

DTI 'Strategy for Sustainable Construction'- consultation events

WATER USE

1. SUMMARY

The demand for water in south east England exceeds the available supply; demand from society is rising coupled with increased pressure from growing housing densities and uncertainty about the impact of climate change. The need for water conservation is well recognised but little regulated. The onus for promoting conservation is on water companies, related regulating bodies and the public and is often not demand led. There have been great advances in water efficient technology and innovation in recent years but this is not necessarily in line with public demand.

Controls in place to regulate water use include the Water Industry and Water Acts, and Water Supply (Water Fittings) Regulations 1999. The Market Transformation Programme (MTP) set up to support the development and implementation of UK Government policy on sustainable products is also a useful tool to control water use.

A number of efficiency schemes exist but are often awards for innovative design rather than a baseline and are largely for new domestic developments rather than existing buildings. The Code for Sustainable Homes (DCLG, 2006) and the consultation document on Water Efficiency in New Buildings (DCLG, Defra 2006), may assist with improving the performance of new buildings. DCLG also have an initiative on reviewing the sustainability of existing buildings as part of their commitment to the Sustainable and Secure Buildings Act (2004). This has great potential for reducing water use, but is harder to regulate. An ambitious review of water regulations may be needed to set tough upper flow limits on water fittings through refurbishments.

A key element to securing water conservation in the future is training for architects, developers and installers. Without the knowledge of water efficient practices and technology there is unlikely to be correct specification and installation of water efficient goods and techniques. There is also scope for regional capacity limits in some areas of the country. The results from the success of making Thames Gateway water neutral will assist with this.

Inevitably, the majority of approaches to water efficiency target the use of water in the home. The recent consultation on *Water Efficiency in New Buildings* is proposing targets for the domestic use of water in non household properties. However, there are currently a number of initiatives that deal with non domestic water and a range of targets (and or benchmarks) have been set for offices.

Targets aimed specifically improving the standard of efficiency within new and if possible existing buildings are key to water efficiency. The Code for Sustainable Homes and proposals for water efficiency in new buildings provide frameworks for how of these targets could be set.

This thinkpiece focuses on ways of making water efficiency standards mandatory in new homes, existing homes when notifiable works are carried out, and the domestic uses of non-household buildings.

2. VISIONS AND METRICS

2.1 Industry vision

2.1.1 Published provisional/initial vision and metrics

Table 1 Proposed visions and metrics

Proposed vision	Source of target	Associated metric
Reduced consumption (especially potable) by 50% by 2015	DTI sustainable construction review (Oct 2006)	Litres/person/day 1992-140 l p/d 2003 – 154 l p/d

Phase out of high flow fittings by 2020	DTI sustainable construction review (Oct 2006)	Litres/person/day 1992-140 l p/d 2003 – 154 l p/d
Reduce water consumption by at least 20% through more efficient use in homes, buildings and businesses	Blueprint for Water Coalition of interested parties including RSPB, Waterwise and The National Trust	125 litres of water per person per day in most areas, and 100 litres per person per day where water is scarce. By 2015
Embrace a domestic building performance standard approach for water consumption of 120-135 l/h/d	Water Efficiency in New Buildings (2006)	120-135 l/p/d (based on bedspace/potential occupancy)
Embrace a non domestic building performance approach of 20 litres per full time equivalent	Water Efficiency in New Buildings (2006)	20 litres per full time equivalent
The Code for Sustainable Homes has been developed to enable a step change in sustainable building practice	Code for Sustainable Homes	Different points awarded for 80 l/p/day – 120 l/p/d

DISCUSSION

- Are these vision(s) appropriate and will achievement lead to a significant change?
- Are the metrics appropriate and meaningful?

2.1.2. Metrics

The phase out of high flow fittings depends on agreement of high flow specifications (although for many products actual installed flows will vary depending on pressure). Water conservation measures are currently targeted at new developments, which will decrease use in the long term. To achieve short term gain the existing stock will need to be addressed. The metrics used are universally accepted.

