

Infrastructure and climate change

Oxfordshire Environment Partnership

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Elizabeth Wilson, Oxford Brookes University

ebwilson@brookes.a.uk

Key points

- Understanding infrastructure
- Longevity
- Adaptation and infrastructure
- Planning for national infrastructure
- Climate resilience for all infrastructure
- So - integrate mitigation and adaptation

Understanding infrastructure

- Pitt Review distinguishes between **National** infrastructure and **Critical** infrastructure, “the loss or compromise of which would have a major impact on the availability or integrity of essential services leading to severe economic or social consequences or to loss of life” (14.9)
- Planning Act 2008 lists 16 types of infrastructure
- Community infrastructure includes transport, schools, health centres, flood defences, play areas and parks
- Green infrastructure initiatives
- All have role in climate change mitigation and adaptation

Critical infrastructure?



Adaptation to climate change over life-time of infrastructure

- 100-200 years “time-scale over which major infrastructure currently in place, or being built in the near future, will be expected to maintain operational capacity” (Institute of Mechanical Engineers, 2009)
- Upper Thames Reservoir: Thames Water foresee “serviceable life at least 100 years”
- Even “domestic” built environment has 60-100 year life-time
- Therefore need climate change impacts & adaptation studies with long-time -horizon
- For example, Environment Agency’s Thames Estuary 2100 takes > 100 years
- Dutch Delta Commission (2008) take 100-200 years horizon

Infrastructure as a response to climate change

- New infrastructure is being proposed as a part of mitigation (ie move to low carbon economy) and adaptation, such as:
- Mitigation: new energy generation plants & systems; new transport networks; bio-mass
- Adaptation: flood defences and flood alleviation channels; water resources; green infrastructure (for cooling and flood-attenuation)
- Existing infrastructure will also need to adapt/be resilient (transport; social & community facilities; waste disposal sites; mineral extraction etc)
- We must therefore take an integrated view of mitigation and adaptation responses

Flood damage on Jubilee River, Bucks (itself a flood-alleviation scheme)



Need to integrate and anticipate

- Climate change is not (just) a long-term problem – act now
- Significant new infrastructure developments are being planned in the South East now
- Use scenarios and horizon scanning for new and existing infrastructure
- Educate the property professions & workforce
- Allocate budgets for maintenance
- And...

Use existing tools and processes

- Anticipatory assessment tools such as Sustainability Appraisal
- Integrated assessment of mitigation and adaptation
- Consider all stages of planning, design, construction, operation and de-commissioning/end of life
- Partnerships & Local Area Agreements
- Community initiatives
- Monitoring of local impacts (LCLIP) and institutional learning