



Committee on  
Climate Change

**Independent** advice to government  
on building a low-carbon economy  
and preparing for climate change

**Thursday 19<sup>th</sup> October  
2017**

# Measuring progress in adapting to climate change

(Language, metrics and people session)

Kathryn Brown, Committee on  
Climate Change

# Who we are – the ASC (Adaptation Sub-Committee)

## Statutory roles in the 2008 Climate Act:

- **To provide independent, expert advice** on the UK climate change risk assessment (advisory role)
- **To report to Parliament on progress** with implementation of the National Adaptation Programme (and can be asked to review the Scottish Climate Change Adaptation Programme)- scrutiny role



Baroness Brown  
of Cambridge  
(chair)

Ece  
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Prof Jim Hall

Prof Dame  
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Rosalyn  
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Sir Graham  
Wynne



# What are the major risks to the UK from climate change?

The ASC's CCRA2 Evidence Report sets out six priority areas for urgent action in the next five years, and also splits out the magnitude and urgency of risks and opportunities by country, with a separate report for Scotland.

<b>Flooding and coastal change risks to communities, businesses and infrastructure</b>	<b>MORE ACTION NEEDED</b>
<b>Risks to health, wellbeing and productivity from high temperatures</b>	
<b>Risk of shortages in the public water supply, and for agriculture, energy generation and industry</b>	
<b>Risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity</b>	
<b>Risks to domestic and international food production and trade</b>	
<b>New and emerging pests and diseases, and invasive non-native species, affecting people, plants and animals</b>	<b>RESEARCH PRIORITY</b>
<b>NOW</b> -----> <b>FUTURE</b>	

RISK MAGNITUDE: LOW MEDIUM HIGH

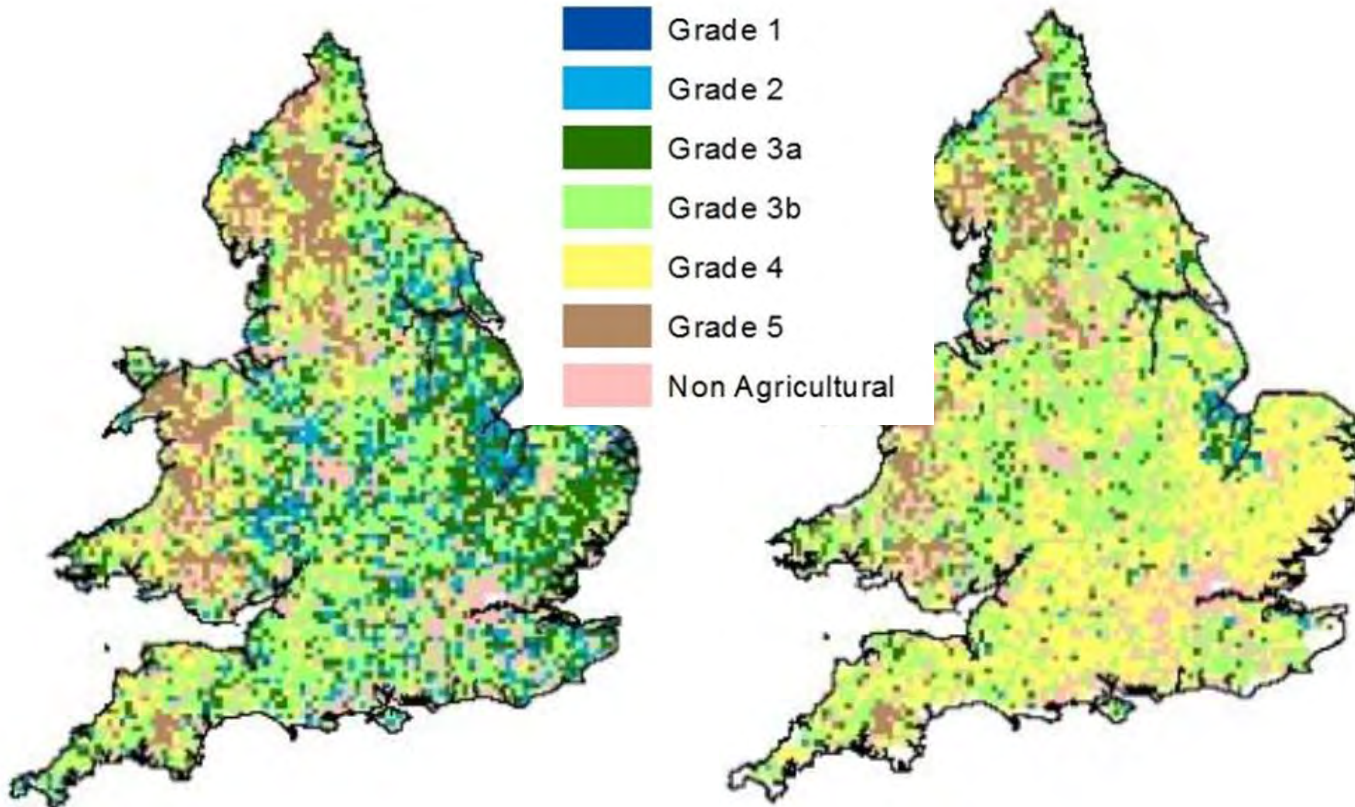
# Example – risks to agricultural land quality

