

Water efficiency

How to meet 120L per person per day

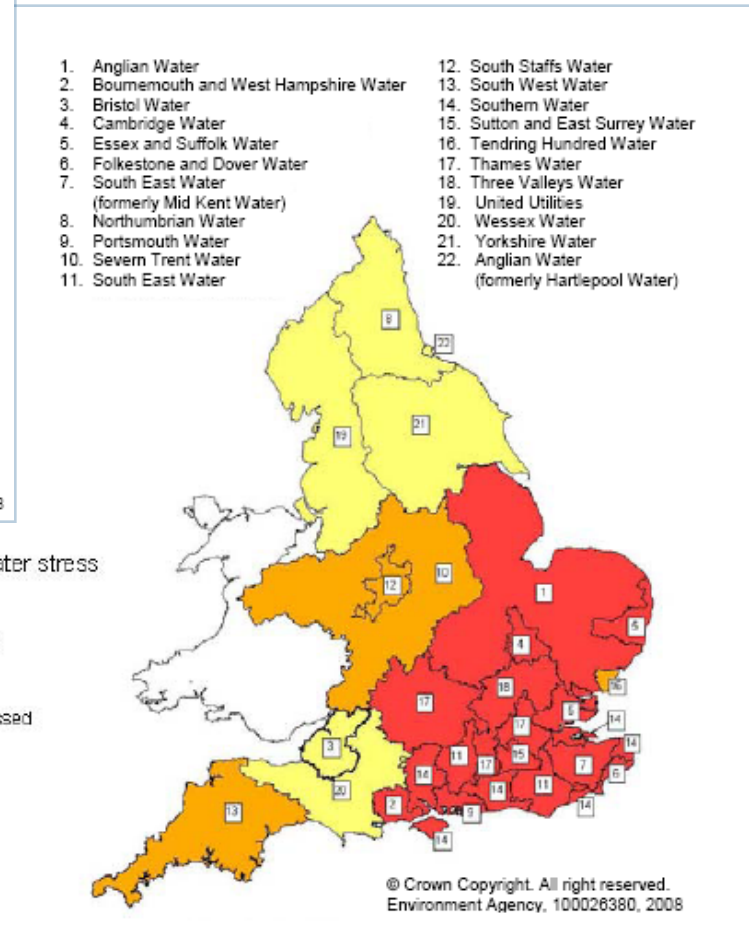
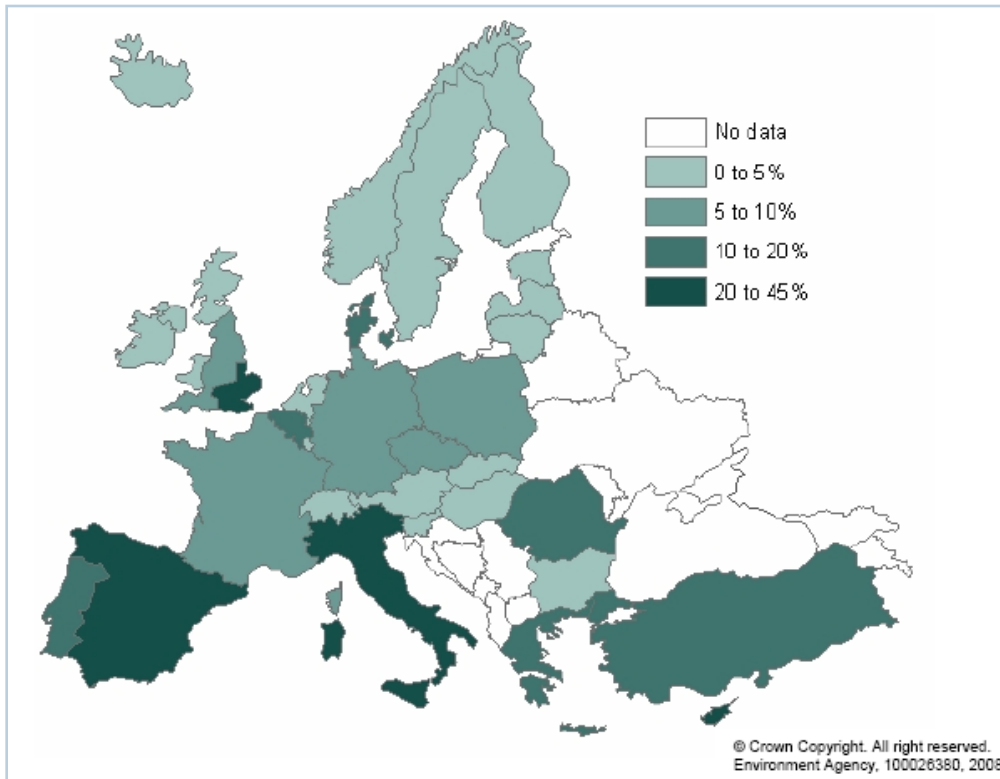
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Sustainable Development Group
28th April 2009



