Groundwater Forum
Planning for sustainable groundwater resources

Meyrick Gough

Southern Water

Presentation

- South East of England Water Resources
- Future challenges
- Regional strategy

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Case Study II

- Development of an integrated regional water resource strategy in the South East of England

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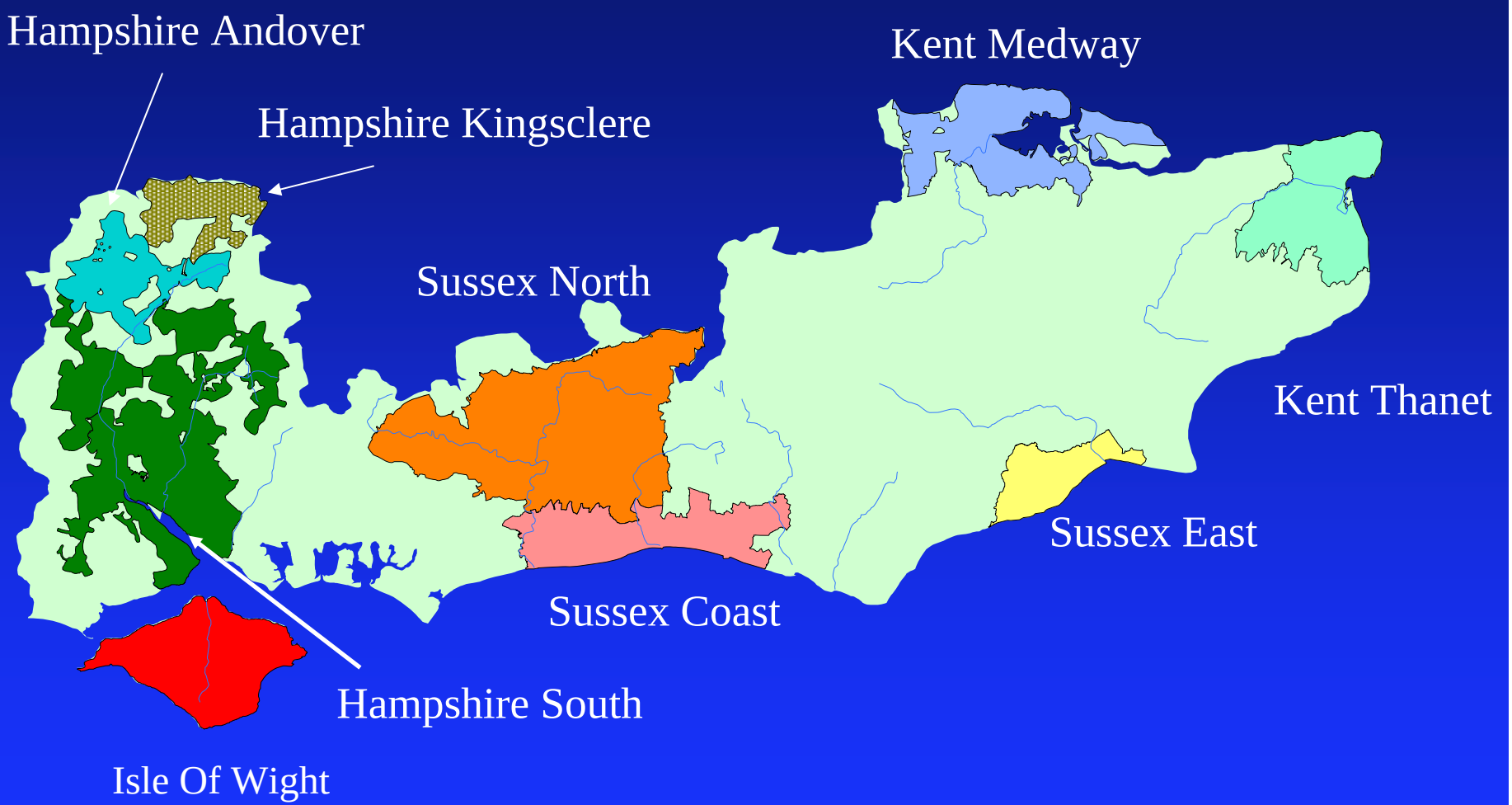
Southern Water's Resource Zones



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South East of England

- Approximately 70% of the water supplies in the South East come from Groundwater
- Major aquifers being the Chalk (80%) and Lower Greensand (20%)
- Also a number of rivers in the region are dependent on groundwater
- in addition….

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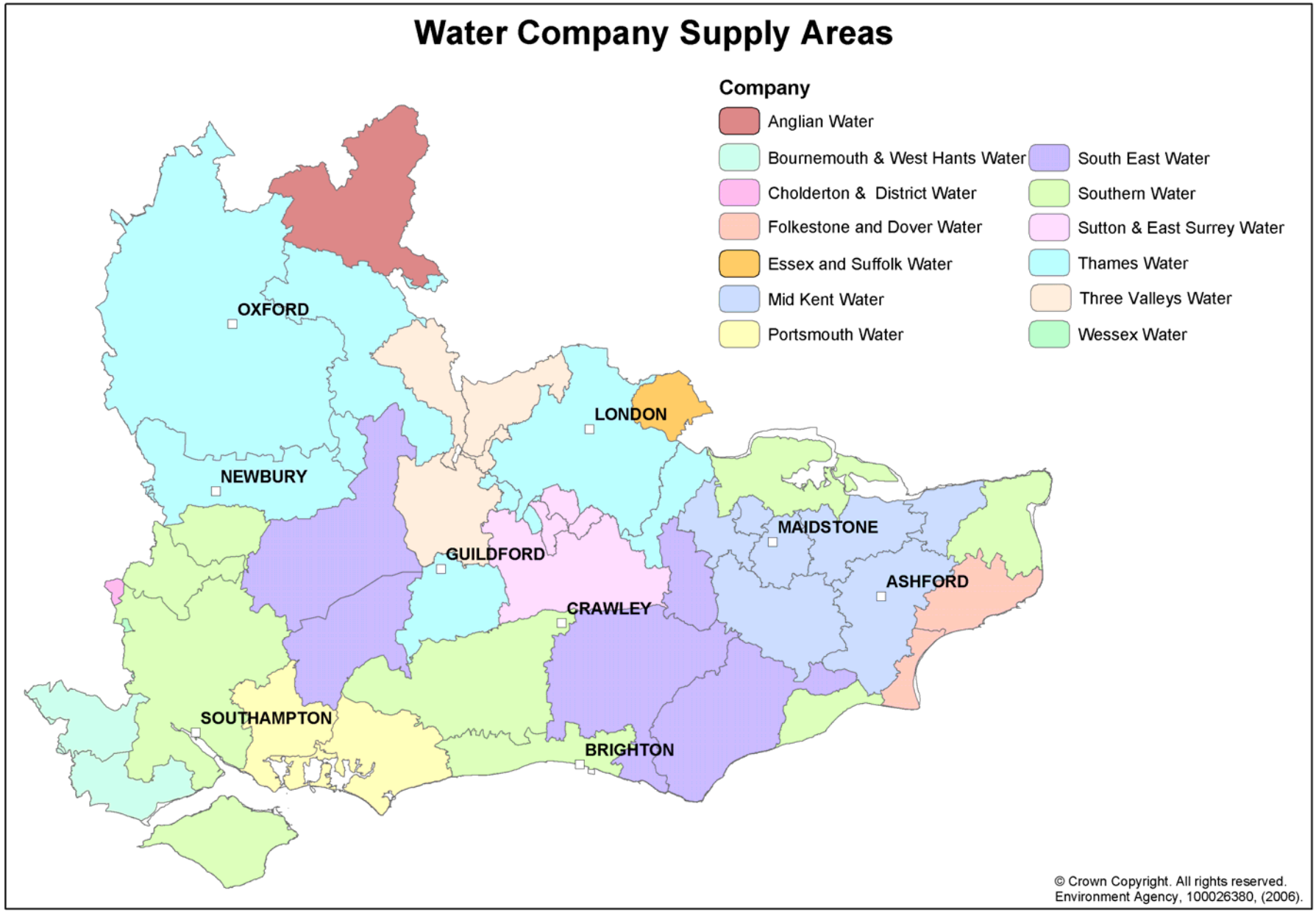
Water Company Supply Areas
Company
Anglian Water
Bournemouth & West Hants Water
Cholderton & District Water
Folkestone and Dover Water
Essex and Suffolk Water
Mid Kent Water
Portsmouth Water
South East Water
Southern Water
Sutton & East Surrey Water
Thames Water
Three Valleys Water
Wessex Water
OXFORD
NEWBURY
LONDON
GUILDFORD
MAIDSTONE
ASHFORD
CRAWLEY
SOUTHAMPTON
BRIGHTON
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Environment Agency, 100026380, (2006).

