2030 Vision - Water

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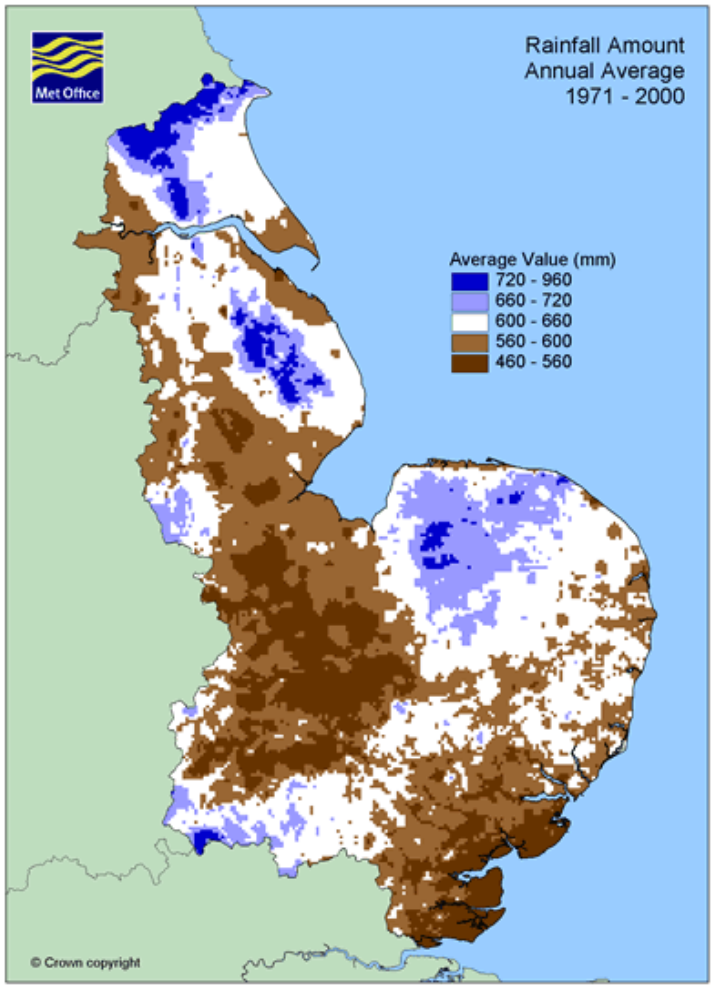
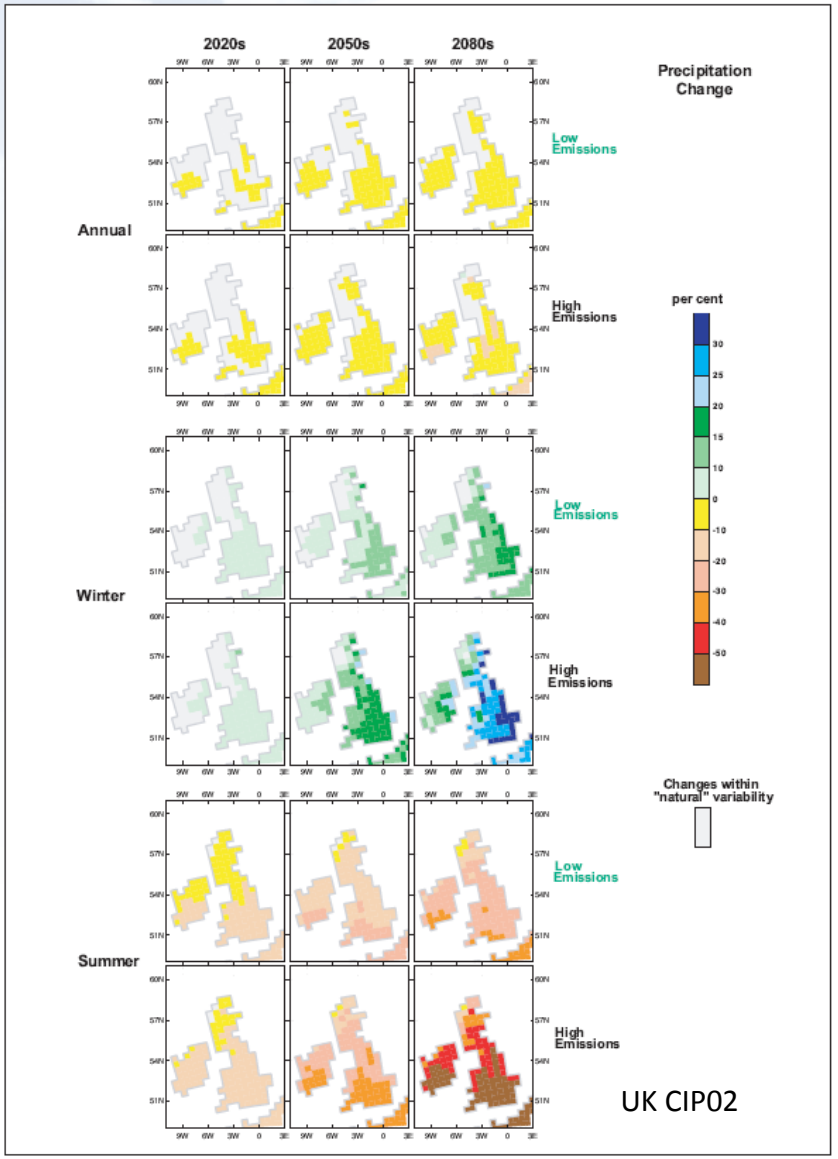
Conclusions?

