

Associate Parliamentary

**sustainableresource**

Group

A collection of essays from the  
Associate Parliamentary Sustainable  
Resource Group

# SUSTAINABLE SKILLS

## THE FUTURE OF THE WASTE MANAGEMENT INDUSTRY



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# FOREWORD

Barry Sheerman MP

Co-Chair, Associate Parliamentary Sustainable Resource Group

Former Chair, Education Select Committee

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The terms ‘green economy’ or ‘circular economy’ are becoming commonplace for the sustainability sector. They refer to genuine ambitions and mark a step-change in the way we are thinking about business and growth, a change that is good news for the environment we work to protect.

A key driver of this new approach will be the sustainable resource management sector and how it continues to evolve to support the resource needs of a recovering economy and a consumer market increasingly focused on making sustainable choices.

As a sector, it has shown beyond doubt its ability to innovate and adapt: moving resiliently from landfill to waste prevention and resource recovery in all its forms.

As an industry, waste management is just beginning to assert itself as an important part of the environmental agenda, shrugging off negative public perceptions which have seen it labelled as ‘dirty’ and ‘unskilled’. It is an industry that young people should be excited to become involved with. The variety of opportunities within the sector mean that it can appeal to a huge pool of talent, if it can successfully position itself as the place to be for those in search of skilled, long-term employment.

The Associate Parliamentary Sustainable Resource Group has tapped into the wealth of knowledge within the sustainable resource sector, asking established voices for their thoughts on how waste management can continue to adapt and thrive. This collection of essays focuses on the skills requirements of a sector in transition, seeking to be a strong contributor to a successful green economy. What are the skills needs of an industry aiming for zero waste to landfill? How have these needs changed over the past decades and how will they change over the decades to come? Where are its strengths and weaknesses in training? And what can Government do to support the up-skilling of the waste workforce?

We hope that this collection of essays will stimulate new thinking around the vital issue of skills for sustainable resource management and encourage better shared practices for a sector facing a potentially challenging skills ‘gap’ in the coming years. Innovation around skills training, up-skilling existing workers and attracting bright talent from other industries, or even simply improving the public profile of the waste sector, will all be key first steps in ensuring that waste management plays a pivotal role in the transition towards a truly sustainable United Kingdom.

A handwritten signature in black ink, appearing to read 'B. Sheerman'.

Barry Sheerman MP

# INTRODUCTION

Laura Wilton, Manager  
Katrina Borrow, Researcher and Project Coordinator  
Associate Parliamentary Sustainable Resource Group

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The sustainable resource industry is in many ways a great success story. It is an industry that has continued to innovate and grow throughout an economic downturn that has seen other sectors shrink and collapse. But the waste world is facing a new challenge, and is in need of one key thing to continue prospering: skills.

Big business, SMEs, law practices, consultancies and recruitment firms are waking up to the idea that up-skilling is the next big step that must be taken by the waste industry in order to secure a sustainable future. Adaption is nothing new to the sector, but is this realisation coming too late? And is the industry approaching the impending skills 'gap' from the right perspective?

We believe that sustainable resource management is at yet another key turning point. The skills revolution is coming, and we have asked a variety of key thinkers from Government, Parliament and industry to provide their perspective on this crucial topic.

## Key Issues...

...explores what the sustainable resource sector is looking for in terms of skills and skills training and where this can be found. Are the short and long-term needs of individuals, management strata and young people looking for a career in sustainability being catered for? What role does health and safety training play and how can this best be approached? This section sets out the key issues for sustainable resource management going forward and examines the existing skills landscape.

## Policy...

...is always vital in supporting any industry in transition. Does 'green' skills policy get the attention it deserves? And should skills for waste management be a policy focus, or is it more important to get the building blocks right and create certainty and stability as a priority? Representatives from Parliament and Government discuss.

## Existing Skills...

...are abundant in the sustainable resource sector, so what are waste employers looking for? These essays explore what skills the waste world can unearth in its existing workforce, and how they can be reused and recycled into vital tools for career progression. We also ask; what sells to the sector? What exactly are businesses looking for, and from where? And what courses, academic and vocational, are available to those looking to up-skill and get on in a sector in transition?