HIGH MAGNITUDE

MEDIUM CONFIDENCE

MORE ACTION NEEDED

## Agricultural land classification in England and Wales



Baseline (1961-91)

2050s (high emissions scenario)



Holme post,  
nr. Peterborough



# Example - Risks from pests and diseases are already increasing

HIGH MAGNITUDE

LOW CONFIDENCE

RESEARCH PRIORITY

2007

2013

Incidence of Dothistroma needle blight  
in the Forestry Commission Estate



# Hierarchy of natural environment risks and opportunities in the CCRA

MORE ACTION NEEDED	RESEARCH PRIORITY	SUSTAIN CURRENT ACTION	WATCHING BRIEF
Ne1: Risks to species and habitats from changing climate space	Ne3: Changes in suitability of land for agriculture & forests	Ne9: Risks to agriculture, forestry, landscapes & wildlife from pests/pathogens/invasive species	Ne14: Risks & opportunities from changes in landscape character
Ne2: Opportunities from new species colonisations	Ne7: Risks to freshwater species from high water temperatures	Ne10: Extreme weather/wildfire risks to farming, forestry, wildlife & heritage	
Ne4: Risks to soils from increased seasonal aridity and wetness	Ne13: Ocean acidification & higher water temperature risks for marine species, fisheries and marine heritage	Ne11: Saltwater intrusion risks to aquifers, farmland & habitats	
Ne5: Risks to natural carbon stores & carbon sequestration			
Ne6: Risks to agriculture & wildlife from water scarcity & flooding			
Ne8: Risks of land management practices exacerbating flood risk			
Ne12: Risks to habitats & heritage in the coastal zone from sea level rise; loss of natural flood protection			

# Scrutiny role – measuring progress in adapting the natural environment is challenging



- There is no overarching goal or target within which to place sector-specific outcomes (including for the natural environment, at the moment at least)
- There is no single metric to compare progress across sectors (like carbon).
- It is uncertain what is being adapted to – adaptation outcomes in a 2°C world different to those in a 4°C world.