What are some of the challenges ?

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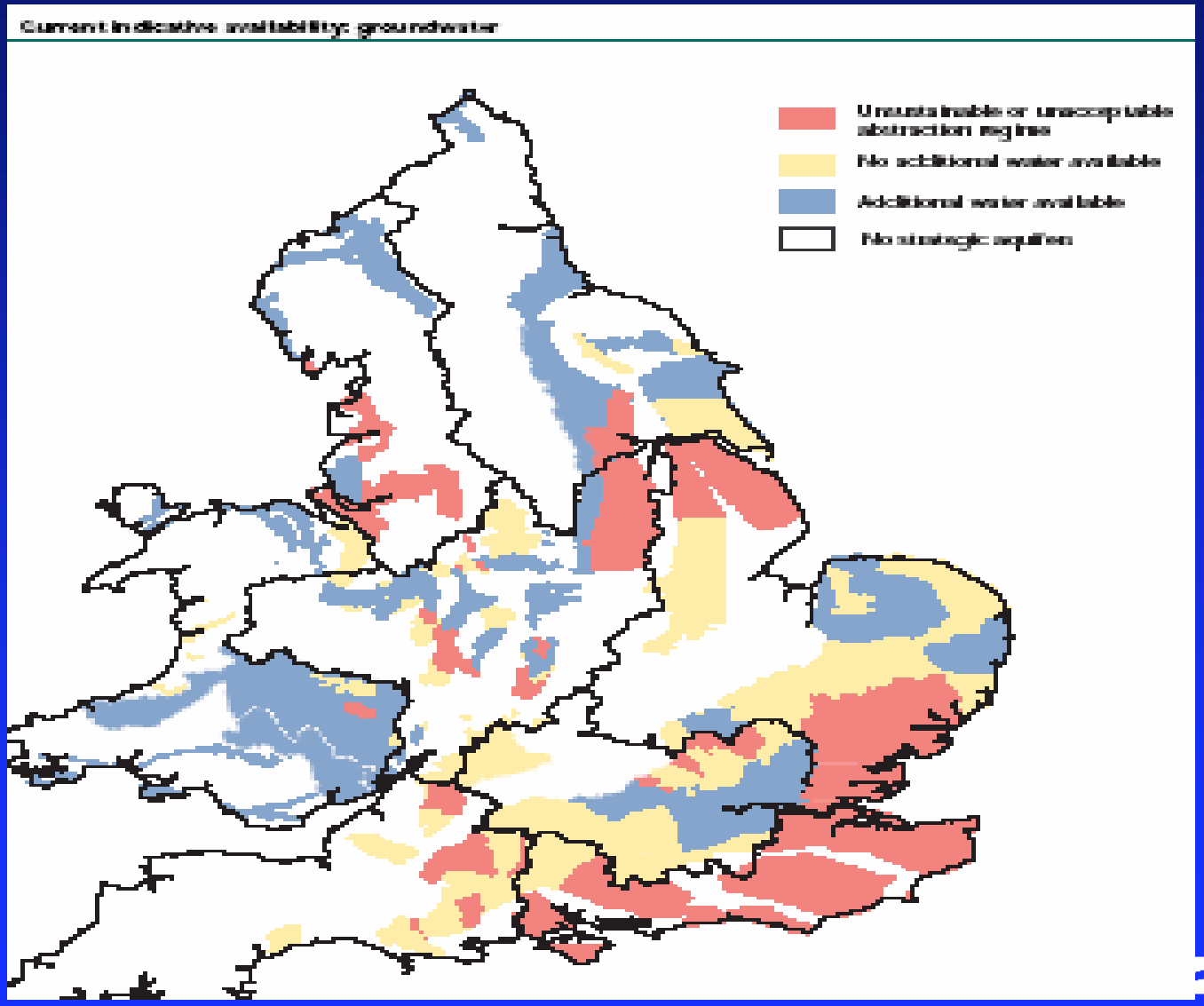
Groundwater



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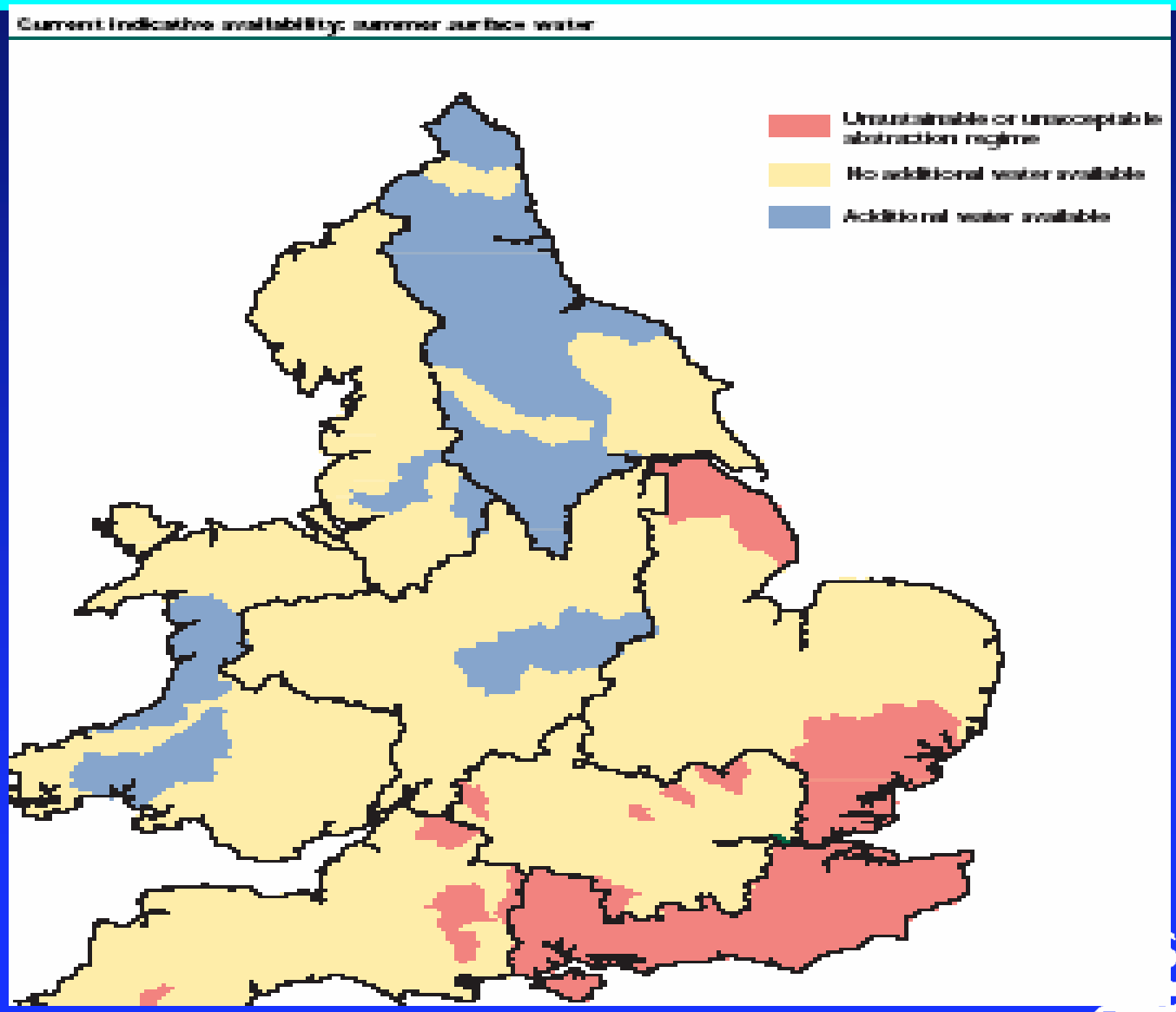
River abstraction during the summer