## Looking Forward...

...is a sector strength, so is there enough long-term vision with regards to waste skills needs? These essays examine the importance of leadership, expertise, cutting-edge technologies and inclusivity. They focus on young people looking to progress and how businesses can benefit from investing in talent at the bottom of the ladder.

# SECTION ONE: KEY QUESTIONS

## ESSAY ONE

### Skills in sustainability: What is the waste sector looking for in long-term workers and is it being catered for?

Dr Gev Eduljee, External Affairs Director, SITA

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While the UK has achieved much in the past decade in diverting waste away from landfill and into alternative recycling and recovery facilities, we still landfill nearly half of the commercial, industrial and municipal waste we produce. Within this waste are many millions of tonnes of potentially reusable secondary raw materials and energy-rich materials. These are therefore lost to the general economy and their place in manufacturing and production processes is taken by virgin materials and fossil-powered energy.

Every tonne of waste diverted from landfill into activities involving re-use, recycling or energy recovery has the capacity to generate new jobs, since these activities are generally more resource-intensive than operating a landfill. SITA UK's model predictions estimate that 50-80 million tonnes of additional treatment capacity will be required annually by 2020 for the main categories of treatment, with landfill tonnages expected to decline from about 25 million tonnes in 2010/11 to less than 10 million tonnes per year by 2020. With landfill tonnages decreasing so dramatically, we expect to see an equally sharp rise in the need for skilled, long-term jobs in the sector.

Based on staffing levels typical of the sector, and using a multiplier of 1.35 to estimate the number of indirect jobs from the number of direct jobs, this infrastructure programme would create between 19,000 and 36,000 new direct jobs by 2020, over and above the approximately 128,000 staff currently employed in the sector. In



addition, between 25,000 and 48,000 new indirect jobs could be created throughout the UK (*Friends of the Earth, 'More Jobs Less Waste', September 2010*).

**Table 1: Potential jobs by treatment type**

| Treatment type                      | Number of direct jobs  | Number of indirect jobs |
|-------------------------------------|------------------------|-------------------------|
| Energy-from-waste                   | 4,800 – 5,500          | 6,500 – 7,500           |
| Materials recycling facilities      | 7,500 – 12,000         | 9,000 – 16,000          |
| Organic treatment                   | 4,000 – 6,000          | 6,000 – 8,000           |
| Niche, specialist, dismantling, etc | 3,000 – 12,500         | 3,500 – 16,500          |
| <b>Total</b>                        | <b>19,000 – 36,000</b> | <b>25,000 – 48,000</b>  |

(Modelling approximate employment patterns and grades for each type of likely facility provides a job role distribution.)

**Table 2: Potential direct jobs by type**

| Job type       | % of likely new employment | Lower estimate – number of jobs | Upper estimate – number of jobs |
|----------------|----------------------------|---------------------------------|---------------------------------|
| Plant Manager  | 6                          | 1092                            | 2069                            |
| Middle Manager | 3                          | 660                             | 1250                            |
| Technical      | 12                         | 2208                            | 4184                            |
| Supervisor     | 20                         | 3804                            | 7208                            |
| Operator       | 21                         | 4031                            | 7637                            |
| Driver         | 8                          | 1582                            | 2998                            |
| Manual         | 22                         | 4110                            | 7788                            |
| Admin/Support  | 8                          | 1512                            | 2866                            |

With almost 90% of collected waste going directly to landfill less than ten years ago, the sector's traditional skills base has understandably focused primarily on the needs of waste collection and on landfill. Civil and mechanical engineers are the most common among the professionally qualified staff, employed as landfill designers and site managers. This is supplemented by vocationally trained supervisory and operational staff. Chemists and environmental scientists complete the current skills landscape, undertaking support functions such as site monitoring. The sector has also had non-landfill operations (notably incineration, composting and hazardous waste management) employing professional chemists and mechanical engineers.