- Resource management needs polycentric institutions with some capacity for top-down planning
- Resource management may fail if it is not integrated, since exploiting one (resource) may cost another

East Anglia - climate



http://www.metoffice.gov.uk/climate/uk/averages/regmapavge.html#eengland



UK CIP02

East Anglia - population

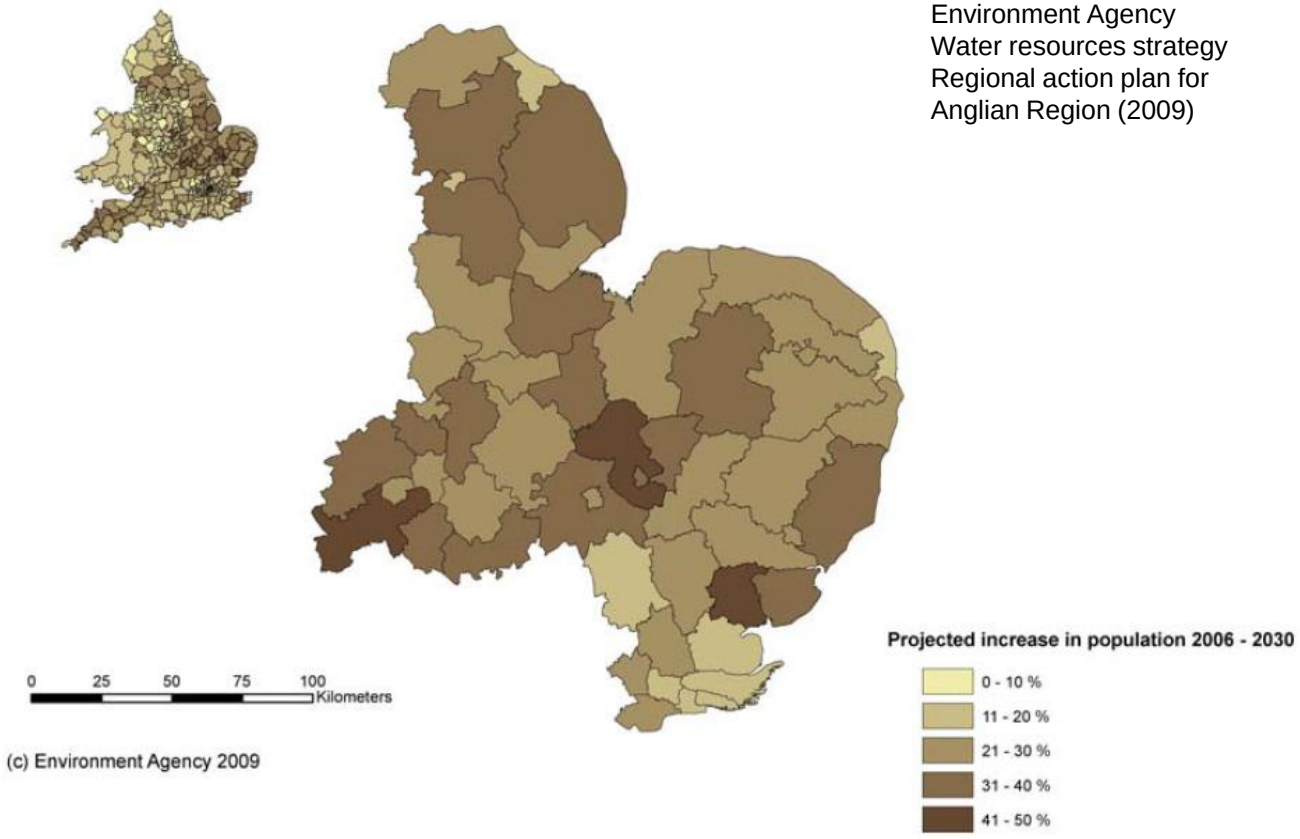
Table 3: Percentage Population Change between Mid-2011 and Mid-2021

	Total	*Due to:* Difference between births & deaths	Migration and other changes	Internal migration	International migration
North East	4.9	2.3	2.6	-0.1	2.7
North West	4.4	3.8	0.6	-0.3	0.9
Yorkshire and The Humber	7.0	4.2	2.8	-0.1	2.9
East Midlands	8.6	3.7	5.0	1.9	3.1
West Midlands	6.8	4.9	1.9	-1.0	3.0
East	10.2	4.4	5.8	3.7	2.0
London	14.2	12.4	1.7	-9.2	10.9
South East	9.3	4.3	5.0	2.9	2.1
South West	8.3	2.4	6.0	5.3	0.7
England	8.6	5.2	3.4	0.0	3.4