Presentation Contents

- Why the need to save water
- How to comply with the proposed Part G
 - What is proposed
 - Where to start
 - What can help
- Scope for additional savings



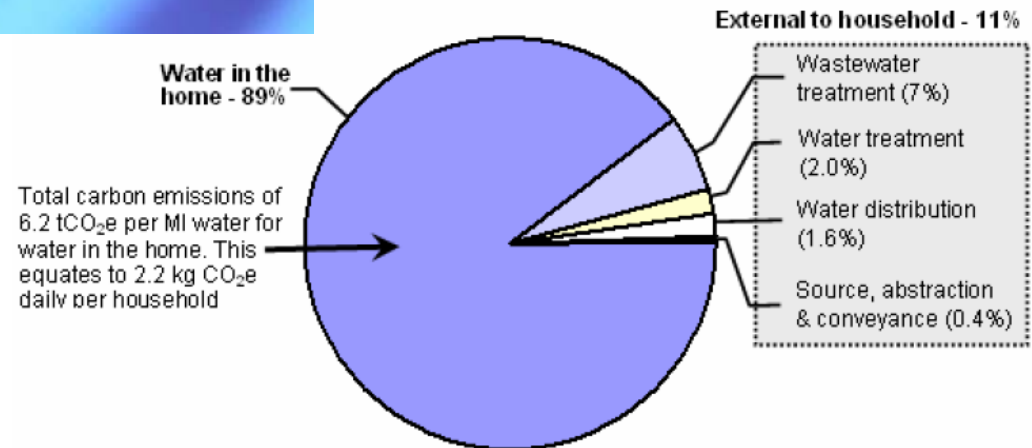


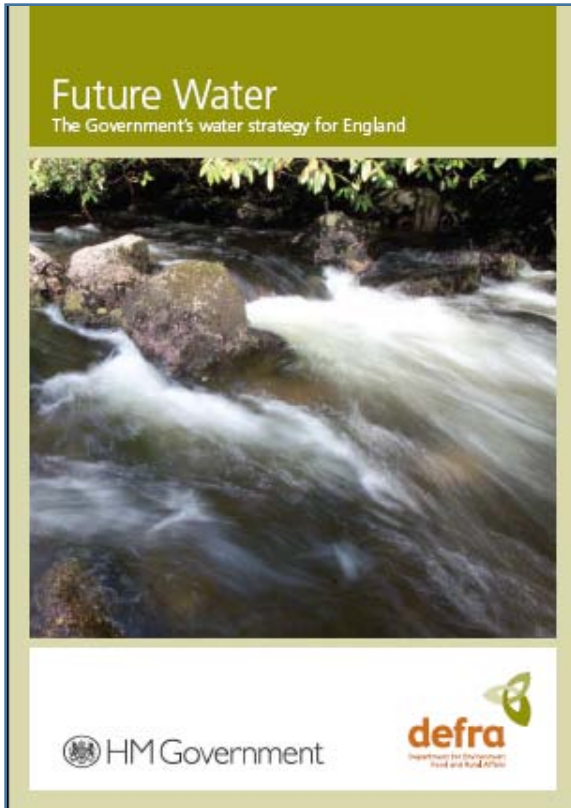
Environment Agency Report:

89% of emissions in the water system can be attributed to 'water in the home'.