**“Skill requirements for managers and supervisors have also changed, with greater emphasis on customer management, product quality, budgetary control, and financial modelling.”**

This is changing. The new resource-oriented direction of the sector has transformed its skill requirements and altered the dynamics of supply and demand. The deployment of processing technologies has led to a demand for operational staff with a technical, process-related background. With the sector increasingly reliant on the sale of products (recyclates or recovered power) made out of this processed material, there is a growing demand for staff with a background in procurement, sales, and commodity trading. Skill requirements for managers and supervisors have also changed, with greater emphasis on customer management, product quality, budgetary control, and financial modelling. The move to industrial-type waste facilities has meant that the nature of the risks faced by sector workers has changed significantly. This has therefore required a radical rethink of health and safety training and the 'soft' management skills of managers and supervisors. Furthermore, as we are trying to sell new services, rather than the traditional 'collect and disposal' model, new skills are also required of customer-facing staff, such as sales representatives or drivers, or back-office staff fielding customer queries.

Being a hybrid discipline, the waste management sector has attracted personnel practising in the power, construction, mining, marine and related sectors in keeping with the dominance of landfilling and incineration. In order to meet the new resource-led demand, the sector has continued to rely on transferable skills drawn from other sectors - the chemical, manufacturing and process industries - especially to fill supervisory and middle-management roles not readily upgraded through vocational training. Similarly, experience gained in the retail or service sectors (customer call centres, sector and customer profiling, creating sales offers) is invaluable in helping develop more sophisticated services offered by the resource

sector. In this sense, an injection of fresh blood into the sector is to be welcomed, not least because importing these skills from more mature sectors can rapidly raise the general level of competence, professionalism and safety-awareness within our own.

In relying on the influx of personnel from other sectors, especially in relation to ‘horizontal transfers’, the sustainable resource sector has had to review its remuneration structures relative to equivalent positions and grades in the host sectors. In almost all cases this has meant upward revision of pay scales, raising the cost base of the sector but also, in the long-run, making the sector more attractive to experienced personnel and to first-time graduate-level entrants. This will be vital for the continued up-skilling of the waste management industry, positioning the sector as a viable option for talented and ambitious young people. Unlike vocationally trained staff such as drivers, relatively few of these latter personnel have to-date entered their professional careers through the waste management sector.

**“As the green economy grows there will . . . be increased competition within the pool of professionally skilled workers that the sector currently relies on to fulfil its staffing needs.”**

There is a general recognition that the available skills base is unlikely to keep pace with the expected speed of transformation, and that the sector has to respond by planning for the impending skills gap. Added to the number of new direct jobs that the sector will create are the challenges of re-skilling and up-skilling the existing workforce and of replacing staff lost through retirement. As the green economy grows, there will also be increased competition within the pool of professionally skilled workers that the sector currently relies on to fulfil its staffing needs. The resource-led transformation of the waste sector is a permanent structural shift, so skill needs are not transitory, but rather for the long-term.

Individual companies are addressing this challenge by mapping out a timeline by which specific skills (by type and number of personnel) need to be in place, and then formalising appropriate recruitment and personal development goals and programmes. Companies are collaborating with educational institutions to develop bespoke technical and managerial training courses, as well as to establish an intake of fresh graduates and apprentices to be given in-house training. Larger companies with multiple sites are also able to offer on-the-job technical and managerial training by seconding staff to other business units and facilities.

Tertiary, postgraduate and vocational educational institutions and training providers are alive to the future needs of the sector. Waste management is a readily available course at universities, either as a module within a wider discipline, or in a few cases, as a stand-alone degree-level course. Trade and professional bodies representing the sector are investing heavily in vocational and safety training, as are the Waste Management Industry Training and Advisory Board (WAMITAB) and the Sector Skills Council, EU Skills.

The resource sector can now offer challenging and varied career opportunities for both newly qualified and experienced people. To satisfy its skills requirements, the sector must plan ahead – we need a steady intake of graduates and engineers to operate new technologies, and above all we must raise the level of professionalism in the management of our sites and businesses. This must be achieved through successful positioning of the sector as an attractive, long-term option for the skilled workers which will be so vital to its development over the coming years. The ability of our sector to grow and prosper will be severely compromised if we fail to plan and implement effective workforce development and recruitment strategies.