Table 2 – Assessment of current awareness and attainment of DTI targets

Rating 0 – 5 (see Appendix 1 for guidance)	Reduced consumption (especially potable) by 50% by 2010	Phase out of high flow fittings by 2020
1 Established principles / sound science	4	1
2 Widely understood across industry	3	1
3 (Technically) attainable with no risk and no skills shortage	4	4
4 Cost-effective	2	1
5 Compelling business case	3	1
6 Strong Market pull	2	0
7 Established metrics and performance data	4	4
8 Degree of regulation	1	0

DISCUSSION

- Are you aware of the performance of your organisation / its projects in the context of these targets?
- Does your organisation have data available on its own performance – if so, over how long?

- Do you agree with the assessments made in Table 2?

2.1.3 Current performance and interim targets

Ofwat assesses the current position as being 154 litres per person per day. There is no current information on the use of high flow fittings

DISCUSSION

- How attainable are the above targets
- Given the vision and present position, what would be a reasonable achievable intermediate target?
- Which, if any, of the above policy, regulatory or industry initiatives are likely to have the greatest impact on this?

2.1.4 Relative merits and limitations of proposed visions (if required)

Savings in individual households will depend on the habits of the occupants. A water efficient house with inefficient occupants may have a far higher overall consumption than a standard house with a water aware family, (CSH 2006). Therefore predictions based on technology and industry alone is not factoring social behaviour which is arguably the essential instrument to achieve water efficiency.

2.2 Published Government targets

2.2.1. UK Targets

2.2.2 Other published government / agency targets

Water Efficiency in New Buildings

The consultation document provides a number of options to facilitate water efficiency in new buildings. The targets are presented in Table 1.

Code for Sustainable Buildings

The Code is a voluntary measure (apart from social housing projects) and uses a points system to award water efficiency improvements. At each level of the Code, minimum standards for water efficiency are required – so to achieve a higher rating against the Code, a higher level of water efficiency must be achieved. The targets are below:

Code level	Litres per person per day
1	120
2	120
3	105
4	105
5	80
6	80

Olympics

The One Planet Olympics plan incorporates a commitment to sustainable water management including the following:

- Olympic Park incorporating water recycling, rainwater harvesting and water conserving appliances
- Dual water quality supplies to new buildings
- Recycled water used for irrigation or vehicle washing
- A commitment to provide long-term sustainable water supply and management
- Water efficient homes and infrastructure
- Lower Lea Valley largely self-sufficient in water by 2020

The development will include separate systems for storm and sewage water, with surface water collected, retained and recycled locally. This will ease demand on drinkable water supplies, as well as reducing peak flows in storm sewers. At the Olympic site processed wastewater, harvested rainwater and water from borehole extraction will join the water recycling system and be pumped back for redistribution to consumers within the valley.

Blueprint for Water 10 steps for sustainable water by 2015

The aim of this coalition of environmental and wildlife groups is to reduce water consumption by at least 20% through more efficient use in homes, buildings and businesses by 2015. The visions set by the Blueprint include:

- By 2007, the Department for Environment, Food and Rural Affairs (Defra) and the Department for Communities and Local Government (DCLG) must introduce a mandatory Code for Sustainable Homes, with a target maximum use of 125 litres of water per person per day in most areas, and 100 litres per person per day where water is scarce.
- By 2008, Ofwat should introduce tougher leakage targets to reflect environmental impacts and public concern.
- By 2008, Defra and DCLG should introduce mandatory high standards for water efficiency in existing homes and buildings.
- In the 2009 price review, Ofwat must approve water company investment in fitting water-efficient devices and appliances into existing homes, and in conducting free water audits for businesses.
- By 2012, all new housing in areas where water is scarce should be 'water neutral'. Developers will have to ensure water use in new housing is offset by efficiencies elsewhere.

3. MECHANISMS

DISCUSSION POINT

- How much progress in the area over the past 5 years has been driven by regulations / how much by market/voluntary measures?
- How much future change is going to be driven by regulations / enforced policy compared with market / voluntary measures?

3.1 Policy and regulatory responsibility

3.1.1 Current and planned regulatory & policy drivers and associated Government lead initiatives

- The Market Transformation Programme (MTP) is an ongoing project to support the development and implementation of UK Government policy on sustainable products.