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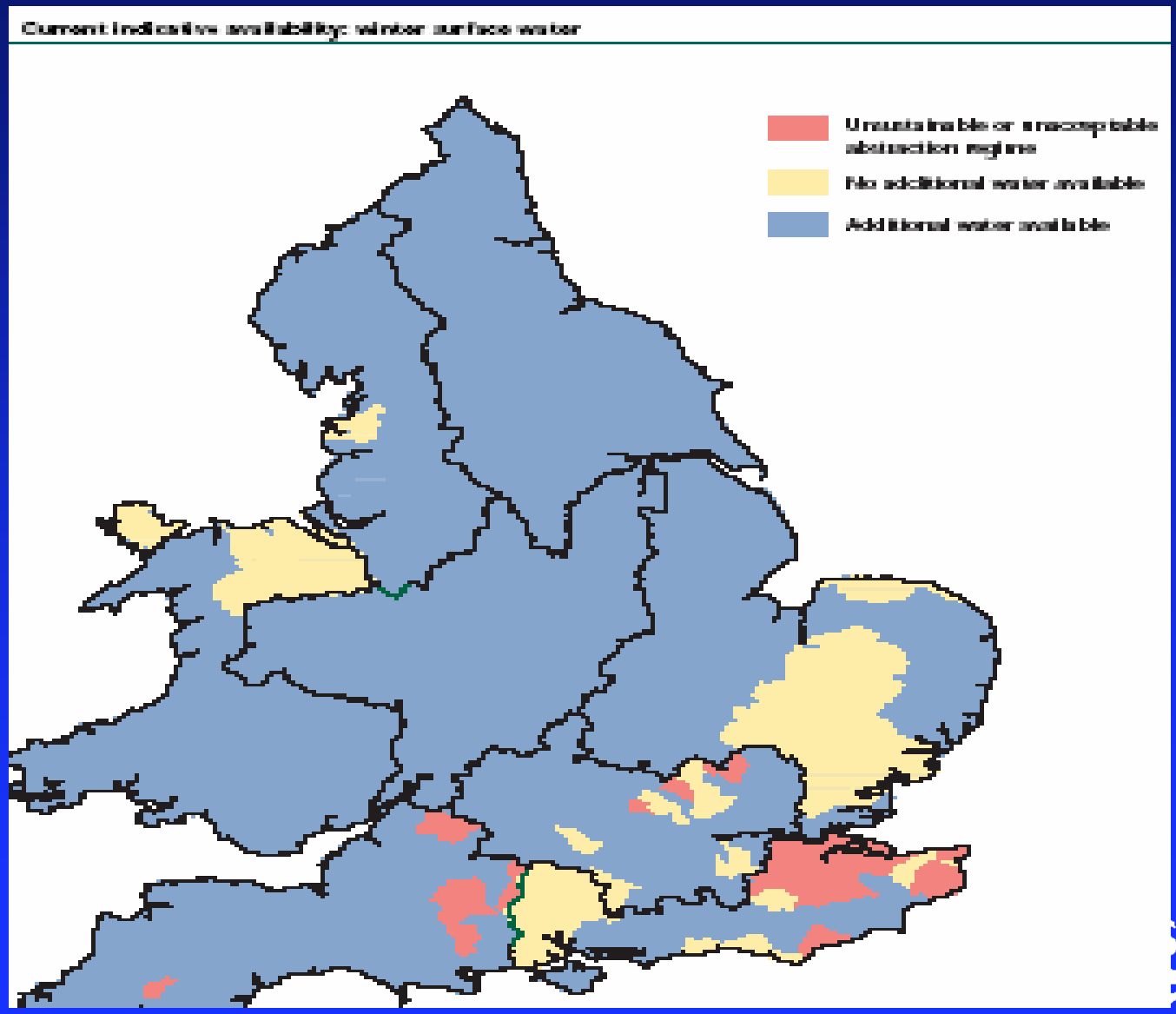
River abstraction during the winter



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Challenges for the Region

- High growth & high per capita consumption
- Sustainability reductions (Habitats directive, Ramsar, SSSI)
- Deteriorating groundwater quality
  - Diffuse: nitrate and pesticide
  - Point source pollution
- Climate Change

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Solutions

- Water Resources in the South East of England technical group formed in 1997
- Assisted with two Water resource plan submissions
- Participants include the EA (Chair), OFWAT, EN, SEERA, Portsmouth, South East Water, Mid Kent, Folkestone and Dover and Southern Water
- Integrated water resource plans across all companies

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Water resource planning in the South East

- Plans look at a twin track approach
- Use existing stocks of water more efficiently
- Develop bulk supplies, where appropriate
- Develop new resources, major resources are shared
- Informed SEERA of infrastructure requirements, written into their development plans

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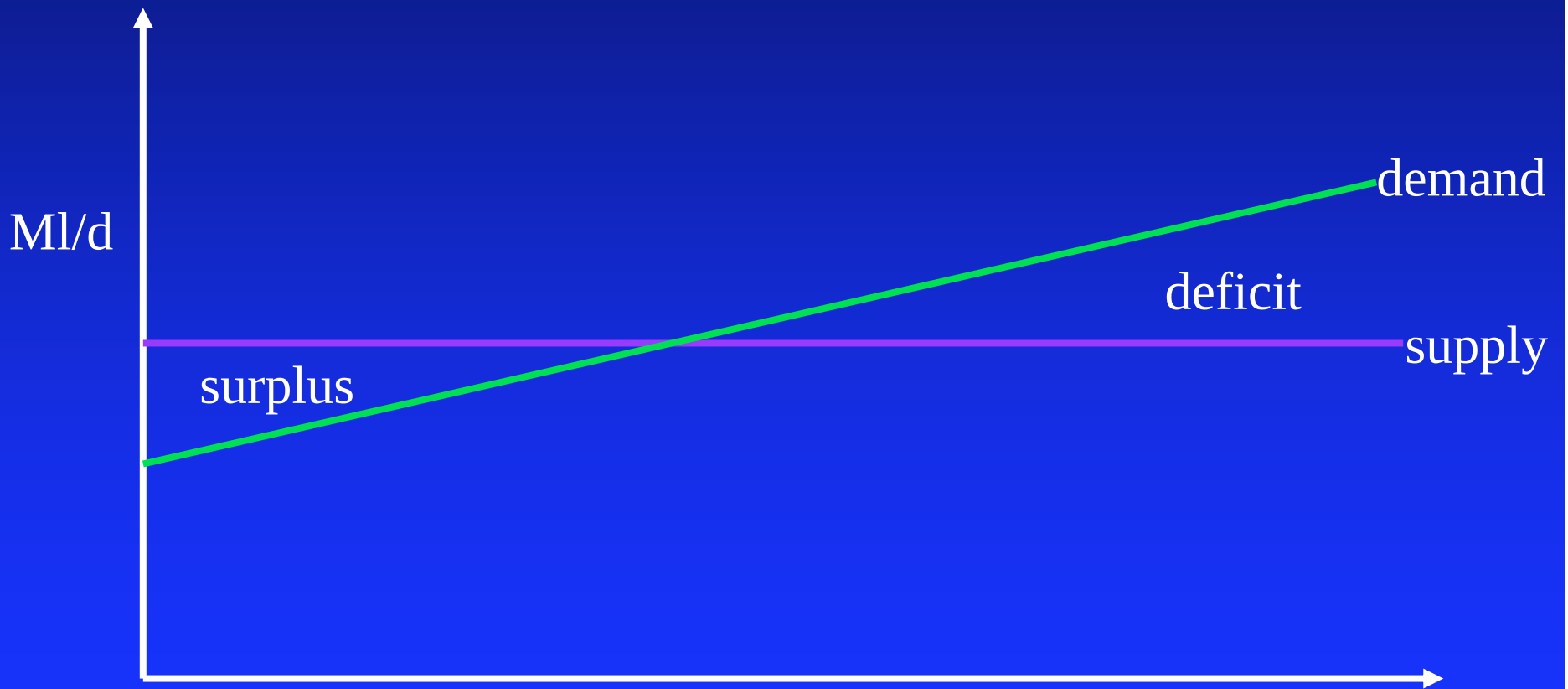
Supply-demand balance