Table source: Office for National Statistics

East Anglia - population

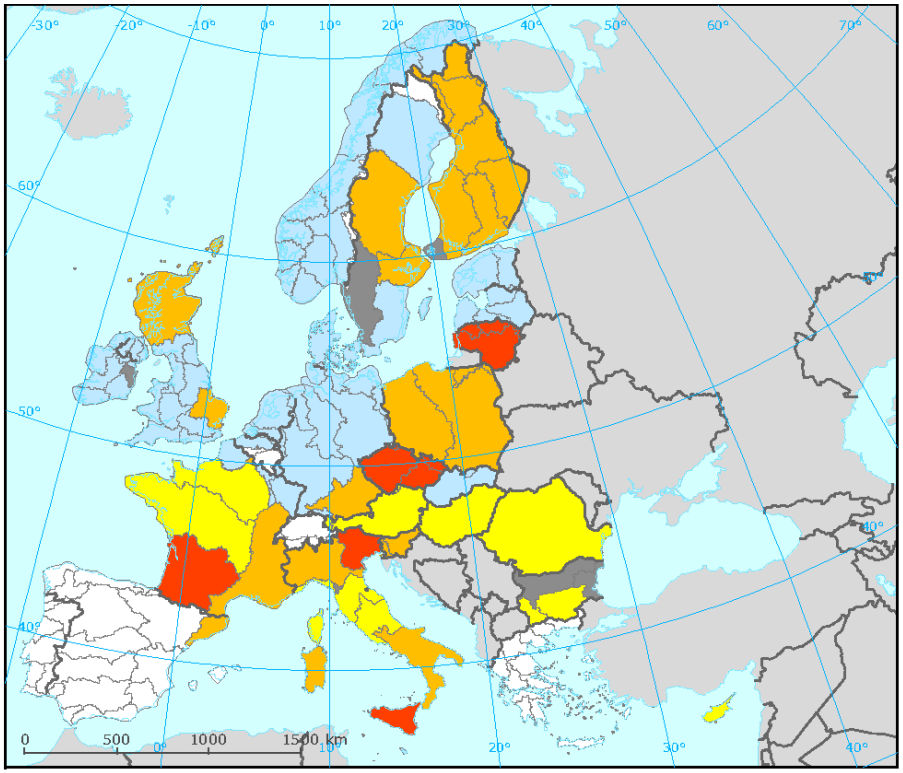
Figure A7 - Projected population growth: 2006 to 2030 (Source ONS)

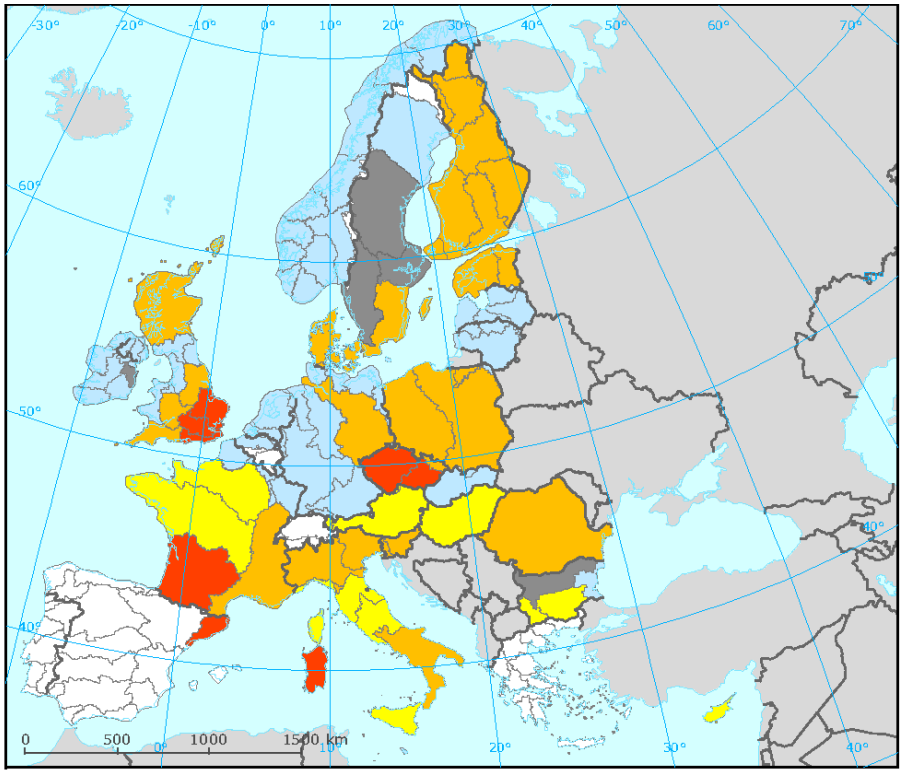


Environment Agency
Water resources strategy
Regional action plan for
Anglian Region (2009)

Figure A7 shows projected increase in population across the Anglian Region. Areas predicted to experience the most growth are those south of Northampton, Colchester and around Cambridge.

