Measuring progress on adaptation
Kathryn Humphrey, Committee on Climate Change

Presentation for the ARCC Network Assembly, 10th June 2014
The Adaptation Sub-Committee

Statutory roles:

• To provide advice to Government on the Climate Change Risk Assessment (advisory role)

• To report to Parliament on progress towards adaptation (scrutiny role)

Prof Lord John Krebs (chair)
Sir Graham Wynne
Prof Sam Fankhauser
Prof Martin Parry
Prof Jim Hall
Prof Dame Anne Johnson
Climate Change Act established 5 year cycle of risk assessments followed by policy response
Measuring progress in adaptation is challenging

<table>
<thead>
<tr>
<th></th>
<th>Mitigation</th>
<th>Adaptation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targets and metrics</td>
<td>Clear national target: 80% by 2050. Standard metric exists to measure progress across all sectors (carbon emissions).</td>
<td>No national-level targets. No standard metric across sectors. National-level data is lacking in many areas.</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>Most emission sources identified, being monitored &amp; addressed.</td>
<td>Uncertainty in climate projections – large range of possible futures makes economic analysis difficult. Not all risks understood.</td>
</tr>
<tr>
<td>Context</td>
<td>Global atmosphere.</td>
<td>Climate impacts are national, regional and local.</td>
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</tbody>
</table>
ASC adaptation assessment toolkit – what is happening, and what is the scope to do more?

Indicator framework

Decision-making analysis

Source: ASC (2012)
ASC progress report series – will feed in to our first report to Parliament in July 2015

Climate change – is the UK preparing for flooding and water scarcity?

Managing the land in a changing climate

Managing climate risks to well-being and the economy


Publication on 9th July 2014
Using indicators to assess residual risk – water availability for public water supply

Source: ASC (2012)
Flood defence spending would need to increase by £20 million each year to keep flood risk level constant under a medium risk level from climate change. Property level defences help particularly in areas where defences are not cost-beneficial.

Source: ASC (2012)
Many indicators are needed to build a picture of action across a whole sector – consultation in July 2014 on NAP indicators

### Flooding indicators

<table>
<thead>
<tr>
<th>Name</th>
<th>Direction of trend</th>
<th>Implication of trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development in areas at significant flood risk (unprotected or poorly protected)</td>
<td>↑</td>
<td></td>
</tr>
<tr>
<td>Planning applications approved by local authorities despite Environment Agency flood objection</td>
<td>↓</td>
<td></td>
</tr>
<tr>
<td>Paved-over surfaces in urban areas</td>
<td>↑</td>
<td></td>
</tr>
<tr>
<td>Investment in flood defences</td>
<td></td>
<td>→</td>
</tr>
</tbody>
</table>

**Note on arrows:** the direction of the arrow depicts the trend in that indicator (increasing, decreasing or no significant trend). The colour of the column assesses the implication for the level of risk (red = increasing risk; green = decreasing risk; yellow = risk is neither increasing nor decreasing).

**Further information** is available in the Chapter 2 of the Adaptation Sub-Committee 2012 report.

Source: ASC (2012)
Decision making - development in areas of flood risk is happening faster than elsewhere

Source: ASC (2012)
Decision making - despite short-term funding boost, future investment levels are set to remain below previous assessments of need (LTIS, Foresight, Pitt Review)
Around 20% of 207 homes surveyed exceeded (static) overheating thresholds in summer 2007 (a cool summer).

Survey of homes in England that exceeded overheating thresholds in summer 2007 (n=207)

Beizaeet al. 2013
Exposure to heat is likely to increase with climate change; vulnerability is also increasing (not shown here)

Projections of annual heat-related mortality with climate change (UK)

- **heat- present day**
- **heat projection - climate only**
- **heat projection - climate and population growth**
- **cold - present day**
- **cold projection - climate only**
- **cold projection - climate and population growth**

**Time period**
- 2000-2009
- 2020s
- 2050s
- 2080s

**Mean number of estimated deaths from heat**
- 0
- 5000
- 10000
- 15000
- 20000
- 25000
- 30000
- 35000
- 40000
- 45000
ASC’s second role is to provide advice (not scrutiny) on the Climate Change Risk Assessment. For 2017, we will produce an independent evidence report.
## Comparison of evidence reports- 2012 and 2017 CCRAs

<table>
<thead>
<tr>
<th>CCRA2012</th>
<th>CCRA2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>100+ threats and opportunities</td>
<td>Smaller number of threats/opportunities</td>
</tr>
<tr>
<td>Scored risks by magnitude, urgency and confidence</td>
<td>Will keep same scoring and add importance of climate change as a driver of change</td>
</tr>
<tr>
<td>2020s, 2050s and 2080s</td>
<td>Current, 2020s (2050s and 2080s)</td>
</tr>
<tr>
<td>Mix of existing data and new analysis</td>
<td>Mostly synthesis of existing analysis</td>
</tr>
<tr>
<td>Used UKCP09 to explore different climate scenarios</td>
<td>Will use evidence that is based on UKCP09 and other approaches</td>
</tr>
<tr>
<td>Did not include effects of planned adaptation or socio-economic change (beyond population growth)</td>
<td>Will include an assessment of the effects of adaptation and socio-economic change on risk.</td>
</tr>
<tr>
<td>Did not quantify international effects</td>
<td>Will include a chapter on international effects.</td>
</tr>
<tr>
<td>11 sector reports + 1 synthesis</td>
<td>1 evidence report</td>
</tr>
<tr>
<td>Authored by consultants (signed off by Defra)</td>
<td>Authored and signed off by ASC</td>
</tr>
<tr>
<td>Independently peer reviewed</td>
<td>Independently peer reviewed</td>
</tr>
</tbody>
</table>
Chapter 1- Executive Summary/ Introduction
Chapter 2- Characterising the future (Rachel Warren, UEA)
Chapter 3- The rural economy and natural environment (Iain Brown, James Hutton Institute)
Chapter 4- Infrastructure (Richard Dawson, Newcastle University)
Chapter 5- People and the built environment (Sari Kovats, LSHTM and Dan Osborn, UCL)
Chapter 6- Business and industry (Swenja Surminski, LSE)
Chapter 7- Global security (Neil Adger, Exeter University and Andy Challinor, Leeds University)
Chapter 8- Cross-cutting issues (Roger Street, UKCIP)
Chapter 9- Conclusions
Governance for CCRA 2017 – where you can input

- CCC Adaptation Sub-Committee
  - Chapter lead contributors and other chapter experts
  - Cross-cutting report experts
  - Peer reviewers
  - Defra Science Advisory Council
  - CCRA advisory group (Defra, DAs, EA, LWEC, NERC)
  - CCRA Expert Working Group (organised by Defra)

Groups managed through ASC in dark blue, groups managed through Defra in light blue.
Adaptation Sub-Committee

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