sustainable procurement
3. Sustainable living
4. Low carbon economy
5. Climate change
6. Green travel
7. Built environment

Understanding Bolton's Environmental Limits

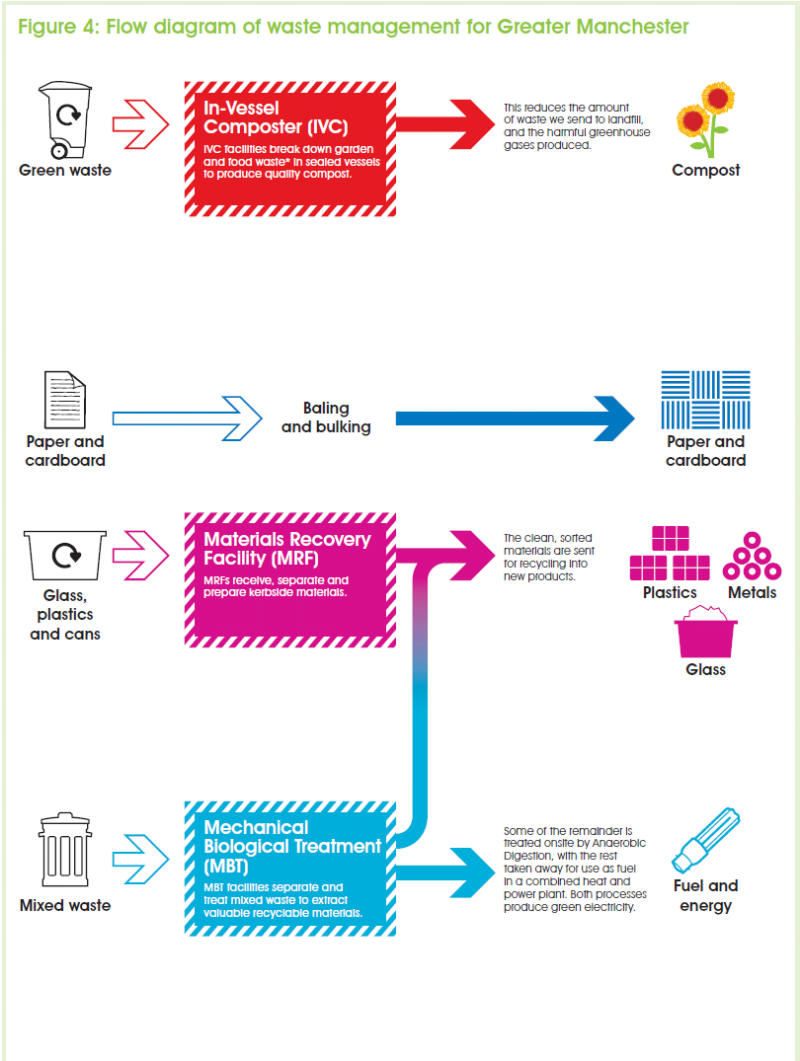
- Carbon Management Plan
- Environmental Sustainability Action Plan
- Bolton Environment Footprint study
- Sustainability appraisals
- Led by a Carbon Management Board, supported by a council wide Carbon Management Team





Sustainable Procurement

- Established joint procurement arrangement with Manchester City Council
- Developing Greater Manchester waste disposal contract with major emphasis on recycling
- GMWDA CO2 reduction in 2008/09 was 80,000 tonnes, with plans to increase this to 400,000 tonnes by 2020



Sustainable Living

- GLO network established, recruitment underway in the Council
- Council joined 10:10 Campaign
- Council signed up to Carbon Leaders Network April 2010
- Development of Education for Sustainable Development Network resulting in 6 Green Flag Eco Schools

Low Carbon Economy

- Delivery of Council's adopted Carbon Management Plan
- Local supplier awareness day in December 09 and Business Bolton / Groundwork business event May 10
- Groundwork advising businesses through Business Bolton

Types of savings	**Bolton Region Saving**	**Average company saving**
Cost	£571,244	£7230.94
CO2	1819.24 tonnes	23.32 tonnes
Water	15753.78 m3	201.97 m3
Waste Diverted	95.02 tonnes	11.48 tonnes

* from Groundwork engaging with 78 businesses from Oct 07 to Mar 10

Dealing with climate change

- Greater Manchester Low Carbon Economic Area – working with AGMA Environment Commission
- Development of adapting to climate change strategy and embedding across the Council
- Establishment of Carbon Reduction Fund to provide development funding for carbon reduction projects e.g. in ICT
- Work to prepare for the CRC completed – governance in place
- This event!