East Anglia – Water stress



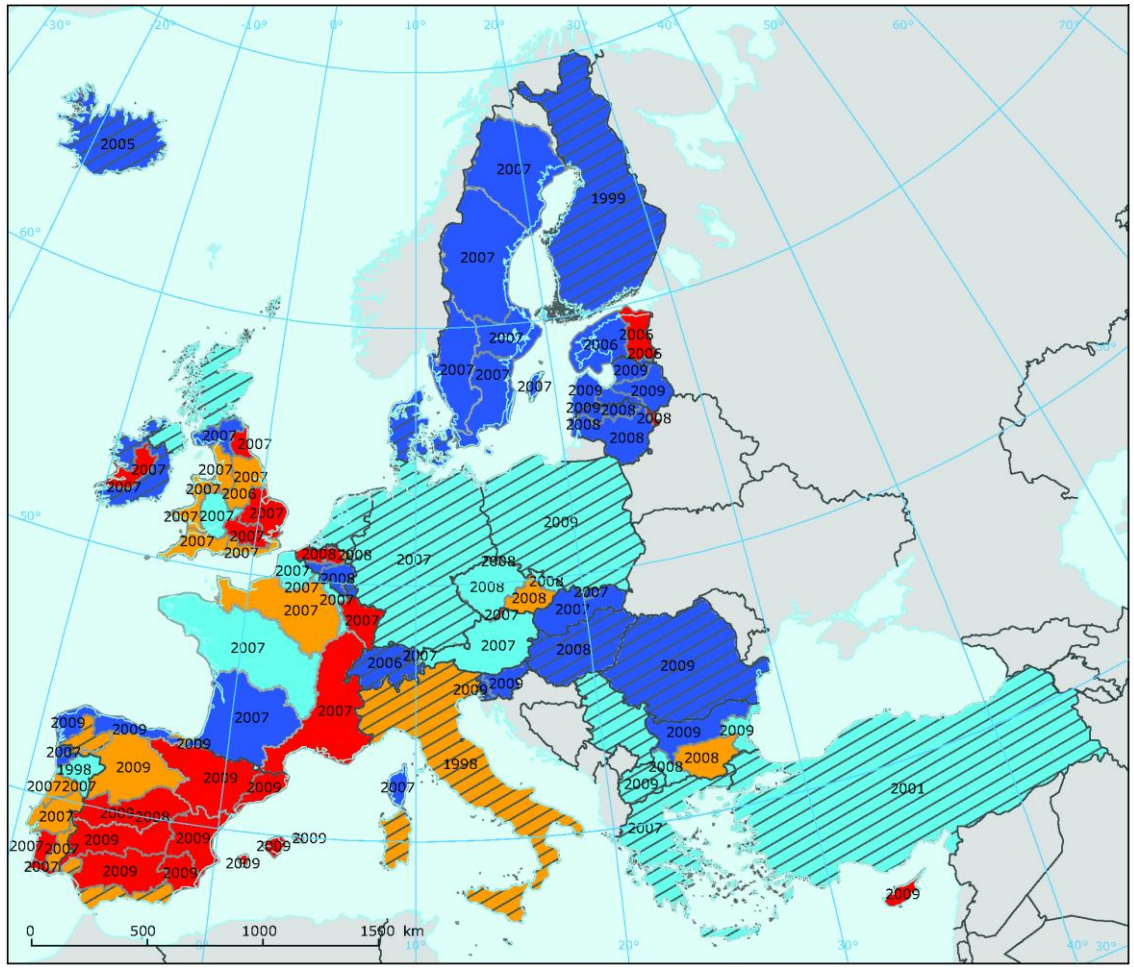


Occurrence of drought (left) and water scarcity (right) in RBMPs

- RBD–wide
- Local sub–basins
- Water scarcity and drought not clearly distinguished
- Other
- Not relevant
- No data
- Outside data coverage

European Environment Agency - http://www.eea.europa.eu/data-and-maps/find/global#c12=water+stress

East Anglia – Water stress



European Environment Agency

East Anglia – Water planning

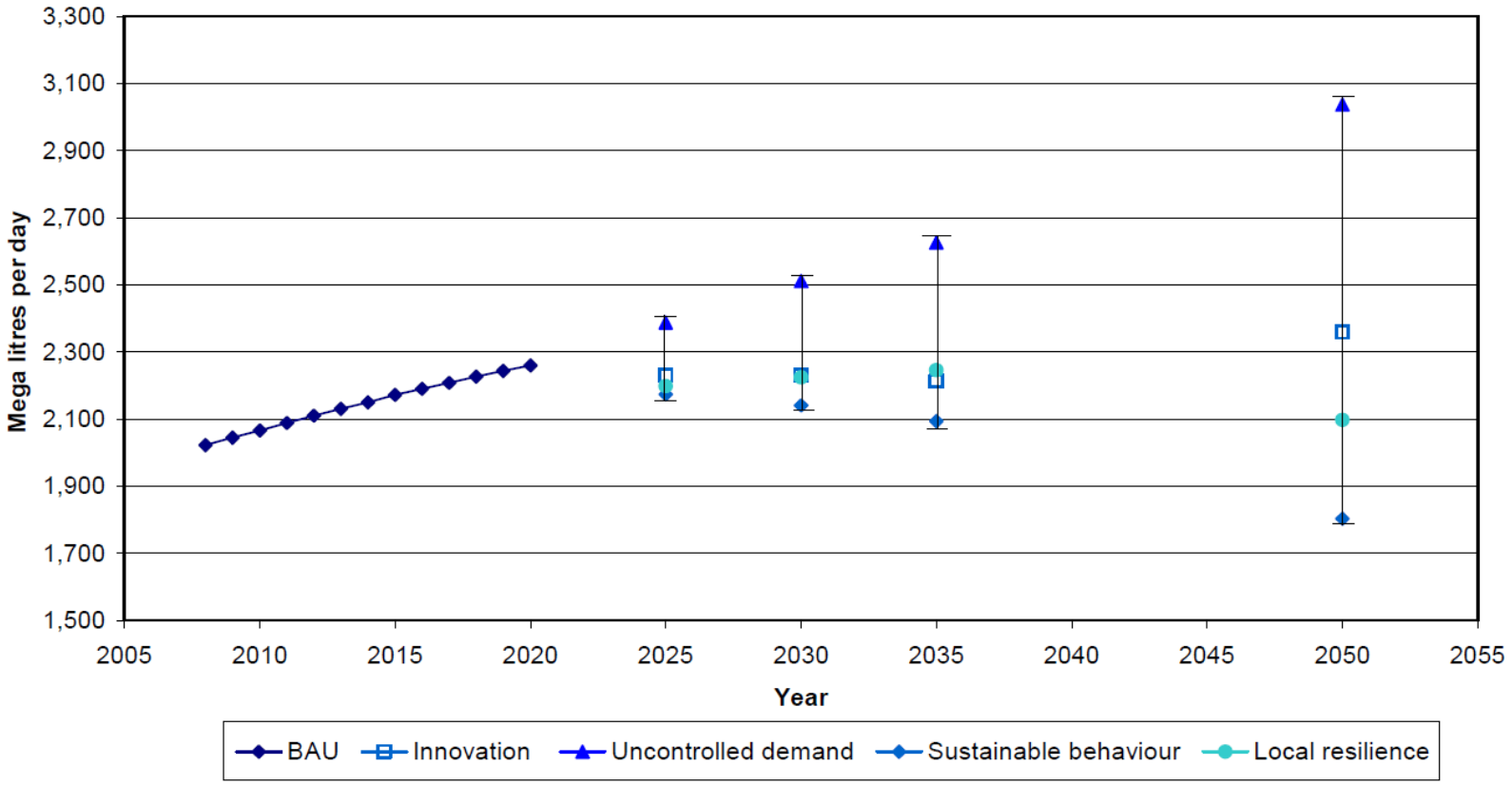
Environment Agency: A Regional Action plan for Anglian Region (2009)

