

TARE-Ing It Up

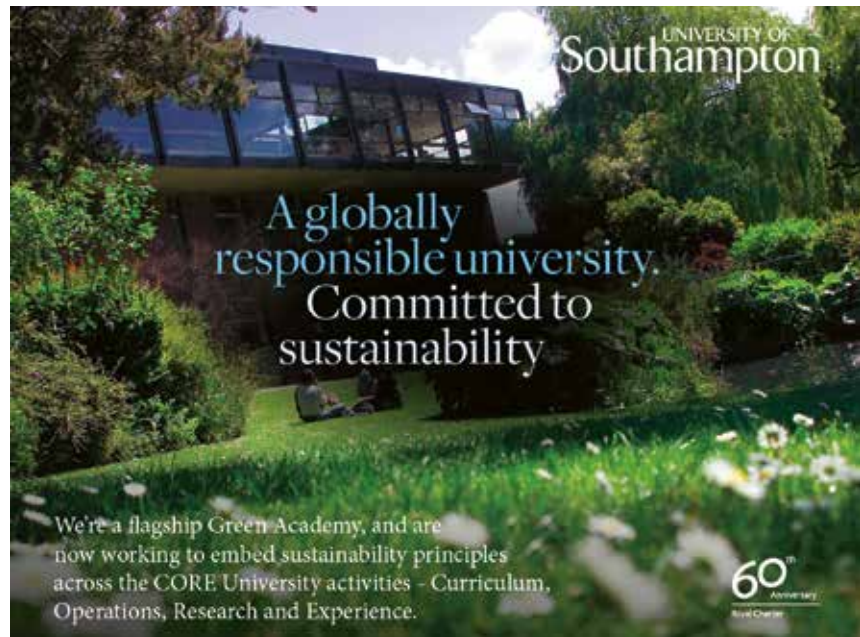
ISWA National Committee member, **Ian Williams**, discusses training, awareness-raising and education – the TARE approach – in the waste management sector...

Humans have always generated wastes. In early times, the wastes generated were mainly human and animal biodegradable wastes and ashes from fires set for cooking and heating purposes. The quantities generated were insignificant and swiftly discharged into the ground locally, with little or no environmental impacts.

The advent of the industrial revolution in the mid-late 18th and early 19th centuries and the availability of modern medicine transformed daily life, enabling populations to grow rapidly and incomes to rise, leading to increased purchase of goods and services. The consequent wastes generated became a problem in densely populated urban areas, accelerating the spread of diseases and damaging quality of life. The build-up of wastes in the streets of London led to the world's first recorded waste management strategy when Corbyn Morris proposed a "Waste Strategy for London" in 1751. The waste industry was born...

For most of its existence, the waste industry has been regarded as mucky work, in dirty and dangerous places, carried out by people with little or no qualifications, for little or no wages. A recent visit to a dumpsite in Bangladesh reminded me sharply that many people still rely on discarded materials for subsistence. However, in many parts of the developed world, the modern waste industry can lay claim to being one of the most dynamic and fast-changing business sectors.

Society's desire to manage our resources better and to protect the environment – locally, as well as globally – is impacting on waste management education/training now, *and* how it might impact in the future. Waste management is morphing into resource management and it is now a multi-disciplinary subject,



incorporating all types of engineering and sciences; politics; economics; urban and rural planning; law; social sciences; media and communications; information technology; advertising; marketing; design; technology; transportation; logistics and operational management; business studies; management; and even the creative arts.

Resource management has never had a higher public profile, but its complexity and multi-disciplinary nature is still not properly recognised. There has never been a more important time to reflect upon the importance of the TARE approach to waste (resource) management.

"T" Is For Training

THE UK needs to transition to a so-called "green economy" in order to deliver sustainable development within business and industry. For this to happen, consumers and the business and industrial communities

will need to reduce their impacts on the environment by changing what is produced, how it is produced and used, how it is disposed of and/or recovered, and probably change consumption habits too.

