

# Observed adaptations to climate change in the UK

Tompkins EL , Adger WN, Boyd E, Nicholson-Cole S, Weatherhead K, and Arnell NW. (2010 Accepted for publication). Observed adaptation to climate change: UK evidence of transition to a well-adapting society? *Global Environmental Change*.

Tompkins EL, Boyd E, Nicholson-Cole SA, K.Weatherhead, Arnell NW, and Adger WN. (2009) An Inventory of Adaptation to climate change in the UK: challenges and findings. *Tyndall Centre for Climate Change Research Working Paper 135:133*.

UKCIP online searchable database “The Brain”

June 30<sup>th</sup> 2010

Emma L. Tompkins

School of Earth and Environment  
University of Leeds

# What can a database of adaptation tell us?

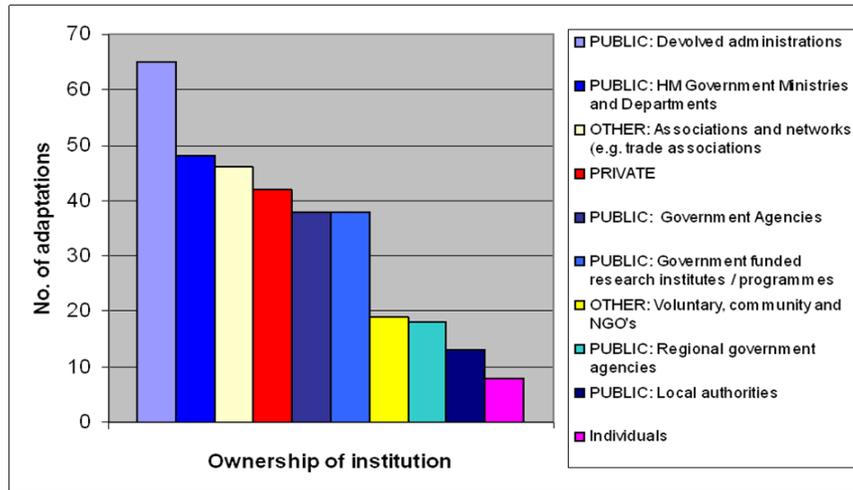
- 1) Baseline data – i.e. a data point from which we can measure change (positive or negative)
- 2) Identify leaders and laggards to inform policy
- 3) Evidence of successful adaptation – monitoring, reporting and verification
- 4) Identify trends to mal-adaptation
- 5) Evidence of a societal transition, or a series of disconnected activity

# Method

- 1) DEFRA-funded to inform UK adaptation policy framework
- 2) 6 sectors: transport, construction, flood management, agriculture and forestry, biodiversity and conservation, water supply
- 3) Define adaptation: building a/c; implementing actions; supporting legislation
- 4) Key words search examples: 'climate' 'adapt', 'cope', 'hazard', 'disaster', 'flood', 'drought', 'storm', 'weather', 'vulnerable', 'vulnerability', 'exposure', 'sensitivity', 'adaptive capacity', 'risk', 'adjustment'; 'environment', 'behaviour', 'organisational change', 'institution' and 'legislation'.
- 5) Annual reports, online info, UKCIP newsletter

# Outputs

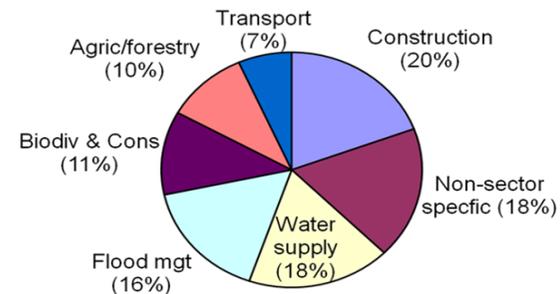
## Distribution by ownership



Source: Tompkins et al 2010

## Distribution by sector

### Adaptation by sector in the UK in 2005



Source: Tompkins et al 2010

## Triggers of action

Triggers	Details	No.
Changing weather or climate	Experienced or perceived: changing weather patterns (heat, drought, extremes, wind storms)	99
Legislation - non-climate change	Sustainable development standards (including Corporate Social Resp., ISO14001), other international legislation	66
Flooding		52
Conservation	Including biodiversity conservation	28
Risk management	Coastal flooding, landslides, water abstraction	24
Legislation - climate change	Policy, legislation, incl. PPS25, climate change levy, UK emissions trading scheme, energy conservation	24
Cost savings	Costs of production	17
Social pressures	Development / population pressures	5

Source: Tompkins et al 2010

## Distribution by type of A

Adaptation outputs	Activities undertaken	No.
Research	Information gathered, research, mapping, modelling	161
Planning	Made a plan, strategy, policy	59
Network developed	Committee, forum	19
Legislation	Environmental sustainability initiatives and climate change Acts, Directives, EU regulations	21
Awareness raising	Campaigns, education	17
Change behaviour	Infrastructure design, building practice	12
Training	Tools to cope/adapt	7
Advocacy		3

Source: Tompkins et al 2009

# What does this mean?

- 1) Government is leading the way (are the private sector and CSOs following?)
- 2) We are doing a lot more research and planning than acting
- 3) Actual or perceived risk is driving action
- 4) Recognise that sample is biased

# How robust was this analysis?

- 1) Not a random sample, therefore cannot say whether this is all the adaptation in these sectors
- 2) Search method – looked for both spontaneous and planned adaptation – too broad
- 3) Successful adaptation not pre-defined, nor mal-adaptation – therefore no estimate of how many of these were ‘good’ or ‘bad’
- 4) Care needed in interpreting results for policy work

# A challenge for the next database study

- 1) Pick one sector and define adaptation for that sector
- 2) Clarify sampling methodology, e.g. 1% of registered companies in 1 sector
- 3) Determine search document e.g. Annual report
- 4) Determine search terms relating to definition of adaptation, e.g. exposure, sensitivity, adaptive capacity
- 5) Focus only on planned adaptation – defining exactly what is meant to be achieved by adaptation, over what time period, and who is the beneficiary
- 6) Be clear about the criteria and thresholds by which to evaluate the success of adaptation

# Conclusions

- 1) Databases are needed for policy guidance (Diana's comment)
- 2) Initial studies provide interesting findings but not necessarily generalisable
- 3) Compiling adaptation databases requires choices that lead to the propagation of biases
- 4) Biases emerge in: the definition of adaptation, the source of data selected, the range of literature selected from which to make the search, and the sectors or areas searched.
- 5) Investment needed in robust methods to identify observed adaptation