- 59% of the 129 catchments in this Region are over-abstracted or over-licensed at low flows
- 70% of designated nature conservation sites may be at risk from, or are being damaged by, too much abstraction
- Two water company supply zones are currently operating at risk in dry years and have resources below their target headroom
- Most of the most valued environmental landscape features depend on water
- Climate change will lead to drier summers and wetter winters, and an overall decline in rainfall and groundwater levels
- In the southern part, effective rainfall (that left after evaporation) is exploited for human use at the highest level in Europe, equal to that in Spain and Italy
- Climate change by 2050 – water resource will dercrease by 10-15%; summer flows by 50-80%

http://www.environment-agency.gov.uk/research/library/publications/40731.aspx

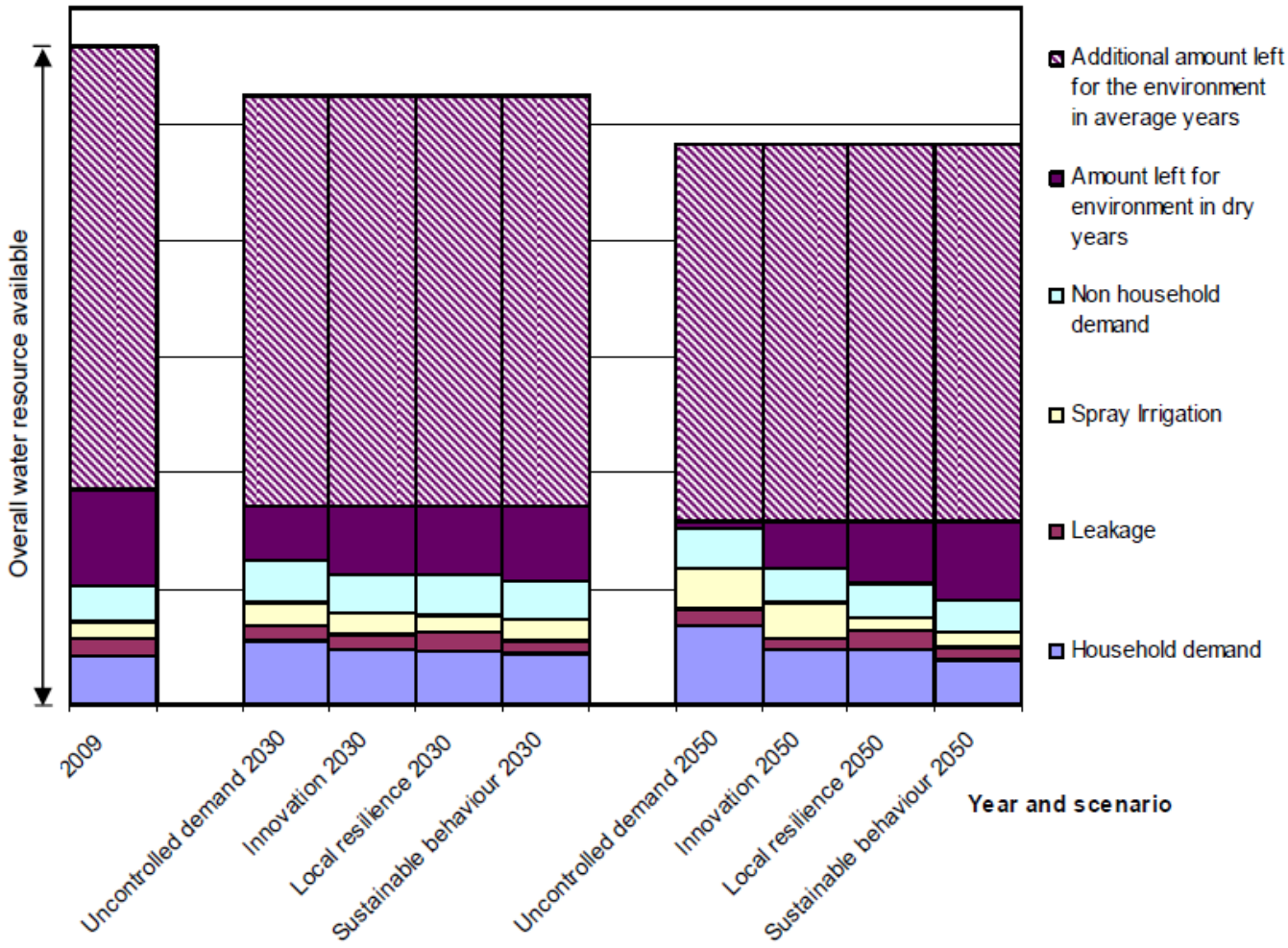
East Anglia – Water planning

Figure A8 - Forecast total demand for water – Anglian Region



East Anglia – Water planning

Figure 5 – Water balance for Anglian Region, comparing 2009 with 2030 and 2050



East Anglia – Water planning

Figure A12 - Forecast household demand (pcc x population) – Anglian Region

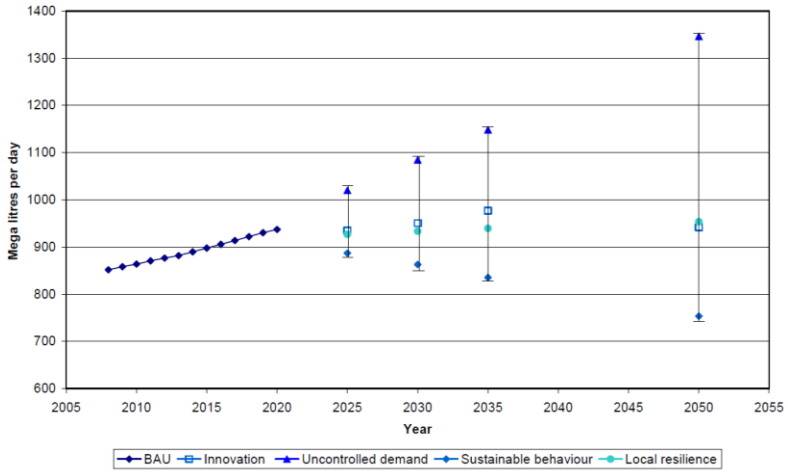


Figure A13 – Industry and commerce use – Anglian Region

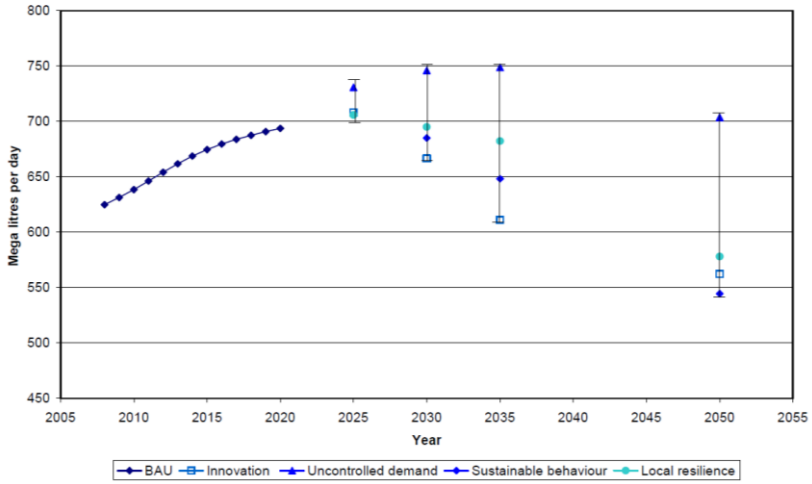
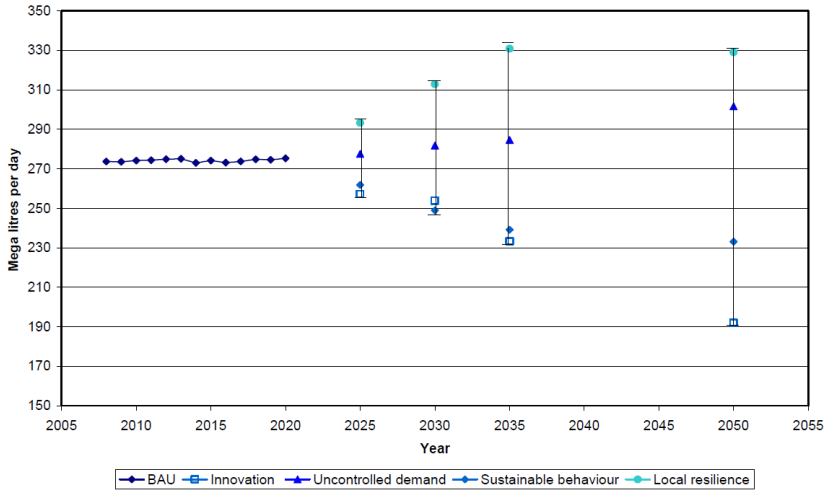