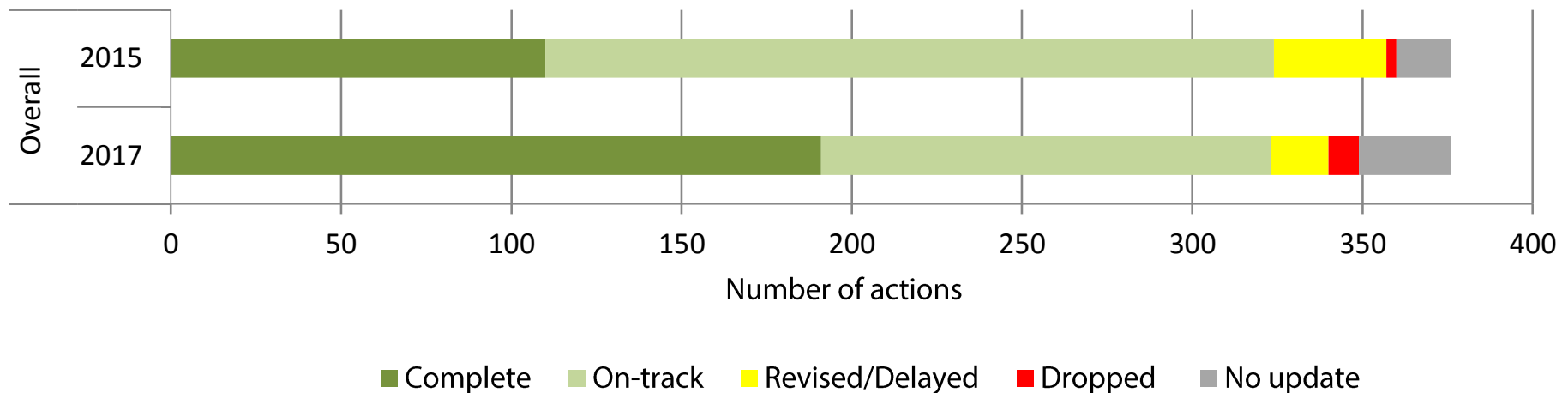
Because of this, it is difficult to use cost-benefit analysis to define optimal pathways to a particular goal.

# Approach to assessing the UK National Adaptation Programme

In the absence of being able to define an optimum outcome or pathway, we have asked the following questions:

- Is there a plan?
- Are actions being taken?
- **Is progress being made in managing vulnerability?**