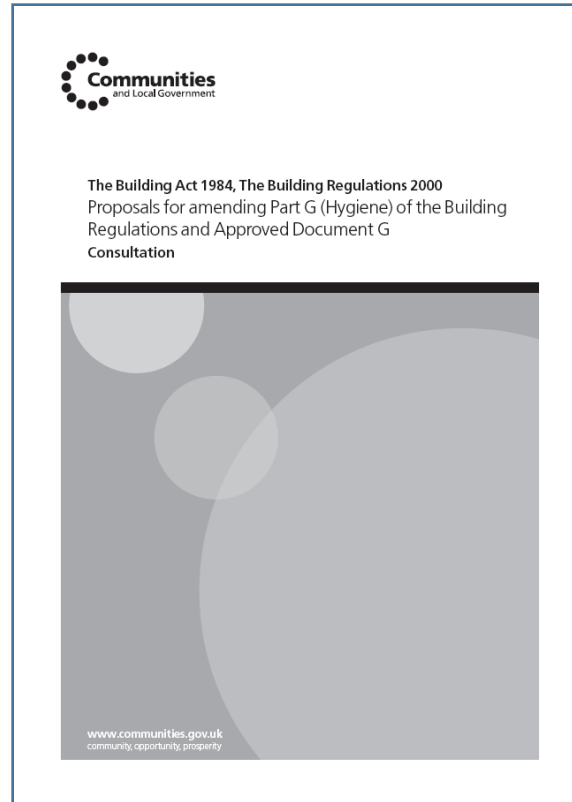
This includes energy for heating water but excludes space/central heating.

The remaining 11% of emissions originate from abstracting, treating and supplying water, and subsequent wastewater treatment.

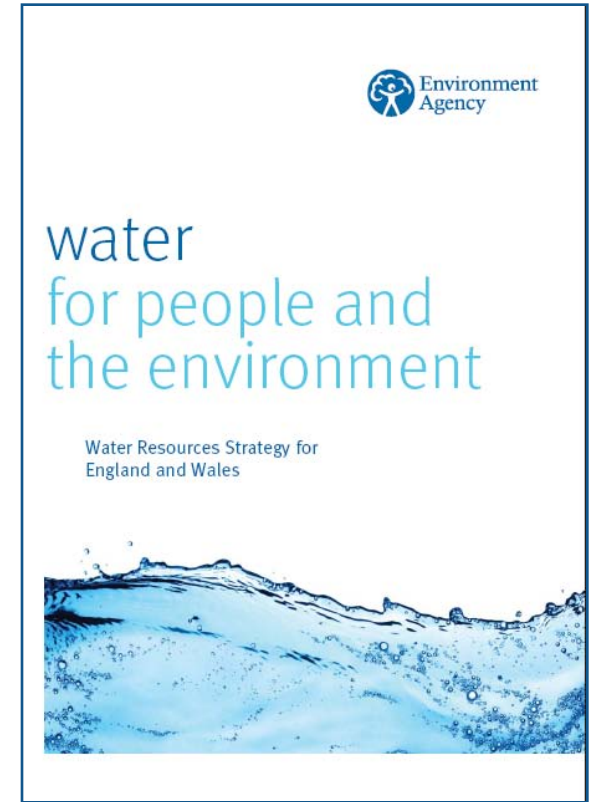




Feb 2008



May 2008



March 2009

The Water Calculator

Proposed for Part G – Simplified version of the Code Calculator

A microcomponent based calculator which calculates water use for fitting and appliances per person per day

Fitting and Appliances proposed for inclusion within the Calculator

WCs	Baths
Showers	Waste Disposal Units
Kitchen Taps	Water Softener
Bathroom Taps	Washing machine
Bidets	Dish Washer

The Water Calculator

For example WCs:

Daily water use per person = Average flush volume x uses per person per day

Average flush volume = Proportion of full flush x full flush volume + proportion of part flush x part flush volume

Inputs are required for the fittings components and the behaviour inputs are fixed to represent 'average' usage.

Calculated water use all the listed fittings and appliance

Where to start?