Photograph: Ed Nix/Oxford Mail; Source UKCIP, 2007

Green Travel

- Energy Saving Trust “Green Fleet” review completed, recommendations being implemented
- Trialling pilots in fleet e.g. hydrochargers, electric vehicles, AD Blue Dispensing system
- Implemented waste modernisation programme – reduced mileage and fuel usage
- Reduced sweeper numbers from 8 to 6, saving 47 tonnes of CO2

The Built Environment

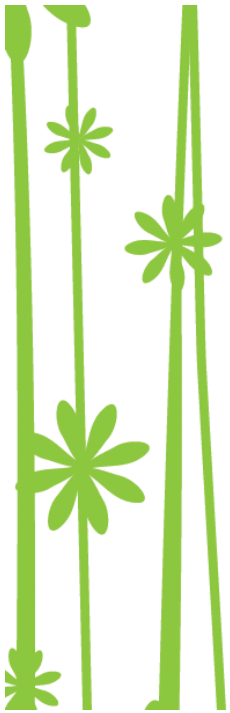
- Sustainable development appraisals complete for Bolton 1, BSF,LIFT; and commenced for Trinity Interchange
- Sustainable Design and Construction policy guidance incorporated in Core Strategy
- 'BREEAM Excellent' and 'Code for Sustainable Homes levels 3/4' set as a minimum for all public sector and major partnership commercial developments

Atlas Mill: 69 apartment residential conversion completed, high quality, energy efficient and affordable prices

Focus for 2010/11

Community Leadership

- 10 point pledge
- Sustainable appraisal toolkit implemented with partners
- Continue to promote sustainability agenda in schools and with community/ neighbourhood projects using GLO framework
- Roll out carbon management planning to key partner agencies and businesses



What can you and your organisation do to look after Bolton's environment?

I love Bolton and promise to...

- Understand Bolton's environmental footprint
- Keep up to date with greening Bolton, the workplace and the home
- Adopt green travel plans as an individual and or organisation
- Use Bolton's environmental toolkits to test the current and future impact on the environment

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Community Climate Change Conference

- **Questions and Answers**

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- Audience participation - Voting Questions
- Mike Kinsella
- Groundwork

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- **Summary and Closing remarks**
- **Tony Taylor**
- **Groundwork**

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- Please do not forget
- to complete your evaluation forms