## ESSAY TWO

## Tooling up: Kitting out a new generation of skilled workers in sustainable resource management and why it is important

Sue Wright, Business Development Manager, Waste Management Industry Training & Advisory Board (WAMITAB)

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The waste industry has changed significantly over the past decade. The introduction of the Landfill Tax, EU Waste Directives and the Waste Hierarchy have changed the corporate mentality of the industry. Furthermore, with the increasing use of technology to deal with waste, the resource management industry has had to invest in training and competence to meet these challenges. The industry has also had to develop its staff to deal with a waste and recycling savvy public to provide a wide range of solutions to the problems of the throw-away society.

Investing in workforce skills and competence should be viewed as a benefit, not just a cost. It is a vehicle for delivering high productivity, motivating employees, creating a workforce able to meet increasing technical requirements, encouraging innovation and better working practices.

**“Investing in workforce skills and competence should be viewed as a benefit, not just a cost.”**

A significant number of workers within the sustainable resource industry have language, numeracy and literacy needs which, alongside vocational skills, need to be addressed. Without these, they can find it difficult to make changes in behaviour required to meet safety, communication and customer service expectations. It is vital that employers recognise that all employees, whatever their job role, need to have a minimum level of English and maths in order to operate efficiently, effectively and safely.

Understanding the requirement for qualifying the workforce – from operative level right through to management – can also address the unacceptable levels of fatalities, accidents and near misses in the sustainable resource management industry.

The levels of fatalities and accidents should be a key concern and consideration when focusing on how to accommodate a new generation of skilled workers. Health and Safety Executive (HSE) statistics show:

- Workers are four times more likely to have an injury in the resource management industry in comparison to other industries, with 2,447 injuries recorded in 2010/11, meaning a rate per 100,000 of 2,050 against an all-industry rate per 100,000 of 462.
- There were ten fatal injuries in 2010/11, which is a rate of 8.4 in every 100,000. This is nearly 17% higher than all other industry.
- There were 483 major injuries in 2010/11 in the resource management industry. The rate per 100,000 is therefore 405 against an all-industry rate per 100,000 of 99. This makes workers four times more likely to suffer a major injury at work.

Further analysis of the latest HSE statistics illustrates that there is still a stark difference between waste and recycling and the ‘all industry’ incident rates. With the increase in technology, it is therefore vital that all employees are provided with health and safety training that provides workers with protection.

The sustainable resource management sector is developing other ways in which to attract workers into an industry previously perceived as dirty and ‘dead-end’. For example, the apprenticeship in sustainable resource management developed by EU Skills in 2010 has provided a framework to recruit and train new entrants into the sustainable resource management sector.

The apprenticeship combines on-and off-the job training that will enable an apprentice to operate appropriately and in accordance with the requirements of their employer and the needs of the business. The framework involves the apprentice demonstrating competence through a mixture of work-based assessment and off-the-job knowledge and understanding training, together with English and maths, which provides a holistic programme of skills acquisition.

“...there will need to be over 90,000 new recruits into the... sector in the next five to seven years.”

This focus on apprenticeships is both timely and necessary. Energy and Utility Skills' latest local market intelligence indicates that there will need to be over 90,000 new recruits into the sustainable resource management sector in the next five to seven years. Therefore, employers offering comprehensive training packages will be able to attract and recruit the most able people.

The advance in technologies is also fuelling the skills transition. Treatment technologies such as Anaerobic Digestion (AD) and more environmentally acceptable composting techniques are interesting prospects which attract chemists and biologists to join the industry.

All of this is in the interest of the sustainable resource management sector. Embedding skills and ensuring knowledge of the sector as a whole will also drive innovation within the industry itself. Ensuring that staff, from manufacturing to retail outlets, have the skills to recognise how to use resources more effectively at one end, and to find innovative ways to recycle and reuse at the other end, will provide ample benefits in the long-term.