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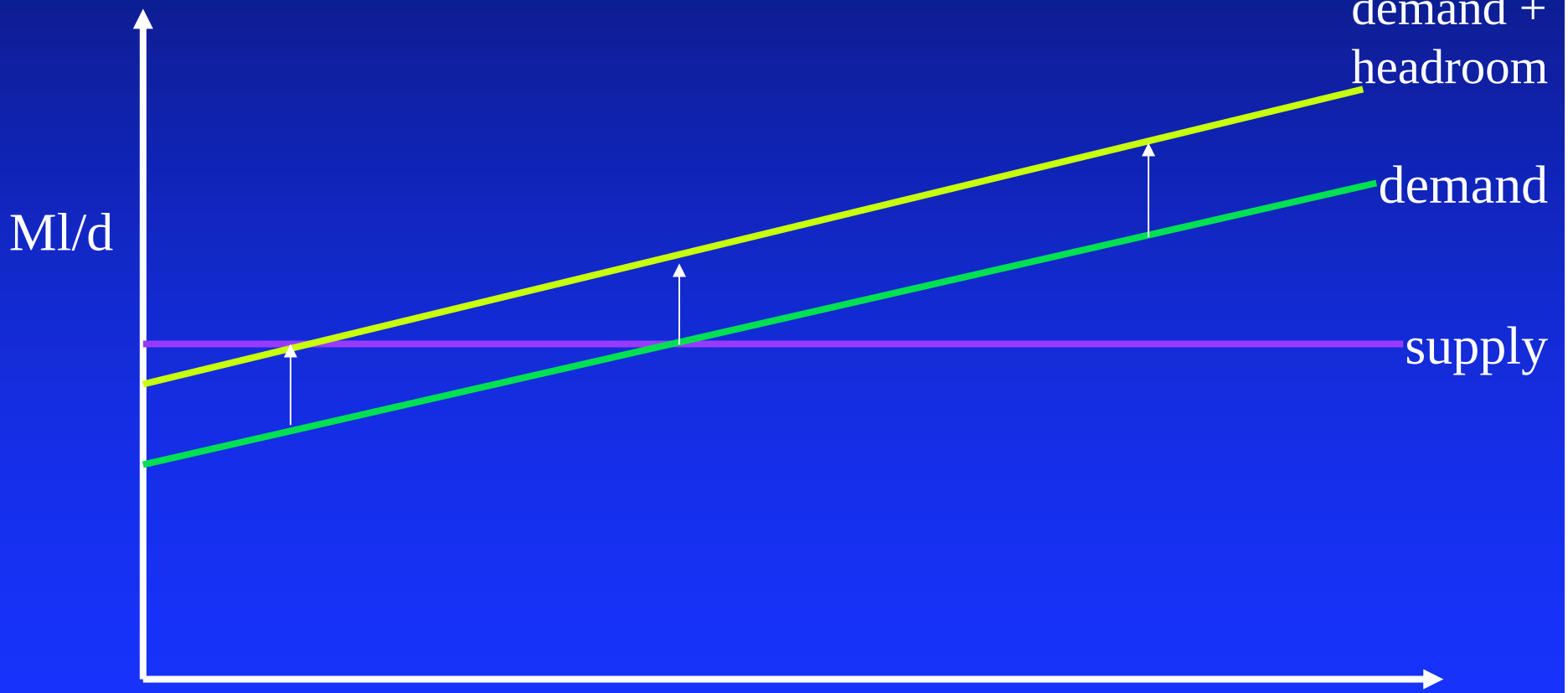
Supply-demand balance



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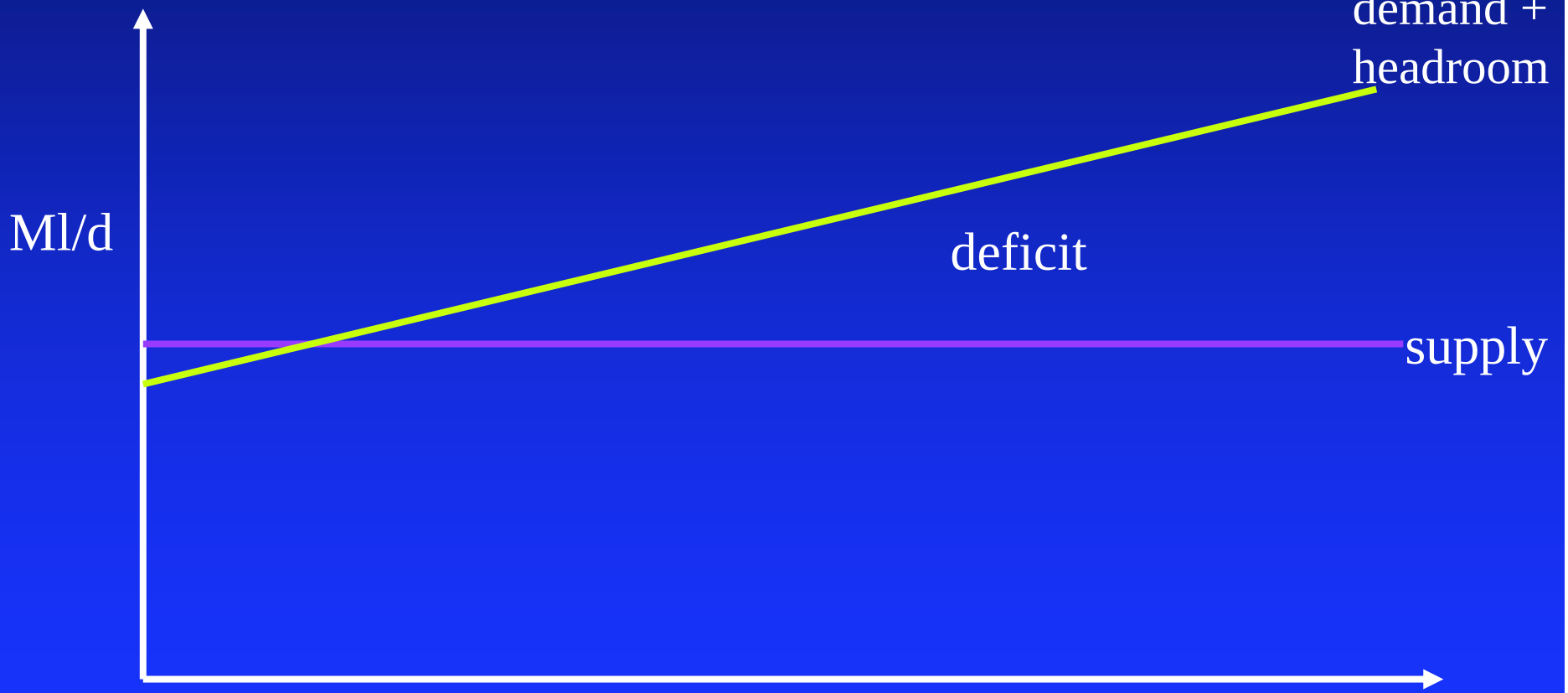