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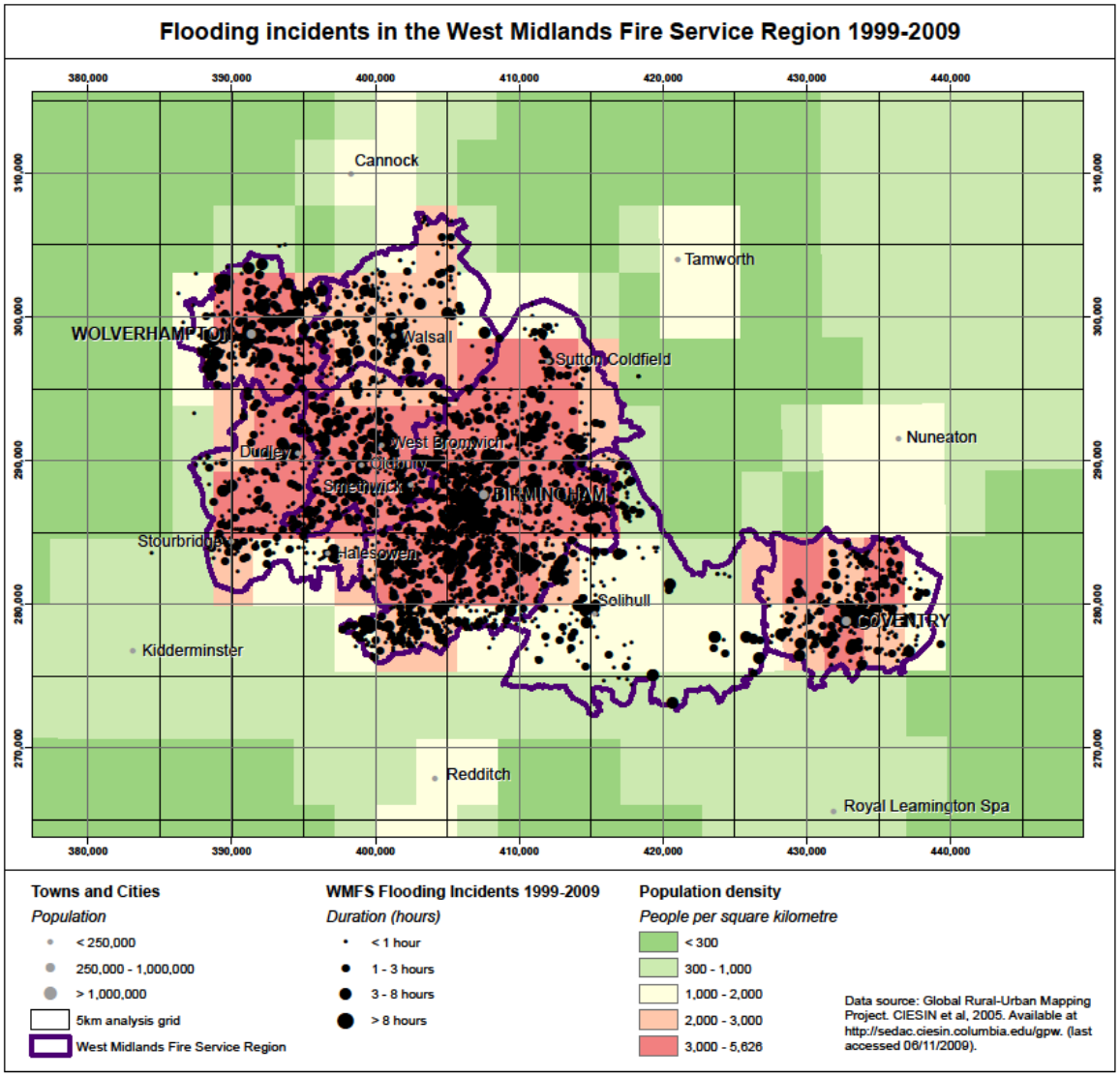
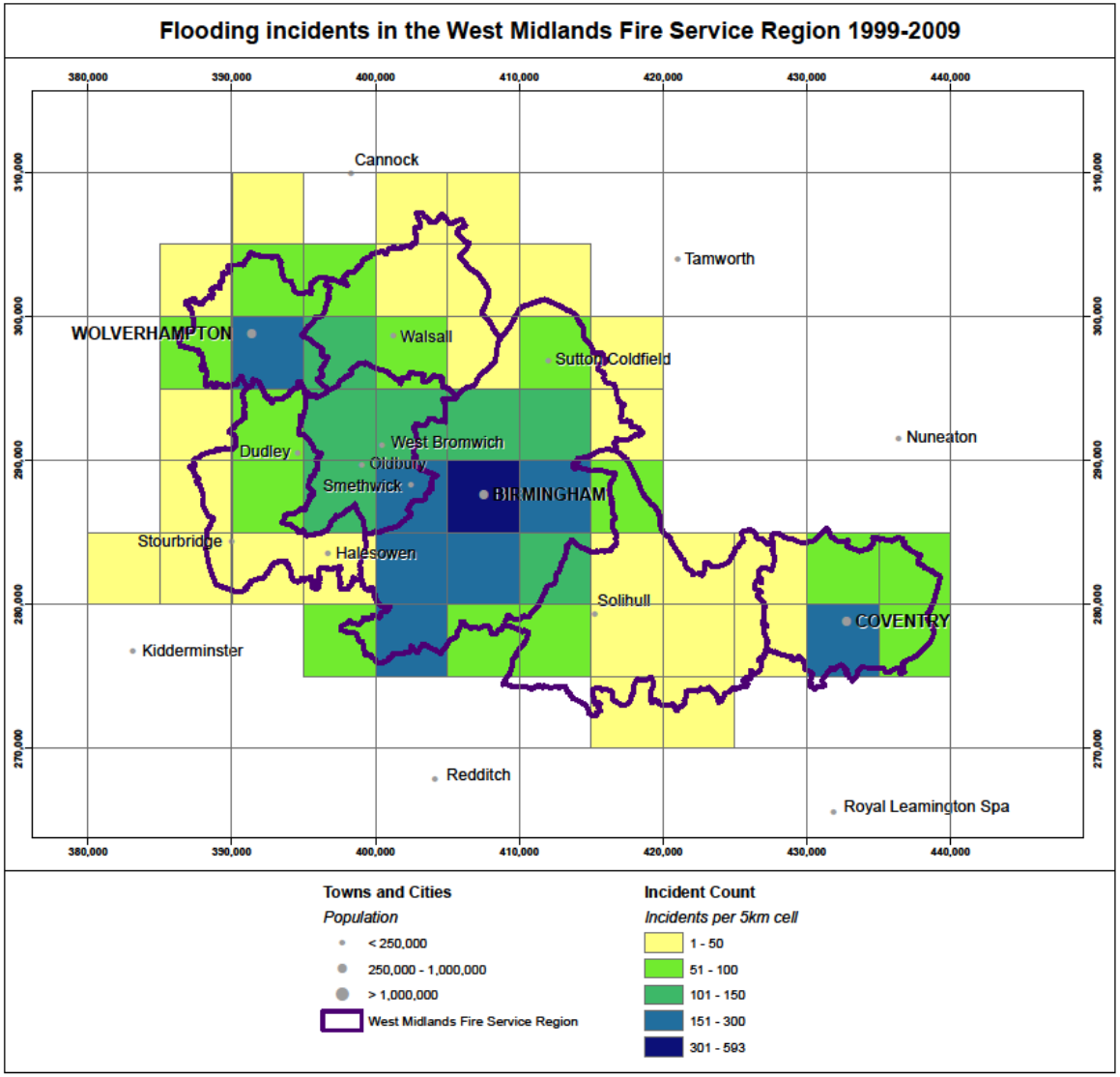
Flooding incidents



Spatial clustering, mostly around urban centres

Total incident counts per 5km cell



Summarising total incident count for whole 10 year period by 5km grid cells