Through working directly with employers to deliver competence training we have been able to demonstrate the impact upgrading skills can have on businesses and organisations. For example, one large local authority that WAMITAB has worked with since 2007 has seen the following benefits of literacy, numeracy and vocational skills training:

- A 12% increase in productivity
- A 5% decrease in workplace accidents
- A 7.5% decrease in sickness absence
- A 23% increase in employees' satisfaction
- A 9% decrease in staff turnover

In the past seven years, WAMITAB has certificated over 24,000 operatives with level two vocational qualifications and 1,500 with literacy and numeracy certificates. Since 1989, we have awarded Certificates of Technical Competence to over 11,000 Waste and Recycling Managers.

Although these are impressive, there are over 145,000 workers in the industry, so there is still much more to do.

# SECTION TWO: POLICY

## ESSAY THREE

### How can policy support the waste sector in the transition to a skilled workforce?

Dr Alan Whitehead MP, Co-Chair, Associate Parliamentary Sustainable Resource Group (APSRG)

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The time when the waste industry was about just that – waste – is long gone. Now it is all about sustainable resources, and developing the necessary means to capture and put to good use as much as possible of the waste stream. If ambitions are to be realised, it is also about moving towards an effectively zero waste landscape over the next twenty years. These are directions impelled both by the realisation that resources are increasingly precious, and that the carbon content of waste is increasingly significant. The proportion of drivers in the mix is, perhaps, not centrally material – it is a direction that is now irreversible. We are never going back to the ‘good’ old days of throwing stuff in a bin, and forgetting about it, except to the extent of paying someone to come along and dispose of it in holes in the ground.

**“...increases in Landfill Tax have served to incentivise innovation in the sector and keep valuable materials on the market. This has been complemented by a raft of further policies.”**

Policy has been a key driver in this shift from ‘waste’ to ‘resources’, with the introduction of the Landfill Tax (the UK’s first environmental tax, in 1996) being the turning point for an industry which now has much more to offer than simply burying rubbish out of sight and out of mind. The increases in Landfill Tax have served to incentivise innovation in the sector and keep valuable materials on the market. This



has been complemented by a raft of further policies and initiatives designed to promote prevention, re-use and recycling, some more successful than others, but including the packaging regulations, waste incineration regulations, and the straightforward banning of some wastes, such as tyres, from landfill.

But with the shift away from landfill comes the need for a variety of options for the destination of our waste, and a quantum change in the complexity of the processes necessary to bring that waste back into use. Not only will the number of people engaged in the waste and sustainable resource industry change over the next few years, but the skills profile of the industry will change too. Currently, there are about 140,000 people employed in the industry, about 28,000 of whom are working in recycling. Over the next six or seven years, it is estimated that the workforce involved in waste disposal will increase by about a third, but the recycling industry will, over the same period, almost double in numbers. Much of these increases will come in newer areas – Energy from Waste (EfW), Anaerobic Digestion (AD), high-end recycling – which will employ people on a radically different profile from that assumed to be satisfactory for the industry.

Therein, I think, lies a problem. I believe the industry still lives with the ghosts of its own past – a large number of small and medium sized enterprises undertaking very little training or workforce development, a public sector still with a relatively low-skilled infrastructure, and some large private sector companies that have grown, by and large through recruiting from others. The industry, in short, just doesn't train itself enough. That is, I know rather a sweeping generalisation, and some very good initiatives exist, but I don't think it is a generalisation too far off the mark. It is, in part, because the industry doesn't see itself as particularly highly skilled, and its self-perception rubs off. But that simply won't do for the future.

It is perhaps salutary to reflect on the fact that, as new technologies take over in areas that were indeed once generally low skilled, almost all of the training and skills are provided by the technology suppliers rather than industry itself. This is a little like garages being entirely dependent on mechanics sent by the motor manufacturers for car repairs to take place – not a good place to be in for the longer-term. In any event, we should be acutely aware that the waste and resources industry is no different to other low-training sectors; that putting out jobs and hoping to capture people who can fill them will lead inevitably to others deciding that they can do the same to the waste industry when their needs are not being met. Clearly, structuring programmes of training within industry, and developing the means to attract people into *careers* in the waste and resources industry, rather than offering just jobs, will be vital.