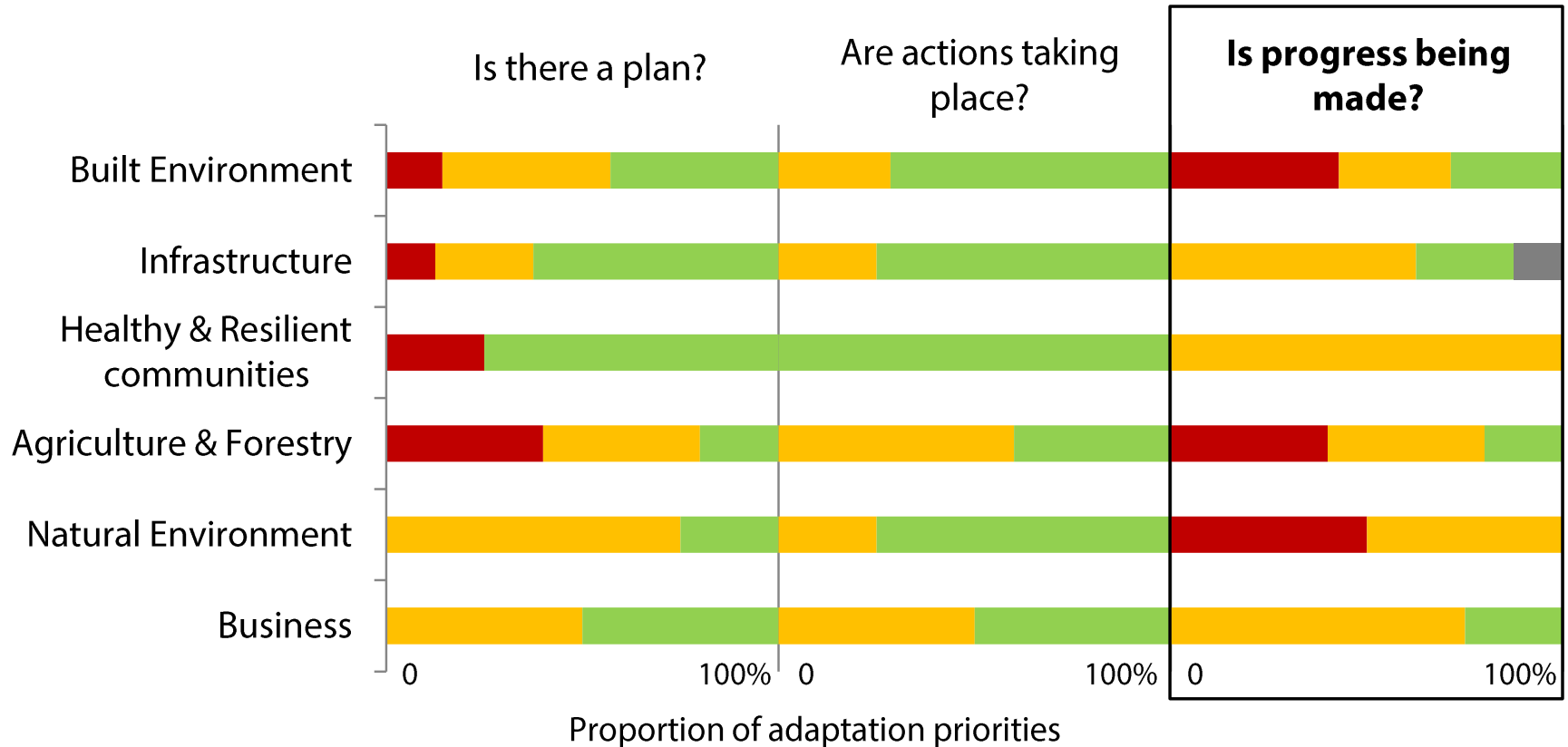
Status of actions in the current National Adaptation Programme





## Despite areas of progress, more priorities flagged as 'red'

Summary of progress by the National Adaptation Programme



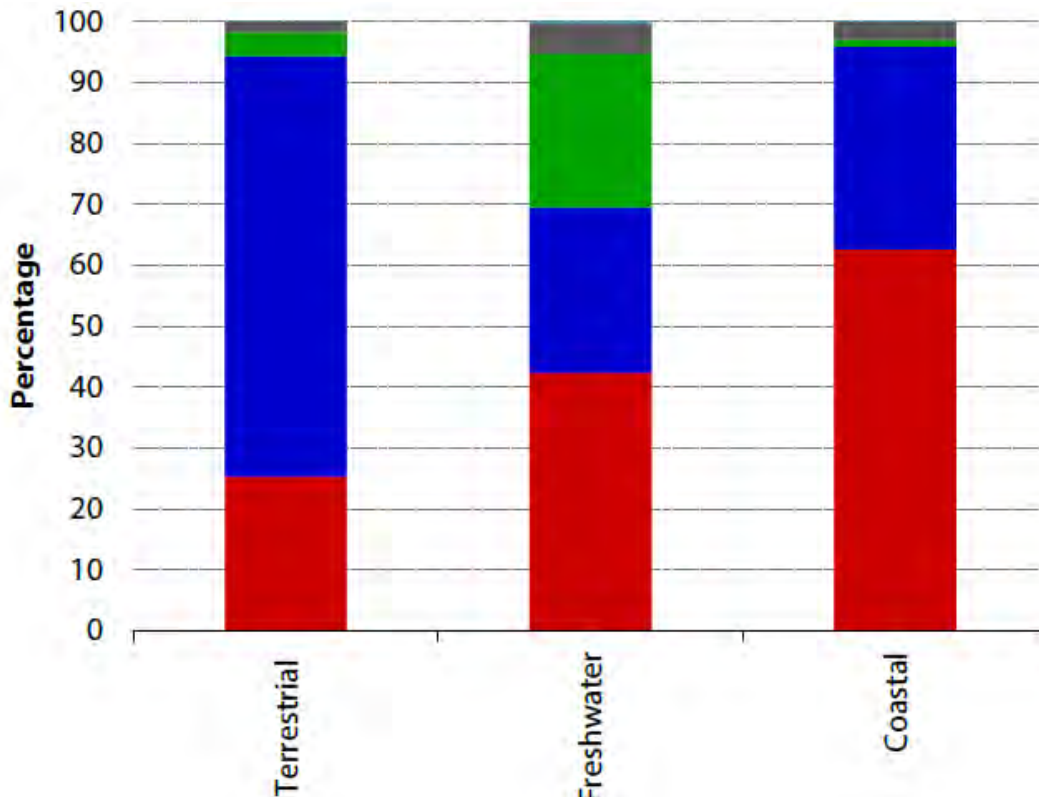
# Similar results available for Scotland from ASC's 2016 evaluation of the SCCAP