Our newly qualified young workforce will need to identify entrepreneurial opportunities in resource-efficient and responsible low-carbon technologies and practices. This will require professional bodies and accredited organisations to provide opportunities for training and professional development.

CIWM's industry standard training course – WasteSmart – has been designed to offer accessible, practical and sustainable waste and resource management skills at both "Foundation" and "Advanced" levels. CIWM also offers a range of specialist day-long training courses on many aspects of waste management.

WAMITAB (previously known as the Waste Management Industry Training & Advisor Board) develops qualifications

and certificates of competence for those working in waste, resource management, recycling, cleaning, street cleansing and facilities management. WAMITAB runs the operator competence scheme that is designed to allow permitted waste facilities in England/Wales to demonstrate they employ technically competent staff.

At an international level, the International Solid Waste Association (ISWA) runs summer schools and study tours. Its "International Waste Manager" programme provides an internationally recognised certification for waste managers based on their academic achievements and their practical work experience at International, Advanced, Intermediate and Technical levels.

Similarly, the International Waste Working Group (IWWG) provides a forum for the international scientific/professional community and promotes and disseminates new developments in the waste management industry. I chair the recently set-up IWWG Task Group on Education, and we ran our first two education-focused workshops at the recent Sardinia Symposium (see page 42).

"AR" Is For Awareness-Raising

PUBLIC PARTICIPATION in activities that lead to effective waste management is as important as technical or economic aspects. However, there is a gap between knowledge and behaviour; it is well established that more people self-report that they recycle than those that actually do it. One of the most important functions of awareness-raising is therefore to motivate the community to take part in resource management activities and actions.

Industry experts, such as Adam Read, Ricardo Energy & Environment's practice director for resource efficiency and waste management, have demonstrated time and again that awareness-raising via targeted public engagement interventions clearly lead to behaviour change when delivered alongside improvements to infrastructure and service provision. Carefully planned and suitably timed interventions of this nature are cost-effective and deliver results, but sadly they are often neglected in difficult economic circumstances.

Well-known examples of successful public awareness and education campaigns in the UK include WRAP's "Love Food Hate Waste" and "Recycle on the Go" campaigns; Keep Britain Tidy's "Love Where You Live"; the Campaign to Protect Rural England's "Litter and Fly-Tipping" work; and "Helping you to reduce, re-use & recycle more things, more often" from

Recycle Now.

The profile of waste management got a huge boost recently when broadcaster and TV chef Hugh Fearnley-Whittingstall fronted *Hugh's War on Waste*, a prime-time BBC1 programme that highlighted how much food is wasted in the value chain. The programme sparked a huge reaction from the public, especially on social media, where many supermarket chains felt the full wrath of the public's anger about their premature disposal of perfectly edible but cosmetically imperfect vegetables and how they treated their suppliers – the UK farmers. It probably raised public awareness about waste management more in two, hour-long programmes than has been achieved by all previous campaigns put together!

"E" Is For Education

ENVIRONMENTAL EDUCATION programmes, such as eco-schools, have become widespread. By means of such schemes, primary and secondary school children increase their knowledge of waste management and develop skills for addressing issues such as how to save energy, prevent litter and how to conserve material resources via recycling and reuse.

Research shows that children share their school learning with adults and this can facilitate the development of environmental values and waste segregation. Waste Watch's "Take Home Action on Waste" project – the first attempt to measure the inter-generational influence of

a waste education programme on home

behaviour – showed that household recycling behaviour can be positively impacted by a school-based waste education model.

Many higher education institutions (HEIs) have extensive in-house expertise on topics that are needed for the development of sustainable, cost-effective resource management. Universities such as Central Lancashire, Cranfield, Glasgow Caledonian, Leeds, Northampton and Southampton provide programmes and specialist modules that aim to develop the waste management professionals

and leaders of the future. The university sector is a vital incubator for future practitioners and industry leaders and plays a key role in instilling, developing and spreading the knowledge, skills and practices of resource management.

Throughout the world, programmes for "campus



Find out more about WasteSmart

WasteSmart is CIWM's industry standard training course designed to offer accessible, practical and sustainable waste and resource management skills delivered through an expanding network of approved centres and trainers based across the country.