Collaboration with Universities in providing industry related courses, for example, will bring forth considerable dividends for the future. Some in the industry are getting down to serious thinking through bodies such as WRRISKI (Waste Management, Recycling and Resource Recovery Industry Skills Initiative) and Waste and Resources Action Programme (WRAP) are increasingly turning their attention to relevant industry training. But the pace needs to quicken, with some Government support along the way.

**“...the best way in which policy can support the transition to a more highly skilled, and attractive, waste industry would be through well-thought-through, long-term policy initiatives.”**

So, not only must the industry be receptive to the need for more training, and more skilled staff, but policy must support the transformation in the waste ‘skills profile’ by ensuring new technologies have access to the investment and infrastructure they need to create the thousands of highly-skilled jobs the waste sector has the potential to provide. I am aware that one of the greatest complaints of the sector over the last few years has been against ‘policy uncertainty’ creating risk, or a perception of risk, for external investors. In this sense the best way in which policy can support the transition to a more highly skilled, and attractive, waste industry would be through well-thought-through, long-term policy initiatives that remain technology neutral, but offer support where nascent sectors are struggling to get off the ground. Being able to put real money and resource into developing sector skills and a career based industry will be a vital next step: it is a challenge both to the industry to kick start it, and to Government to ensure that such plans are fully supported.

## ESSAY FOUR

## Building skills for a green economy

Green Economy Team, Department for Business, Innovation & Skills (BIS)

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Working with the Department of Energy and Climate Change (DECC) and the Department for Environment, Food and Rural Affairs (Defra), the Department for Business, Innovation & Skills (BIS) published *Enabling the Transition to a Green Economy*, in August 2011, which set out measures put in place through the demand-led system to support green skills in the context of the national skills strategy.

DECC, Defra and BIS subsequently published, in October of 2011, the report *Skills for a Green Economy – a Report on the Evidence*. This supplementary report covers the skills proposals announced in *Enabling the Transition* and sets out the evidence underpinning them. ‘Green skills’ is a broad term, and can include any skills which contribute towards the development of a sustainable, environmentally sensitive, economy. Green skills can be taught from scratch, but it is also important that we learn to ‘green’ existing skills within relevant industries, such as sustainable resource management. Resources management will have an on-going role in the transition to an economy that uses fewer raw materials, extracts more value from its waste and reduces the amount of waste going to landfill.

**“The transition to a green economy presents particular skills challenges because the information available to those in the system may reflect current realities, but not what may be a rapid change in labour markets.”**

*Enabling the Transition to a Green Economy* makes the point that the system is increasingly demand-led, with businesses articulating their skills needs either individually, in loose partnerships, or through more organised vehicles such as Sector Skills Councils and National Skills Academies. Colleges and providers are responding to this, and individuals are making informed choices about what to learn and where to learn it. The transition to a green economy presents particular skills challenges because the information available to those in the system may reflect current realities, but not what may be a rapid change in labour markets. That is to say, what is

considered a ‘green skill’ in today’s industries may be outdated in the sustainable industries of the future. This can be difficult to handle because there is a lead time for individuals to acquire skills, meaning it will be increasingly important for businesses to consider their potential skills-needs well in advance, and plan accordingly.

In *Enabling the Transition to a Green Economy*, the Government set out various measures to support green skills in the context of the national skills strategy. These measures included:

- A new ‘skills for a green economy’ group of Sector Skills Councils and others to help business understand and address skills needs
- Improving the quality of information, advice and guidance available on ‘green careers’ through the national careers service
- Improving the quality of ‘green skills’ training programmes in the further education and skills system
- Raising awareness and knowledge of the green economy through the TUC-led ‘Unionlearn’ initiative
- Maintaining the policy focus on Science Technology Engineering and Mathematics (STEM) skills in general
- Making funding available for up to 1,000 Green Deal Apprenticeships (subject to business take up)

Businesses in some sectors, such as waste management, are already identifying specific skills at all levels that they will need in a green economy. For example, to secure energy generation from offshore wind, necessary skills will include planning and development professionals, engineers, technicians and others. For the construction industry to retrofit housing stock as a result of the Green Deal, technicians such as electricians and plumbers with additional skills will be needed. Businesses in some other parts of the economy, such as food and agriculture, have also identified skills needs to support the transition to the green economy, but there remain a significant number yet to consider how this transition will change their skills needs.