Aim for a:

'a water-saver friendly building'



Water savings

Savings can be made through:

- Behaviour change
- Technology or
- Behaviour change as a result of technology



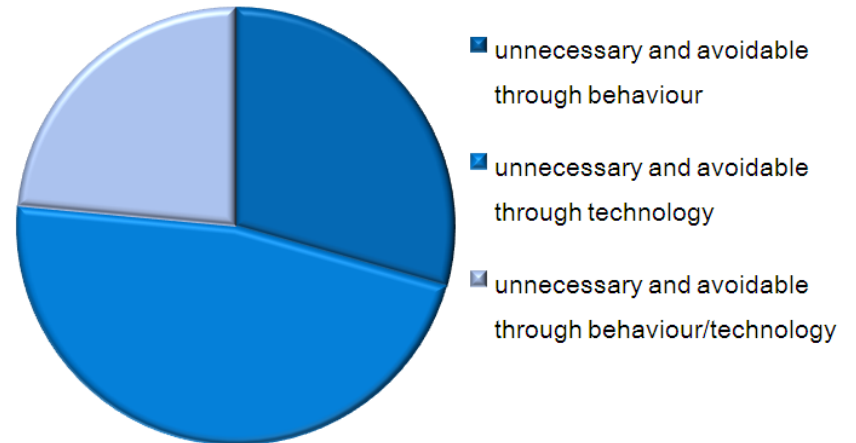
A building services engineers we can hope to influence
the last two on the list!

Water Savings

Necessary components of average water use



Total Water Use



Unnecessary components of average water use

For illustration only!

Meeting the new part G requirements

Calculated Internal Water Use in Home	External Water Use	Part G Requirement
120 litres/person/day	+ 5 litres/person/day	= 125 litres/person/day

Equivalent to Code Level 1 & 2 Mandatory requirements for internal water use

Can and should be met through good water efficiency measures e.g. Low flow showers, Low flush WCs, etc.

BS6700 and NHBC Standards

Outlet fitting or appliance	Flow rate		
	Design	Minimum rate	
		litres/second	litres/minute
WC cistern (to fill in two minutes)	0.13	0.05	3
Washbasin	0.15	0.1	6
Handbasin (pillar taps)	0.1	0.07	4.2
Handbasin (spray or spray mixer taps)	0.05	0.03	1.8
Bidet	0.2	0.1	6
Bath (G ¾)	0.3	0.2	12
Bath (G 1)	0.6	0.4	24
Shower head (see Note 3)	0.2	0.1	6
Kitchen sink (G ½)	0.2	0.1	6
Kitchen sink (G ¾)	0.3	0.2	12
Kitchen sink (G 1)	0.6	0.4	24
Washing machine	0.2	0.15	9
Dish-washing machine (see Note 1)	0.15	0.1	6
Pressure flushing valves for WCs or urinals	1.5 max.	1.2 min.	

Fittings Labelling

Bathroom Manufacturers Association



Fitting	Specification
Single flush WC	Not exceeding 4.5 litres per flush
Dual flush WC	Effective flush not exceeding 4.5 litres per flush.
Internal taps	6 litres per minute
Showers	13 litres per minute
Baths	80 litres (at 40% of the volume to overflow (200 litres to overflow))

Appliance Labelling

- Energy Labels
- **waterwise** Washing Machine Rankings

Washing performance A: higher G: lower	A B C D E F G
Spin drying performance A: higher G: lower	A B C D E F G
Spin speed (rpm)	1400
Capacity (cotton) kg	5.0
Water consumption l	55



Energy

Washing machine

Manufacturer
Model

More efficient

A

B

C

D


E

F

G


Less efficient

A



Energy consumption kWh/cycle <small>(based on standard test results for 60°C cotton cycle)</small>	0.95
Washing performance <small>A: higher G: lower</small>	A B C D E F G
Spin drying performance <small>A: higher G: lower</small> Spin speed (rpm)	A B C D E F G 1400
Capacity (cotton) kg Water consumption l	5.0 55
Noise (dB(A) re 1 pW) Washing Spinning	5.2 7.0

Further information is continued in product brochures



Labelling and other Standards

- The Waterwise Marque
- One Planet Home
- ACEB Water Standards



Additional water savings can be made from:

- Efficient plumbing e.g. reduced long draw offs, pressure reductions, etc.
- Leak detection and prevention
- Good product design and selection e.g. Pause buttons on showers



Summary and Conclusions

The Part G requirements should be achievable through straightforward efficiency measures.

Consideration needs to be given to the:

- the specification should not push the boundaries of user acceptability
- practical aspects of the building (existing plumbing and drainage, pressure, etc.)