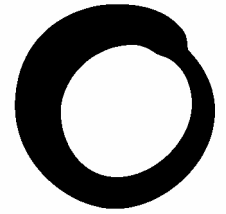


June 2006



**Friends of
the Earth**

Briefing

Running on empty

Water in the South East

There is a potential water crisis looming in the South East. This briefing calls for a strategic approach to this issue and sets out five key priority areas for action:

- 1. Address climate change – start reducing CO₂ emissions 3% year on year**
- 2. Mend leaky pipes**
- 3. Prioritise water reduction**
- 4. New water infrastructure should only be built as a last resort**
- 5. A radical rethink on new housing plans**

Friends of the Earth inspires solutions to environmental problems, which make life better for people.

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In South East England, the average person uses between 160 and 170 litres of water per day,ⁱ totalling around 2,830 million litres of water every day. This is 15 litres more than the average person in North East England, although rainfall in the South East is lower than most other regions in the UK.ⁱⁱ The South East received 85% of its average expected rainfall in 2005. Evidence on climate change suggests that we will experience hotter, dryer summers and warmer, wetter winters.ⁱⁱⁱ The South East has the highest amount of water usage per person in Europe yet there is less water available per person than in countries such as Spain and Greece.^{iv}

The World Health Organisation (WHO) recommends that the basic daily use of water per person should be 50 litres.

- Average in the UK - 150 litres
- Average in Europe - 100 litres
- Average in Mozambique - 9 litres

Although rainfall has been about 70% up on the average rainfall for May, this water will mainly be soaked up by plant life and will not compensate for the preceding dry months. The South East is highly dependent on groundwater from underground aquifers (large areas of natural underground water-bearing rocks which act like a sponge). Winter rainfall is what really matters; spring and summer rainfall does not really affect the situation, as it takes months and months to re-fill the aquifers.^v

Environmental Impact

Across the South East river flows and groundwater levels are low due to low rainfall. Many springs have not risen and some stream headwaters remain dry. In some rivers fish spawning are being disrupted as there is limited access to their breeding grounds and some wetland bird populations are being affected because nesting sites are dry and food resources are limited.^{vi} Wading birds in the South East look set to be amongst the casualties of the 2006 drought. Numbers of successful breeding lapwing, redshank and snipe have dropped by up to 80 per cent at five RSPB reserves in Sussex and Kent. Over abstraction of wetland and reservoirs would further exacerbate this problem.

Modern land uses, especially agriculture, have reduced the natural world's ability to supply us with fresh water by draining lakes and marshes and canalising rivers. Meanwhile we have paved over large areas of land. This has increased the speed that rain water flows off the land into the sea, increasing flood peaks but reducing flows for most of the time.^{vii}

Current measures being taken

Hosepipe bans cover a growing number of areas in the South East. Water companies have used this measure to reduce demand in an attempt to avoid a situation of not having enough water to meet demand. Three water companies in the South East have also been granted drought orders, but only one has been implemented. See Appendix.

Water companies can apply to the Government for compulsory water metering as Folkestone and Dover Water Services has done. Increasing scarcity is leading to calls for metering as part of a package of measures to reduce water use. However, Friends of the Earth believes any introduction of metering must be carefully done to ensure that poorer communities are not disproportionately affected.

A garden water sprinkler uses on average 1000 litres of water per hour.

Friends of the Earth 5 point plan for water

1. Address climate change – start reducing CO₂ emissions 3% year on year

Climate change needs to be addressed in order to reduce the severity of future water shortages. Delaying taking action on this will make it harder to deal with later. It is a false economy and socially and environmentally negligent.^{viii} Hotter, dryer summers could lead to a higher demand for water to avoid dehydration and for crop-watering.^{ix} Wetter winters will mean a greater need to capture winter rainfall.

2. Mend leaky pipes

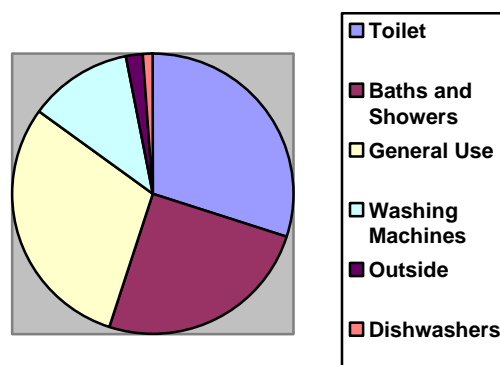
There is far too much water being lost through water pipe leaks. Thames Water is the worst culprit, losing an average of 915 million litres a day from their pipes.^x Water companies are working to upgrade some pipelines, but there is room for improvement here.