Overall there is evidence that businesses are currently uncertain about their future green skills needs. The main contributing factors are uncertainties about the skills requirements, opportunities and implications of a green economy, and the overall rate of progress towards a green economy. But there are more embedded issues, including a tendency to over-rely on current skills rather than anticipating change or high labour turnover, which can reduce the incentive to invest in key up-skilling. Some businesses also report concerns over a lack of higher-level skills and the availability and quality of (STEM) skills.

**“Business knows best what skills, competency levels, professionals and technical solutions it needs to boost productivity and business success.”**

The *Skills for a Green Economy* report is supplementary to *Enabling the transition* and sets out a range of actions to underpin the Government’s pledge to ensure that the skills system responds to the demand for skills created by the shift to a green economy. It describes the measures listed above and sets out in some detail the evidence underpinning them. This is in the context of a demand-led system set out in the skills strategy which signalled a shift from top-down initiatives to a responsive, unified skills system which employers can harness for their own purposes in localities, sectors or supply chains. Business knows best what skills, competency levels, professionals and technical solutions it needs to boost productivity and business success.

Taking this work forward is the Green Economy Council (GEC), a group of high-level business leaders from a cross-section of industries and sectors that advises Government on green growth policies such as infrastructure, innovation, investment and regulation. The Council uniquely brings together the Secretaries of State from three key departments – BIS, DECC and Defra. The GEC identified skills for the green economy as one issue that merited further investigation, and therefore approved the establishment of a ‘Green Economy Taskforce’ to take forward a project on that subject. A key question for the Taskforce will be to consider how businesses and the agencies could be further assisted to articulate effectively their skills needs related to the green economy. The Taskforce is expected to present its findings to the GEC early next year.

# SECTION THREE: EXISTING SKILLS

## ESSAY FIVE

### Best practice: Training up our existing waste workforce

Steve Lee, CEO, Chartered Institution of Wastes Management (CIWM)

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The waste industry is a very active part of the green growth agenda in the UK and in most countries around the world. The industry's objectives are expanding outwards from protecting local environmental quality to protecting the global environment, as well as resource security and efficiency.

The vision of our institution is 'a world where resources are kept working, wastes are put back to work and residues carefully disposed of' and our sector is increasingly spearheading and supporting the transition from waste to resource management. Even the new Minister in the Department for the Environment, Food and Rural Affairs (Defra) is the Minister for 'Resource Management', rather than 'waste', which is an encouraging sign.

**“...we need to do business with an ever better prepared customer – we need to up-skill them too, to communicate with them and encourage them to improve their resource efficiency and environmental performance.”**

This trend brings opportunity; our sector is growing fast, more than 5% year on year even in the current tough economy. Our customers, both at work and at home, want more for less. Our industry is, therefore, hungry for skills and knowledge, for new technologies and practices, and for new types of partnerships and markets for materials. We also need to react to a changing landscape, including new

developments in policy and regulation. Beyond that we need to do business with an ever better prepared customer – we need to up-skill them too, to communicate with them and encourage them to improve their resource efficiency and environmental performance.

This is all good news for professionalism in our sector. As we modernise, improve and influence, none of us can afford to stand still in our knowledge and skills. Anybody trying to do that will be quickly overtaken by better prepared competition! CIWM's core objectives are to deliver better information, skills, best practice and influence. We provide our members with access to information, training and other professional development opportunities, all linked to an absolute requirement that they undertake at least 30 hours of directed Continuing Professional Development (CPD) per year. We don't specify how or what they should concentrate on as that depends on what they need themselves. We do, however, require an element of health and safety development in everybody's CPD, an area that our industry can't afford to ignore.

For our new entrants, we have an even more individually driven and measured process called 'Structured Learning and Development'. This helps to get waste and resource managers up to scratch to become professional waste and resource experts in their own right. The whole purpose of this professional development is to strengthen skills and performance in our core business areas and to broaden our understanding of how that fits into the ever expanding field of resource management.