Figure A15 – Forecast leakage – Anglian Region



East Anglia – Water Sankey Diagram

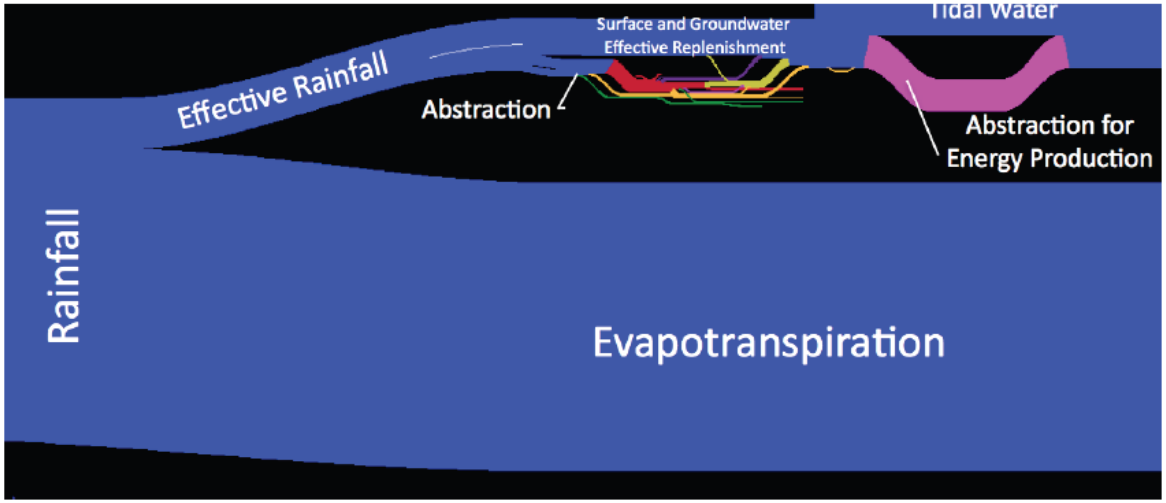


Figure 7 Full Sankey diagram 2008

Sustainable Approaches to Water Resources Management in East Anglia

Miloš Brčkalo
MPhil in Sustainable Engineering, University of Cambridge (2010)

