Continuous Improvement

HIGHLY COMMENDED

Minimising Water Usage at the University of Cambridge

The prospect of hose pipe bans in the late 1980s motivated the University of Cambridge's then energy manager, Dick Ramsay, to initiate a forward-thinking water conservation programme. By 2006 this had halved water consumption, and produced annual financial savings of £667,000, compared to the base year of 1987/88.

Modern leakage detection methods and intensive metering and tracking - around 90% of the University's annual usage is now remotely monitored - have meant that savings have increased rather than plateaued in recent years. Absolute water use fell by 13% between 2004 and 2006, despite a 6% increase in the size of the university estate. This equates to an annual saving of £74,000, and a reduction in the CO_2 emissions associated with water supply of 14 tonnes. The 2006 consumption average of 0.43 m^2 per square metre of space (down from 0.52 m^2 in 2004) compares well with the average 1.05 m^2 consumption of research intensive universities. Paul Hasley, the University's Energy Manager (and also responsible for water), notes that, "while all departments are involved in the programme, the academic and technical staff in the chemical and physical science areas have been a key target as modern laboratories are extremely water intensive."

Leaks are identified not only through careful analysis of data, but also by a novel acoustic noise logging system. This analyses the sounds transmitted by water flowing down pipes. This method helped pinpoint a leak of 3 litres per minute at the University's Vet School site, resulting in an annual financial saving of £2,600. Other examples of savings during 2005-6 included:

- A faulty humidifier at the University Library was running to drain wasting about 10 litres/min
- The cooling system for a laser was left running, wasting 30 litres/min over the weekend until the monitoring reports picked up the increased usage
- Mains water being used to continuously cool gel equipment in Biochemistry - almost 5m^3/day was saved by slowing the flow rate and cooling only when necessary.

Detailed data on campus consumption also helps Cambridge Water, the local supply company and a longstanding supporter of the University's water conservation programme. They use it to analyse the performance of their own infrastructure, which in turn results in further detection of leaks.

Acoustic leak detection equipment

Judge's Comments on Continuous Improvement (continued)

The University of Cambridge's commitment to continuous improvement of its water efficiency over a 15 year period was highly commended in the 2004-5 Green Gown awards. Since then, the programme has been strengthened, with an even greater rate of reduction in water use. A large element in this has been the on-going investment in water metering and monitoring. This makes it easier to maintain the momentum even when, as at Cambridge, the original champion of improvement retires or moves on.