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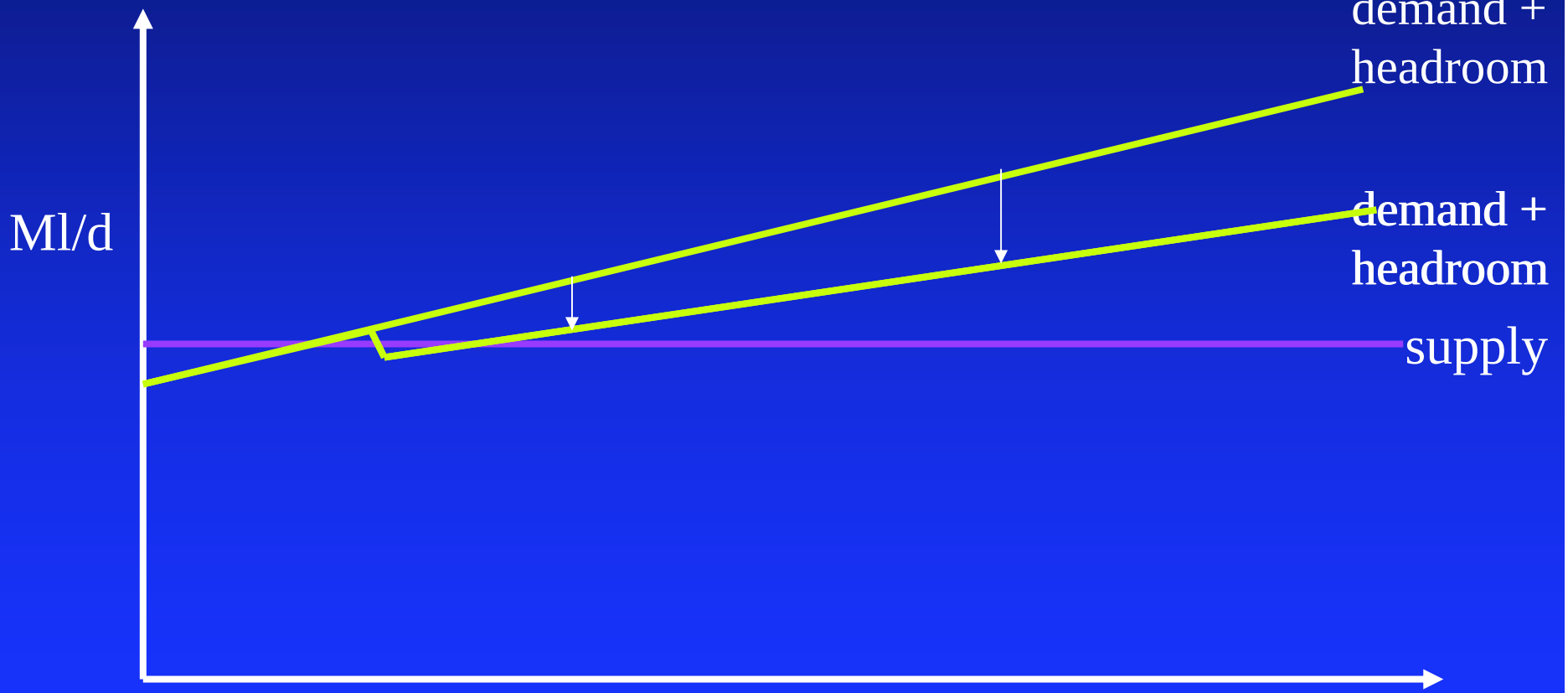

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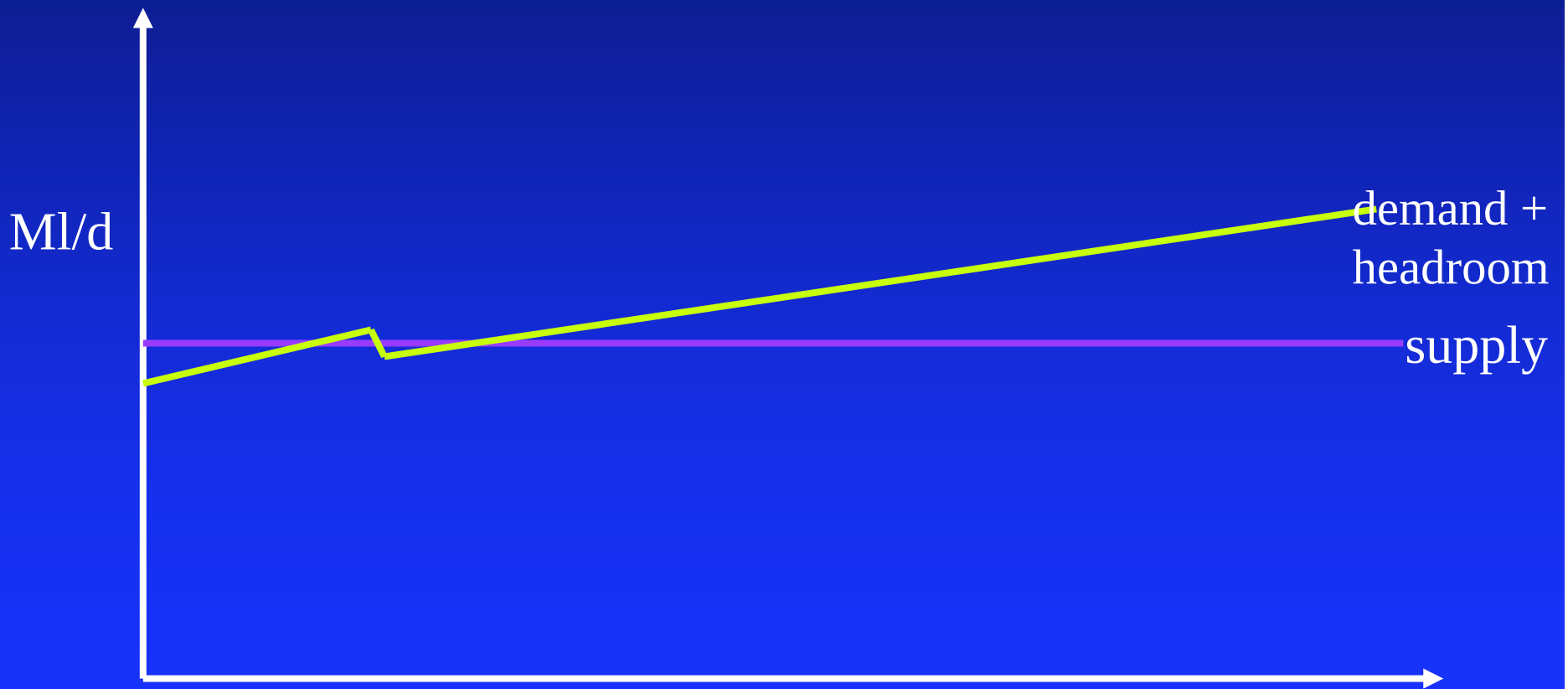
Supply-demand balance