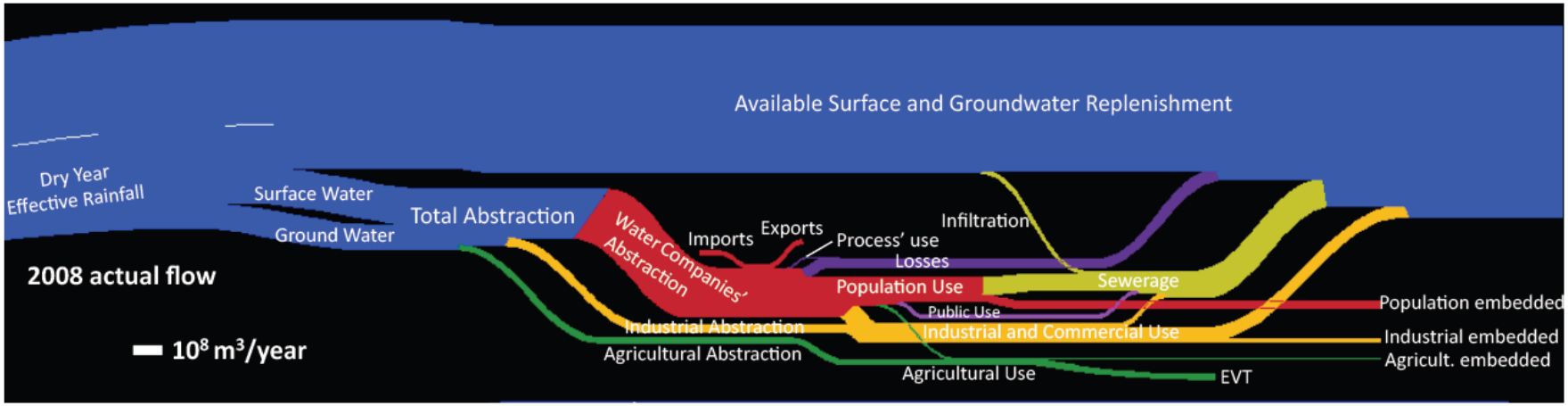


Figure 8 Detailed Sankey diagram 2008

East Anglia – Water Sankey Diagram

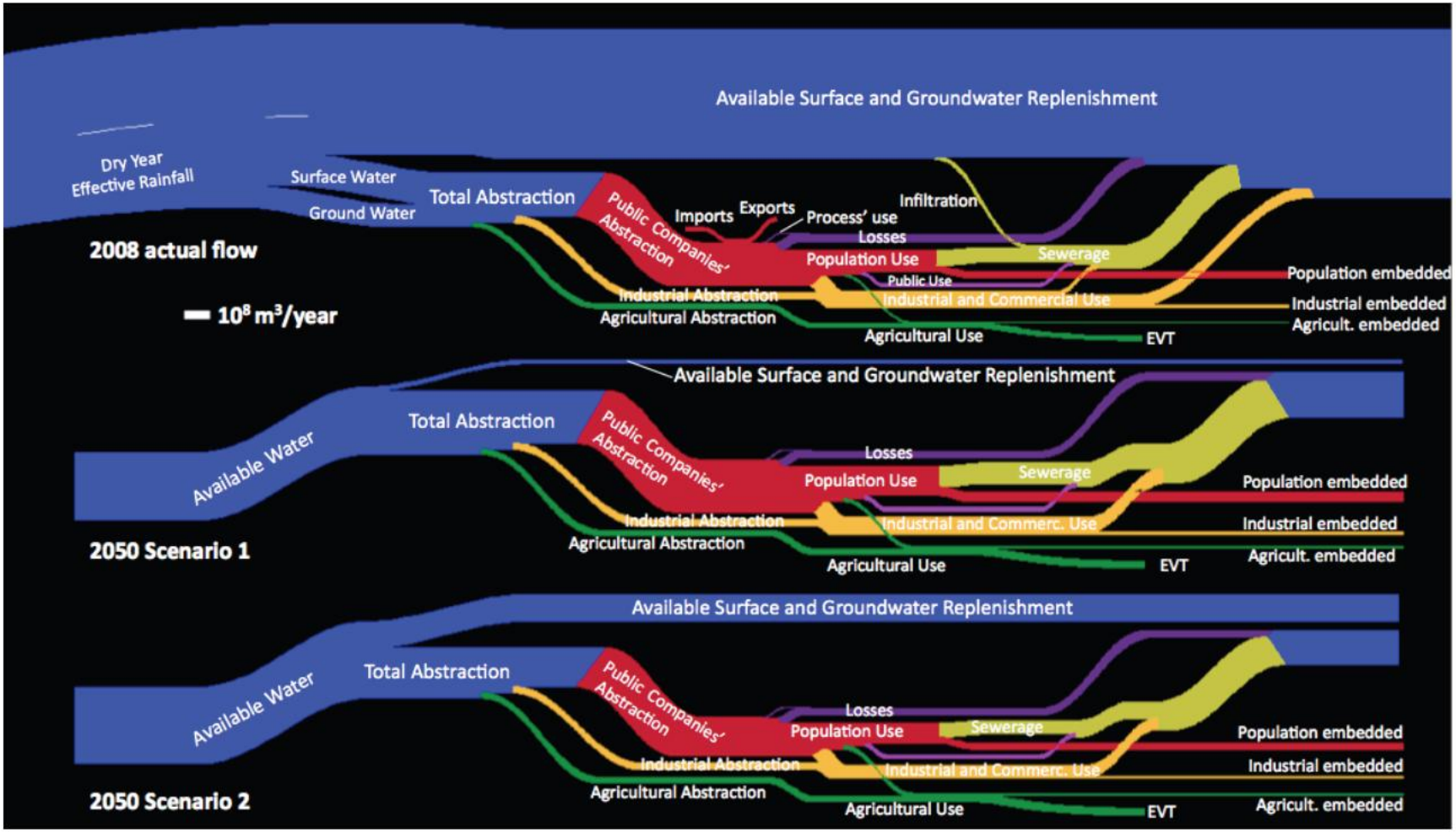