3. Prioritise water reduction

People should be helped to use less water at home, work, school and everywhere. Simple things such as turning the tap off while brushing teeth, using grey water (water which has been used once but not contaminated, such as washing-up water), and fitting water saving devices in toilets and other domestic appliances. We give some case studies later in this briefing of how this can be done.

A 5 minute power shower uses 100 litres of water - more than a bath

Water use in the average UK household^{xi}



4. New water infrastructure should only be built as a last resort

Whilst we support the principle of reservoirs to store large amounts of rainwater, care must be taken to avoid sensitive sites and a close look must be taken at the environmental impacts.

Technological fixes to the water shortage should be seen as a last resort. Many people ask why Water Companies do not make more use of sea-water. Desalination plants make sea water available, but use huge quantities of energy, producing carbon dioxide emissions.

Creating pipes to transport water from other parts of the UK would require huge construction costs both to create the pipes and to pump the heavy volumes of water around the country. The costs of this would be passed on to the consumer.

Desalination – a cure-all for the water crisis?

A pilot mini-desalination plant has been built at Newhaven Harbour. This plant removes salt and other impurities from sea water, creating drinking water. The full sized plant would be capable of supplying up to 8 million litres of water a day out of South East Water's average supply of 400 million litres per day. South East Water claims that removing salt from sea water is 'merely accelerating a natural process.'^{xii} However, the amount of carbon dioxide that would be created from such a plant means that Friends of the Earth has serious reservations about this. The planned desalination plant in London, opposed by Mayor Ken Livingstone would pump in excess of 22 600 tonnes of carbon dioxide per year into the atmosphere to produce only 141 million litres of water.

5. A radical rethink on new housing plans

Water consumption will continue to rise as the government continues to give the go-ahead for more housing in the area. Building in the South East is 'one of the Prime Minister's top priorities to house the growing population.'^{xiii} These expansion plans need to be radically rethought. A closer look needs to be taken at the impact on the environment. Water use will rise by approximately 86,700,000 litres per day if the planned 580,000 new homes are built in the next 20 years.^{xiv} The Regional Assembly believes that a twin track approach of reducing water demand and building new infrastructure will enable the region to cope with this level of growth. However this relies on huge behaviour change to achieve between 21 and 47% water savings as well as building at least 5 new reservoirs across the region.

New buildings must be built to the highest standards of water efficiency following the BRE Environmental Assessment Method (BREEAM)'s guidelines for an 'excellent' building. However, existing housing must also be targeted with programmes for water efficiency as new housing only accounts for 1% of the existing housing stock.

Friends of the Earth is asking for new development in highly water stressed areas to be "water neutral". This means that a developer would still have to include water saving devices in new properties but they would also be asked to contribute towards water savings equipment in a set number of existing houses to offset the amount of extra water the development would require.^{xv}

Case Studies

Woodnook Bleaching and Dyeing Company produces and processes around 300 000 metres of fabric per week. However this company has introduced a 'Right First Time' policy whereby every area of manufacture is assessed and made more efficient for the environment and for cost-effectiveness. The introduction of jet dyeing equipment to replace jig equipment has made the most significant contribution to water savings. Jets provide the precise amount of liquors necessary to do the job, whereas Jigs were open baths and generally had the problems of excessive overflows and water spillage. This company was able to save £61 000 per year and water use was halved from 40 litres per metre of cloth to 20 litres.^{xvi}

BedZED, the Beddington Zero Energy Development, is an environmentally-friendly, energy-efficient mix of housing and work space in Beddington, Sutton, south London. This development incorporates a water strategy able to cut mains consumption by a third - including installing water saving appliances and making the most of rain and recycled water: it is predicted that nearly a fifth (18%) of daily water consumption at BedZED will be met from rainwater and recycled water, stored in large tanks built into the foundations. The car parking spaces are also laid with porous block paving over gravel to minimise surface run off. Runoff is drained to the front of the development where a dry ditch has been enhanced into a water feature specially designed to attract wild-life. Lower volume baths have been installed along with taps containing flow restrictors and energy efficient appliances such as washing machines.^{xvii}

