Aerobic Bins: Weight Reduction Calculations

HELO’s commitment to helping small and medium sized enterprises with the latest innovations was put to the test when a team was asked to prove to local councils that a new system could dispose of biodegradable household waste more effectively.

Inventor and business adviser Richard Rand wanted an independent scientific assessment of his latest innovation, Aerobic Bins, which had been trialled by Bexley Council in London.

The team HELO project set up – Abhilash Palakkadan Rajan (MSc in Built Environment), Asmita Mukerji (MSc in Biochemical Engineering) and Vishnu Gujavarthi (MSc Chemical Process Engineering) – devised and conducted an experiment in UCL that sought to prove how Rand’s new base for biodegradable household waste bins can eliminate more moisture from waste than normal bins, and at a lower cost than comparable alternatives.

Using data loggers to assess weather conditions, an anemometer to measure wind velocity and a digital weighing machine, the team demonstrated that the bins can reduce the waste matter’s weight by up to 45% in certain conditions.

The experiment was complex and rigorously constructed. It was completed in two two-week cycles during the summer to account for different environmental conditions that affect temperature, moisture content and aeration. Measurements were taken four times a day and the relative weight reduction was calculated using the data for the entire cycle.

The students impressed Rand with their strong grasp of issues and their measured and thoughtful answers to questions in their presentations to clients.

He added: “Access to three super UCL students by a young business under the HELO programme has been hugely important in answering questions critical to the development of a technology with the potential to fulfil a vital waste industry need.”

Rand is now using the team’s results to demonstrate the case for the bins, which it is estimated could divert around one million tonnes of food waste from the UK’s landfill if widely implemented, saving the public sector potentially millions of pounds.

In November 2010, the initiative was named best technical/academic project in a UCL awards ceremony that celebrated the work of HELO and Abhilash Palakkadan Rajan is now a consultant with the sustainability development team of built environment experts BRE.

At the ceremony, Stratford upon Avon MP and UCL Alumnus Nadhim Zahawi commented: “Aerobic Bins went into great detail, did their own testing and I feel it’s an ongoing situation. This is a good solution to continuing environmental issues.”
About UCL

University College London was established in 1826 and is ranked seventh in the world’s top universities. The university is a modern, outward-looking institution, with more than 4,000 academic and research staff committed to engaging with the major issues of our times. It has a global reach, with 34% of its students coming from outside the UK, from almost 140 countries.

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About UCL Advances

The centre for entrepreneurship at UCL, UCL Advances, offers training, networking and business support for staff, students and external entrepreneurs to encourage and enable new enterprises to get going. Unique in the UK Higher Education sector, its primary role is to promote a culture of entrepreneurship on campus and engagement with entrepreneurs and small businesses beyond UCL’s boundaries, and currently delivers over 30 activity programmes.

UCL Advances is affiliated with UCL Enterprise, which provides UCL’s structures for engaging with business for commercial and societal benefit.

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About Business Support

UCL provides direct business support for internal and external organisations through a variety of programmes, such as grants, space provision, advice and problem solving. The HELO programme is one of these programmes.

HELO (Higher Education London Outreach) is an innovative programme that matches up small and medium sized businesses (SMEs) needing to tackle specific problems with students and academic staff who have specialist knowledge and skills in relevant areas, for short-term consultancies. The HELO project is delivered by UCL Advances and supported by London Business School. The project is part-funded by the European Union.

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