- The Water Supply (Water Fittings) Regulations 1999 are concerned with minimising waste, misuse, undue consumption, erroneous measurement or contamination of water supplied by a water company. These regulations do not require specific fittings to be installed; guidance is provided through the Water Regulatory Advisory Scheme (WRAS).
- Code for Sustainable Homes - water efficiency minimum standard = No greater than 120 litres per head per day (use of potable water). The Code will point to way to future building regulations..
- Water Efficiency in New Buildings – consultation on water efficiency. This publication is a consultation document seeking views on the Government's proposals to make minimum standards of water efficiency performance mandatory in all new homes and new commercial developments.
- **Metering**
All new homes and business have to be metered, but only a third of existing homes have water meters. There is a Water Saving Group (high level officials from government, Ofwat, EA and the Consumer Council for Water concerned with policy changes) consultation paper due shortly considering how metering might be made compulsory in water-stressed areas. Increased take-up would also change the cost of metering and fittings for new homes as the market develops.
- **Building Regulations**
Consultation is taking place on ways to regulate water efficiency, and whether this should be based on a whole building standard, or whether it should be component-based i.e. showers, toilets, taps etc.

3.2 Industry and market drivers

3.2.1 Principal sectors

Market and industry:

- Water companies – metering, advertising
- Manufacturers – water efficient technology
- The public – water rating schemes, metering, education schemes
- Building developers – use of BREEAM and CSH increasingly required by clients and funders particularly for social housing

3.2.2 Current mechanisms and initiatives

Current initiatives

- **BREEAM** targets for water use.
- **Waterwise** - an independent not-for-profit UK NGO focused on decreasing water consumption in the UK by 2010 and building an evidence base for large-scale water efficiency. The Waterwise Marque highlights the most water efficient products available on the market.
- **Various water company education schemes** - e.g. Thames Water 'save-a-flush' and water 'hippo'
- **Metering schemes** – water companies and government
- Environment Agency water efficiency awards
- Market Transformation Programme – promoting and encouraging water efficient technology.

Potential initiative

- Ofwat is looking into the possibility of discounted development charges for water efficient developments.

3.2.3 Other suggested mechanisms

Demand management policies for water efficiency and water conservation from water companies and government could include the following aspects, many of which impact upon the construction (housebuilders) industry:

- A water ratings scheme for appliances would be a useful tool for the manufacturing industry and the public; this could be linked to the energy rating scheme or a stand alone scheme.
- Water companies could adopt comprehensive billing (in metered properties) to advise users on a personalised basis
- As climate change is starts to affect the distribution of water resources throughout the year, the water industry may need to adopt new practices, such as introducing stricter policies in drier seasons, more proactive responses to drought.
- Fiscal mechanisms – penalties for misuse of water in drought periods (introduces and successful in Australia) Proving misuse is difficult and it is already an offence. Much better to introduce financial incentives for water efficient buildings – for instance, by reducing developer charges, modifying stamp duty, strengthening ECA etc.
- Reward schemes – reduction on water bill for less than average use, subsidies for efficient technology, tax incentives
- Education schemes – e.g. Waterwise Drip Calculator – most water companies already have similar schemes but more coordination on a national level would be useful
- Effective monitoring of water efficiency take up and scheme success
- Regulation and standards for innovative technology i.e. rainwater and grey water systems
- Address water efficiency in existing stock

DISCUSSION

- Which of the above government policies and/or industry initiatives are likely to have the greatest effect?
- What needs to change to accelerate progress?
- What is your degree of confidence that the above measures, if fully implemented will achieve significant change?

APPENDIX 1

Guidelines for scoring Table 1

1	2	3	4	5	6	7	8
Principles established and practice within reach of most companies	Widespread understanding of principles across most parts of the industry	Technically attainable with little or no risk	Cost effective to implement within present fiscal / regulatory regime	Compelling and well promoted business case	Strong market pull from both public sector and private sector	Published metrics on current performance / benchmarking	Highly regulated, clear signals of future policy / regs
SCORE 5	5						
SCORE 0	0}						
Gaps in scientific / social / economic principles	Knowledge and understanding across most parts of the industry non-existent	Technical risks / serious skills shortages	Not presently cost effective in competitive market or using conventional business case justification	Little in the form of case studies and evidence of business case	Little market pull beyond regulatory minima	Little in the form of any current openly available data	Largely unregulated and reliant on voluntary action