# Example - Habitats need to be in good condition to be resilient (Lawton Review)

Condition of natural environment continuing to deteriorate, reducing resilience to climate change

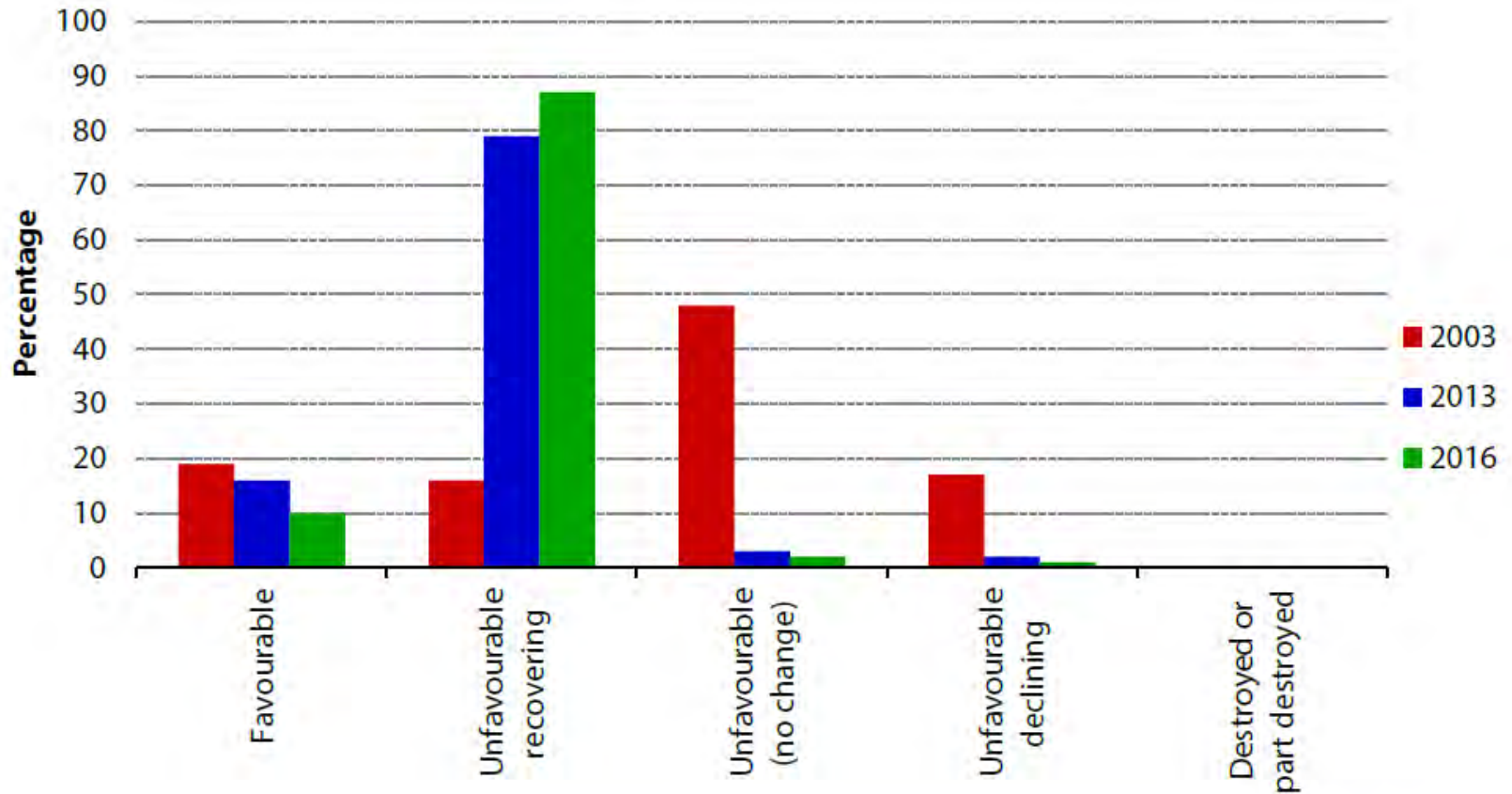
Condition of English SSSIs in 2016 by habitat type