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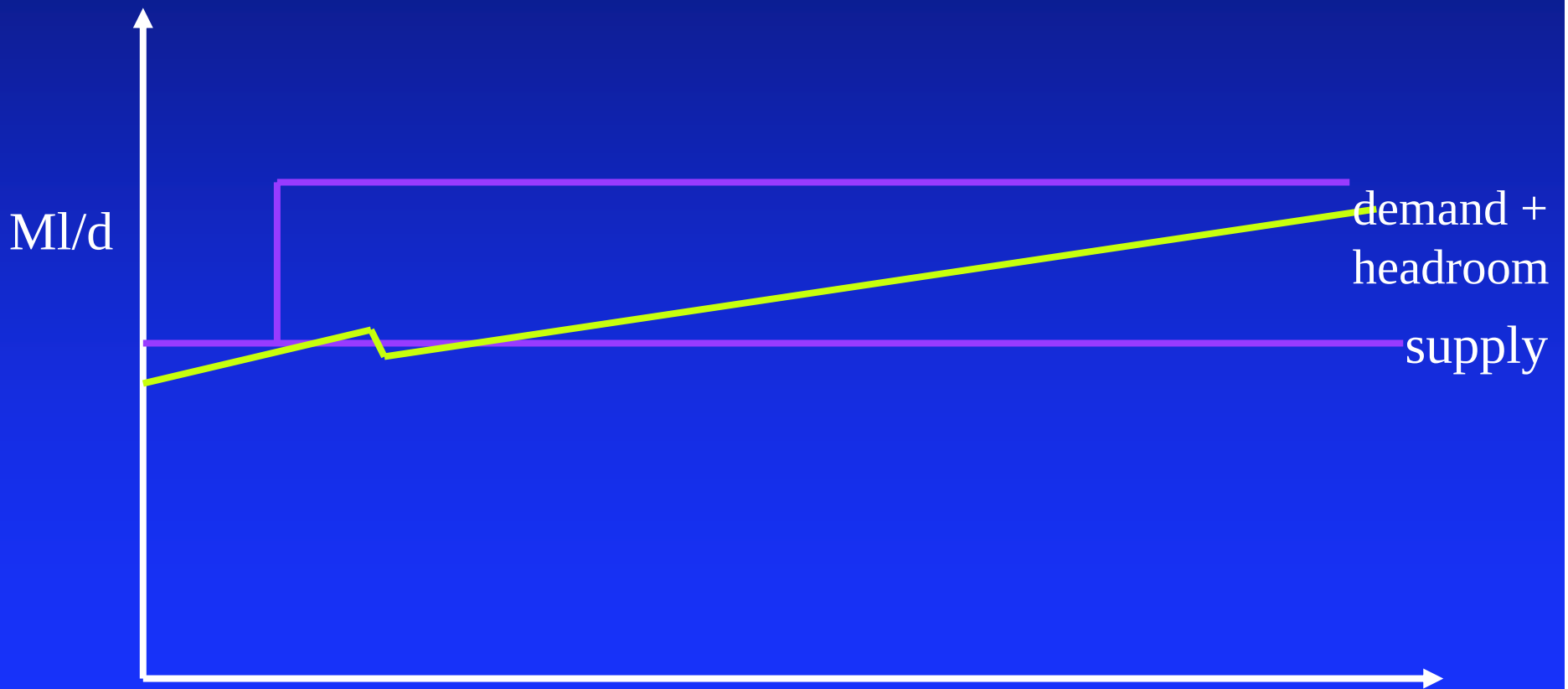
Supply-demand balance



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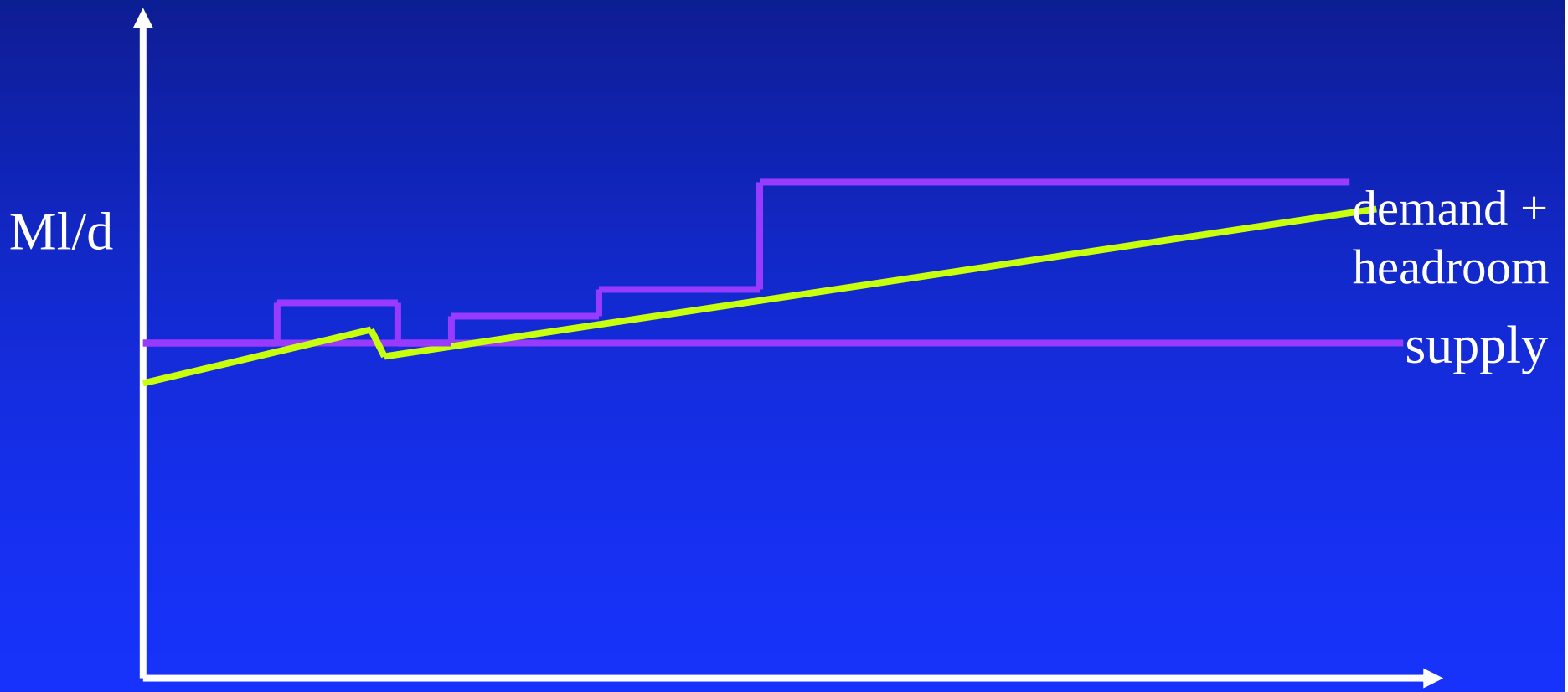

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Demand side options

- Metering policies
  - Optants, change of occupier & compulsory
  - Consumption habits & micro component analysis
- Leakage reduction
- Water Efficiency
  - devices, voluntary codes and behaviour...

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Supply options

- No groundwater options, ASR remains the last area to explore
- Winter water: reservoirs or resting groundwater
- Desalination
- Effluent re-use
- Bulk transfers, both local and national level
- there are many more