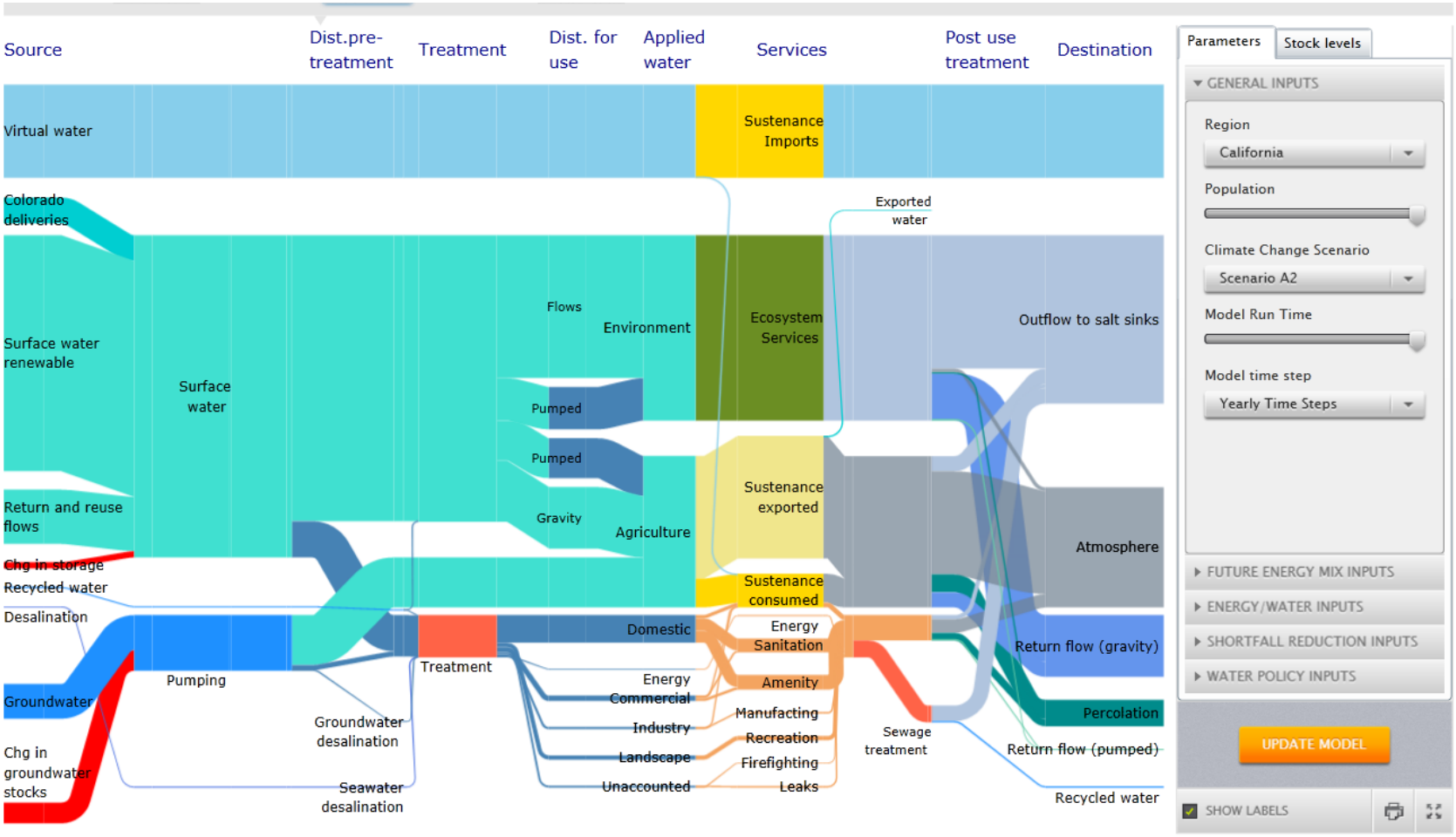


Figure 18 Sankey diagrams for 2050

Water – Dynamic Sankey Diagrams – the Water, Land, Energy nexus



http://www.lcmp.eng.cam.ac.uk/foreseer