Unfavourable declining    Unfavourable no change    Unfavourable recovering    Favourable

- The health of the natural environment is likely to deteriorate further in a warming climate
- The majority of indicators of habitat condition and species abundance show vulnerability to climate change is increasing
- Condition is not improving in England quickly enough to meet Government targets set out in Biodiversity 2020, and many species are in long-term decline
- A long-term plan is needed to replace current policies that end in 2020

# Example - % of upland blanket bog SSSIs in favourable condition in England has worsened



**Source:** For 2016 data - Natural England,

<https://designatedsites.naturalengland.org.uk/NEInterimReports/ConditionByHabitat.aspx>

For 2003 and 2013 data, see ECI (2013) for the ASC, *Assessing preparedness of England's natural resources for a changing climate*.





# Will the 25-year Environment Plan provide the outcomes we need?

- Long-awaited UK government 25-year Environment Plan; currently expected before Christmas.
- Natural Capital Committee has provided advice to the Government on possible outcomes and success measures.
- There is also a question of who will evaluate the plan – independent scrutiny would likely be stronger than government self-evaluation.

# Possible outcomes based on NCC advice for 25YEP

- Air quality meets international standards.
- People are protected against 0.5% annual probability flood event.
- All surface water bodies meet good status targets.
- Wild species and habitats restored to sustainable levels.
- Seas are clean, productive and biologically diverse.
- Soils are healthy, productive and managed sustainably.
- Development is managed in a way to make a net environmental contribution.

**Good ambition but on their own, not measurable outcomes. Need associated success criteria...**

# Possible success criteria for 25YEP

- Increase woodland cover by 250,000 ha by 2040.
- Restore all peatland systems to favourable condition.
- Restore natural hydrological processes in catchments.
- Develop and implement a network of national nature reserves and marine protected areas.
- Significantly expand green spaces.
- Develop and implement a comprehensive network of green spaces.
- Overhaul CAP to ensure public money spent on public goods.
- Secure natural capital net gain principle in spatial planning system.

**Some of these are more measurable than others.**

## Annual progress reports

2010 & 2011: initial assessments, developing methodology  
 2012: Flooding & water scarcity  
 2013: Land use  
 2014: Economy & well-being

## Additional reports

Scotland (2011, 2016), Wales (2013)  
 Local government (2012)

## Statutory report to Parliament

2015 and 2017: Progress in preparing for climate change – evaluation of the first NAP

## Ad-hoc letters, policy notes and blogs

Natural capital outcomes, Housing & Planning Bill, flood defence expenditure, flood insurance, water abstraction reform, CAP reform etc