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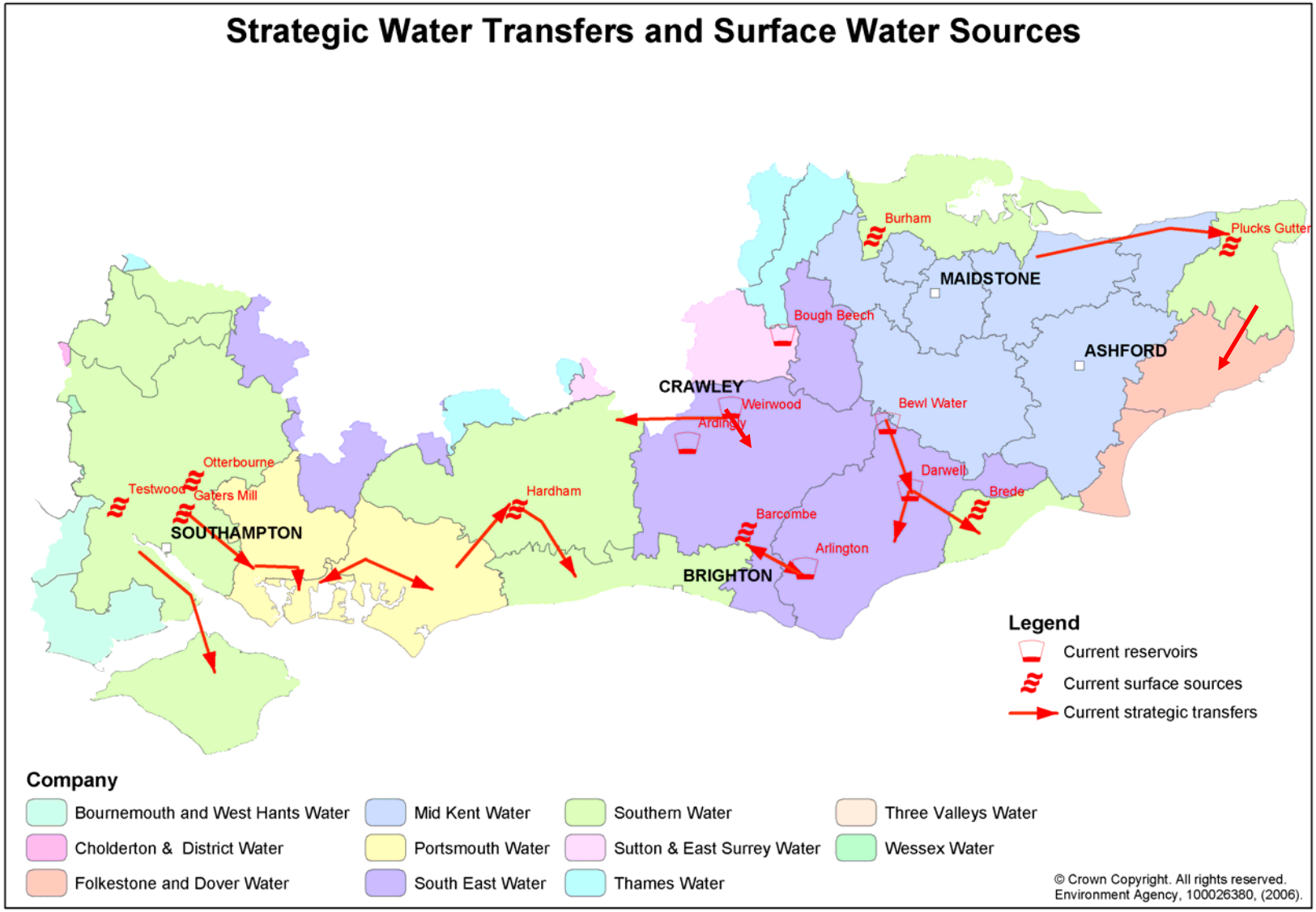
Strategic Water Transfers and Surface Water Sources



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Meeting future growth, what's in the plans

- New resources schemes include: a desalination plant, bulk transfers between zones, enhanced treatment at existing groundwater sources investigating potential new reservoirs at Clay Hill, Broad Oak, Havant Thicket as well as potentially raising Bewl Water
- Demand management measures include: compulsory metering change of occupier metering; retrofit dual flush toilet trial, water efficiency campaigns; tariff trials; develop water efficient building codes

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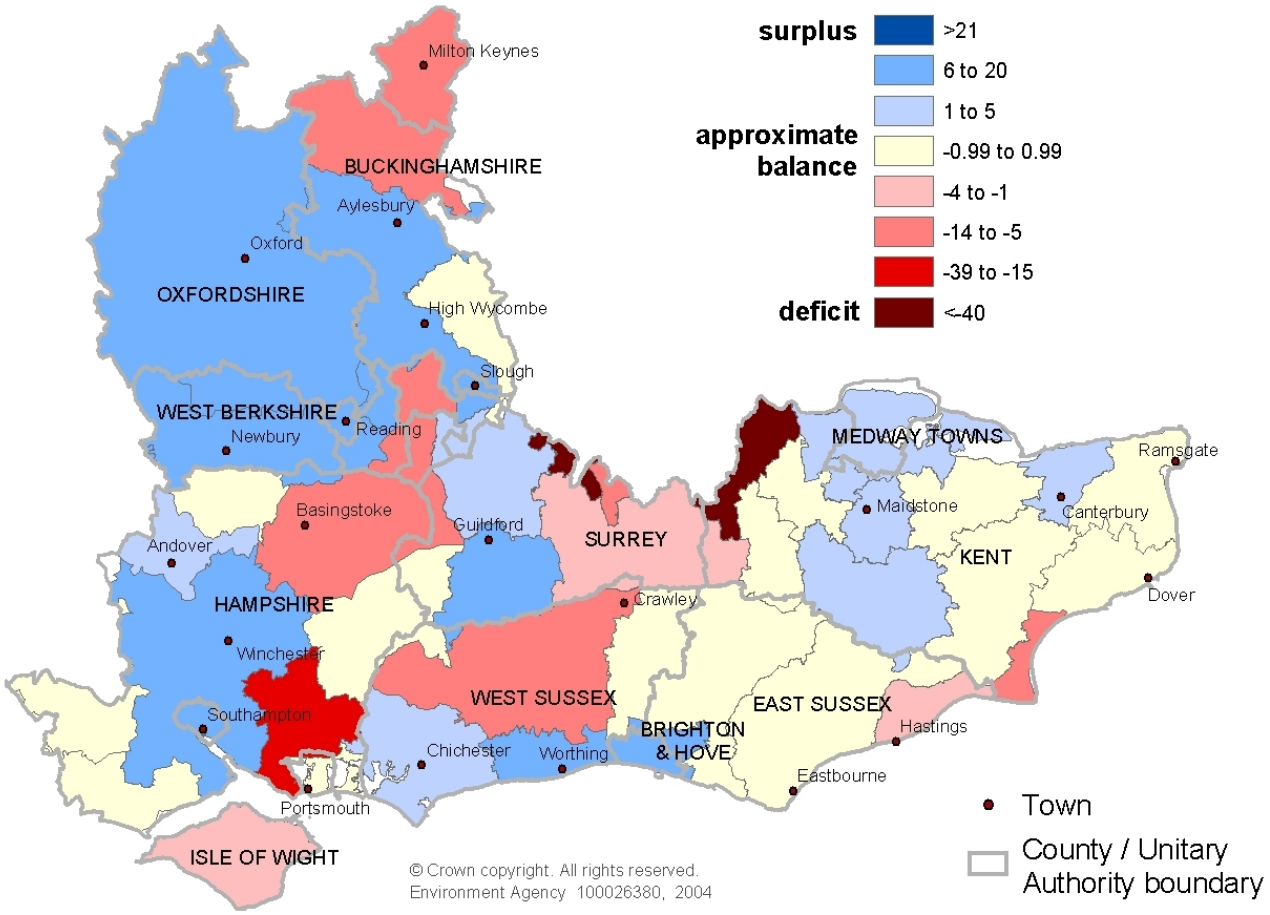
Water Resources Surplus-Deficit Forecast, 2005



Scenario:

Dry year public supply-demand balance.
 Company demand;
 Baseline resources

 Company demand:
- Water company PR04 demand forecast statistics, with company housing growth

 Baseline resources:
Current supply plus
- resource developments to 2010.
- assumed sustainability reductions to 2013

 Mapped to water company water resource zones

 Units: Mega Litres a day

Please note: Uncertainties exist and assumptions have been made to produce this map. Please read accompanying text.