To find out more please contact the CIWM training team on 01604 823341 or email training@ciwm.co.uk

greening" have been developed for young adults in HEIs, although they have often had the additional benefit of reducing the institutional costs of waste management. As an illustration, a number of ground-breaking studies have addressed waste management at UK universities in the last decade.

The University of Bristol trialled a recycling scheme at student halls of residence, where each student bedroom was provided with a recycling bin in addition to their residual waste bin. The amount of material recycled per student increased by 30 percent in the academic year 2002/03 and the scheme improved recycling on average by 132 percent compared to the previous year, with a 350 percent increase in paper recycling.

The city council also benefitted; it collected materials from the University's recycling stations and this helped contribute to its domestic recycling targets. Other benefits of the scheme included no increase in work for the halls staff, and improved visual impact of recycling bins across the site. This study kick-started changes to operational waste management at the University of Bristol such that in 2012/13, it sent just five percent of its waste to landfill.

The "Recycling in Southwark Project", funded by the London Recycling Fund, ran from October 2004 to March 2006 and involved 21 universities, with a total of 185 halls of residence. The project highlighted several key issues that subsequently facilitated more cost- and resource-efficient practices: university hall managers and students demonstrated little knowledge of recycling and university recycling campaigns; existing recycling facilities were very limited and inconvenient in student halls; a large number of reusable items were being (expensively) disposed of to landfill.

At the University of Southampton (UoS) we have developed a comprehensive waste strategy based upon a so-called "PESTLE" (Political, Economic, Social, Technological, Legal and Environmental) analysis, the waste hierarchy and the so-called ISB (infrastructure, service, behaviour) model.

The staged approach to the advancement of sustainable waste management at the UoS has developed such that it currently sends zero waste to landfill (other than any by-products from incinerated residual waste). In addition, the UoS has extensive experience in the delivery of learning activities in which local authorities and universities have co-operated successfully to mutual benefit. These include projects that focus on the development of infrastructure, service provision and improving public participation, including: redesigning civic amenity sites; rethinking collection practices; operationalising effective waste management in medium- and high-density housing; carbon footprinting of recyclable materials; evaluating new recycling services; and devising methods to drive desired behaviour

change in households.

The UoS is keen to use innovative approaches to educating young adults. For example, Simon Kemp, a multi-award-winning expert in education for sustainable development, has pioneered "active engagement" with students via team-working in the field with multiple organisations (universities, businesses, industry, public sector bodies). Simon has run student-focused waste management activities for more than a decade, achieving huge success with programmes such as "Waste Wars", "Swap Shop", and "Student Blackout"; through business resource audits; and via the use of film-making and social media.



The TARE Approach

THE DRIVE to divert biodegradable municipal and commercial/industrial wastes from landfill, to reduce the negative impacts of waste treatment and disposal and to use resources more efficiently and sustainably will continue to require dynamic changes within the sector. For example, implementation of compliance schemes through producer responsibility initiatives has created additional "white collar" jobs in waste management.

The resources, commitment and expertise needed to develop the infrastructure, services and behaviour changes required to support the different strategies will necessitate involvement from a range of stakeholders, including local and national policymakers, regulators, waste producers, charities, voluntary groups and education and training professionals. This will inevitably result in further changes to the composition of the workforce and different training and education requirements.

The waste industry has a vital role in terms of supporting the transition to a green economy. We must continue to equip our whole society with a basic understanding of core skills using the TARE approach if we are to develop the behavioural and technological changes essential to a sustainable, resource-efficient future. Our industry needs young professionals who are scientifically and mathematically literate and who engage with problems in a systematic, "can-do" fashion.

We know that the importance of education to waste (resource) management cannot be underestimated and that we need to continue to rise to the challenges. ■



The Author

Ian Williams is Professor of applied environmental science at the University of Southampton where he is the head of centre for environmental science. He has published two books and more than 150 peer-reviewed papers on waste and environmental issues, as well as over 100 commercial project reports.