Low Luckens farm collects and stores rainwater from the roof in a 5,000 litre tank. A submersible pump located inside the tank pumps water to the taps, showers, toilets and washing machine in the Centre. The water is cleaned by two filters and an ultraviolet disinfection unit. When there is too little rain to supply the Centre's needs, the tank is topped up by mains water, through a solenoid valve which opens automatically when the tank is three-quarters empty.^{xviii}

Coolings Nurseries Ltd. in Knockholt, Kent, which grows approximately 1 million plants per year, has constructed a rainwater capture system as a way of reducing reliance on mains water supply. A reservoir was built in 1999 to store harvested rainwater and, over the last 2 years, irrigation run off from the nursery beds has been channelled into the reservoir. To ensure the highest water quality, two 10ft filtration tanks that, between them, hold 30 tonnes of specially selected sand and gravel layers have been installed, together with a 200ft long gravel reed bed containing Norfolk Reeds. This reed bed allows Coolings to run wastewater through the gravel and root zone of the reeds. The majority of watering is controlled by computer and is carried out at night to reduce evaporation.^{xix}

Appendix: Situation in the South East: Drought and Measures

Hosepipe bans now affect more than 13 million people in the South East. The companies who have implemented this ban are:

- Thames Water Utilities
- Three Valleys Water
- South East Water
- Sutton & East Surrey Water
- Southern Water
- Mid Kent Water
- Folkestone and Dover Water

Drought orders have been granted to Southern Water, Mid Kent Water and Sutton and East Surrey Water, but only the latter has put it into force. This one drought order will affect 650,000 people.

Drought orders mean that:

- Privately owned swimming pools will not be able to be filled.
- Ornamental ponds, except fish-ponds, will not be able to be filled.
- Mechanical vehicles will not be able to be used.
- Vehicles will not be able to be washed except to ensure hygiene or safety.
- The outside of houses except windows will be banned and windows will not be able to be cleaned with hosepipes.
- Ornamental fountains will be restricted.

Nine water companies have started to work with The Environment Agency to create a publicity campaign to raise awareness about the drought. This can be found at

<http://www.beatthedrought.com>.

ⁱ Housing provision and distribution proposed in the draft South East Plan, policy H1, March 2006. Commentary to SEERA, May 2006.

http://www.southeast-ra.gov.uk/meetings/advisory/nat_res/water_resources-may06.pdf BBC:

ⁱⁱ BBC: <http://news.bbc.co.uk/1/hi/england/4719748.stm>.

ⁱⁱⁱ 'Rising to the Challenge: Impacts of Climate Change in the South East in the 21st Century' November 1999 Summary Report.

^{iv} Voice Bulletin, South East Regional Assembly, Spring 2005.

^v Guardian, 27th May 2006: <http://www.guardian.co.uk/uklates/story/0,,-5849131.00.html>.

^{vi} The Environment Agency, 'Drought Prospects-2006' May 2006.

^{vii} See US Geological Survey <http://ga.water.usgs.gov/edu/watercyclerrunoff.html>

^{viii} Tackling climate change in England's regions – the role of regional spatial strategies, Friends of the Earth, October 2005: http://www.foe.co.uk/resource/briefings/tackling_climate_change_in.pdf

^{ix} 'Rising to the Challenge: Impacts of Climate Change in the South East in the 21st Century' November 1999 Summary Report.

^x Water Guide: <http://www.water-guide.org.uk/blog.html>.

^{xi} United Utilities: <http://www.unitedutilities.com/?OBH=411&ID=1083>.

^{xii} South East Water: <http://www.southeastwater.co.uk/develop02.asp>

^{xiii} Government Office for the South East: <http://www.go-se.gov.uk/gose/peopleSusComms/housing/buildingHomes/>

^{xiv} The Environment Agency: <http://www.environment-agency.gov.uk/regions/southern/1168940/1174652/?version=1&lang=e>

^{xv} Friends of the Earth response form on water to the SE Plan consultation, June 2006

^{xvi} The Environment Agency: <http://www.environment-agency.gov.uk/subjects/waterres/286587/487004/487384/487399/?version=1&lang=e>.

^{xvii} <http://www.bedzed.org.uk/>.

^{xviii} <http://www.lowluckensfarm.co.uk/>.

^{xix} <http://www.24dash.com/content/news/viewNews.php?navID=2&newsID=6079>