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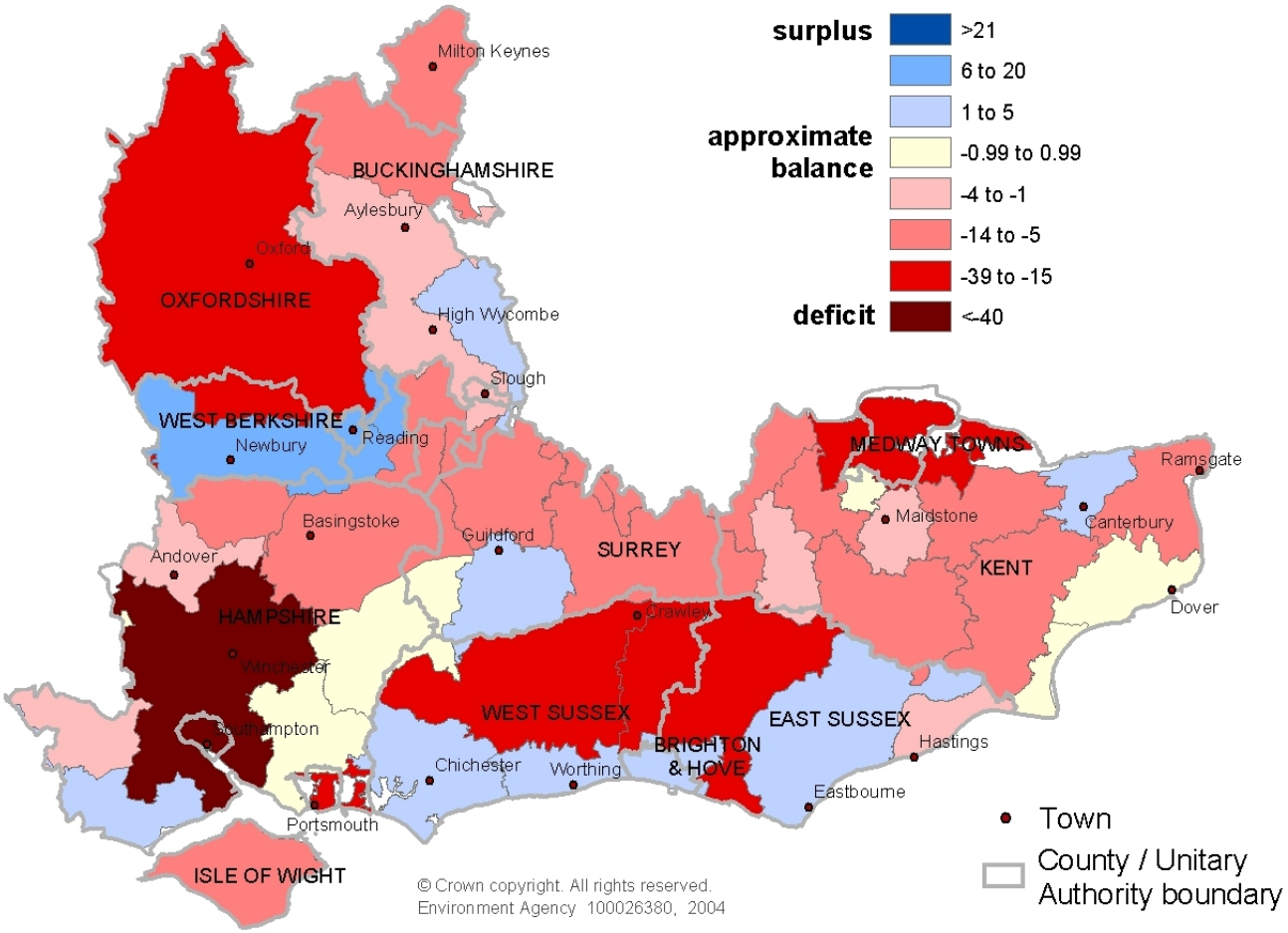
Water Resources Surplus-Deficit Forecast, 2025



Scenario:

Dry year public supply-demand balance
□ Medium demand;
□ Baseline resources

□ Medium demand:
- Water company PR04 demand forecast statistics, with medium housing growth

□ Baseline resources:
Current supply plus
- resource developments to 2010,
- assumed sustainability reductions to 2013

□ Mapped to water company water resource zones

□ Units: Mega Litres a day

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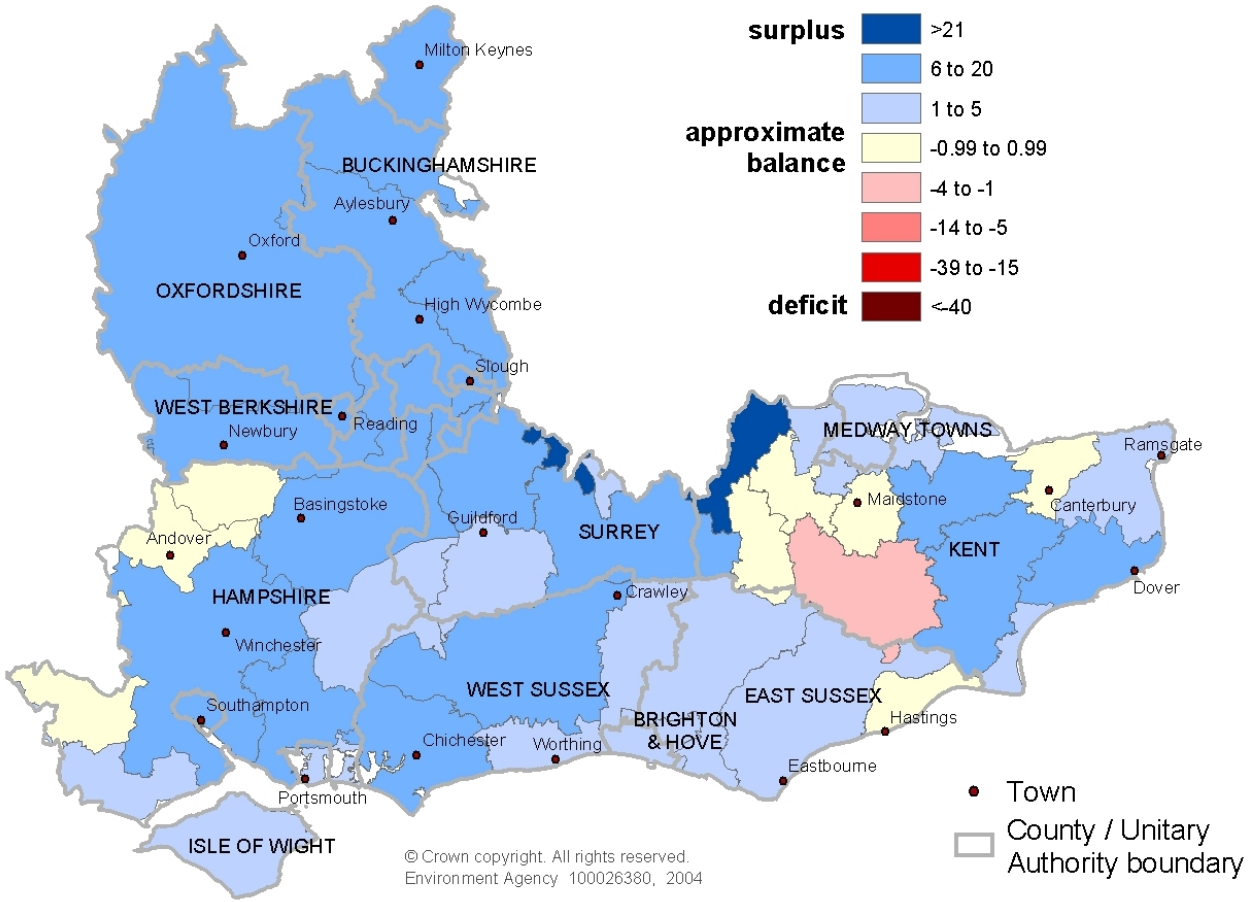
Water Resources Surplus-Deficit Forecast, 2025



Scenario:

Dry year public supply-demand balance
 Medium demand;
 Further resources;
 21% water efficiency in new homes

 Medium demand:
- Water company PR04 demand forecast statistics, with medium housing growth

 Further resources:
Current supply plus
- resource developments to 2030,
- assumed sustainability reductions to 2013

 Mapped to water company water resource zones

 Units: Mega Litres a day

Please note: Uncertainties exist and assumptions have been made to produce this map. Please read accompanying text.

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This integrated approach

- Enables optimal regional, least cost, environmentally acceptable solution to be found
- Provides planning authorities with the information that an optimum solution has been sought in a regional context
- Allows better discussions of the solutions with the regulators and English Nature
- Embeds the twin track philosophy to find the least cost effective solution

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A final thought ...

- Current drought in the South East will redefine some of our groundwater deployable outputs
- Key to the future is to develop a range of different types of sources
- But ensure that the spatial aspects are considered as it would be better to have storage dotted across the region rather than in one place
- Major resource developments still require planning consents

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