A specific example of proof of competence is the technical competence regime we operate in England and Wales with our partner WAMITAB. It is a self-driven scheme through which individual managers of permitted sites demonstrate they have kept their technical competence up to date. It may seem irksome to some but it sets us apart from unqualified competition, providing a skills guarantee.

**“The importance of communications in our industry... is a new skills area for us.”**

Our Institution has delivered training into the industry for as long as anyone can remember. We offer courses on technical expertise through to compliance and planning skills. On top of this we provide access to other forms of learning such as low cost events and networking opportunities. But, again, things change. The industry and its customers still want skills and information but in more accessible ways, at locations that are more convenient for people increasingly consumed by the 'day job'. To this end we are increasingly developing 'bespoke' training specific to our

customers' needs, people, and operations, as well as investing in on-line and 'blended' learning and making use of new technologies. However, at the risk of sounding old-fashioned, there will always be a place for high quality learning in small face-to-face groups, with people from other organisations sharing experience and good practice.

Training topics are expanding, too. The importance of communications in our industry – from kerbside and backdoor one-to-one relationships with customers through to service change or planning applications – is a new skills area for us, and CIWM is working with expert partners in communications and consulting to provide training in this area. We are also strengthening skills in other parts of the industry including waste transport and previously poorly served parts of the industry such as street cleansing and enforcement.

Last, but not least, our industry depends ever more on the performance of others. We need to work with people and organisations who design products, services, and processes to make them more resource efficient and to protect future resource security. It is becoming a bottom line issue for business and we need to see these skills and knowledge built into undergraduate courses and other professions. Resource management can't be restricted to what our industry does with everybody else's waste. Our Waste Awareness Certificate helps waste producers to develop competence in waste separation, containment and Duty of Care transactions. There are over 12,000 Certificate holders out there and we have just launched an updated version called WasteSmart.

To achieve our vision of a world where resources are kept working we need another vision: a world where resource aware customers do business with professional waste and resource managers. We may have to achieve that in a financially constrained landscape but achieve it we must – better skills will not be optional in the exciting future ahead of us.



## ESSAY SIX

## Studying for sustainable resource management: What's out there?

Margaret Bates, Professor of Sustainable Wastes Management, University of Northampton

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The development of the waste and resources industry nationally and internationally has increased the demand for qualified graduates and for skilled personnel. Waste management education, just like the sector we represent, is in a constant state of change being driven by targets, policy and aspirations. The universities involved and courses that we provide are continuously updated to ensure that we meet the needs of students and the wider industry and so respond to the challenge.

**“...the diversity and nature of these qualifications is varied to reflect the multi-disciplinary and dynamic nature of the industry.”**

In contrast to the industry's traditionally 'dirty' or 'unskilled' image, there are a wide range of academic qualifications which are currently available to the waste management sector. Indeed, the diversity and nature of these qualifications is varied to reflect the multi-disciplinary and dynamic nature of the industry. In brief, the range of topics delivered include many aspects from the social sciences (law, economics, psychology, politics), the pure theoretical and applied sciences (chemistry, physics and biology) as well as the more engineering / technically based waste management specific topics pertaining to the new technologies and radical developments within the global industry.

The level of qualifications delivered by UK universities are equally as varied and provide a spectrum of certificates, degrees and other undergraduate and postgraduate awards. Students can opt to take single modules within a wider degree, or pathways within a more specialised single honours. At postgraduate level many institutions offer highly specialised courses allowing the candidates to focus on a particular topic, providing a more directional approach to their career pathway.

One of the highlights of the waste management qualifications available is the inclusivity, adaptability and innovative methods of delivery which have been developed over the years. This allows the industry to expand and up-skill its workforce as well as promoting defined progression and job opportunities.

As financial and other pressures on students increase, universities are becoming more flexible and imaginative in the ways we deliver and assess our programmes. The delivery of distance learning courses is well established in the UK, involving a mixture of hard copy and electronically delivered learning material, enabling students who cannot physically attend university to obtain a university qualification.

The global advance in digital technology has also enabled universities to work with partners further afield; for example our MSc in International Environmental Management is running in partnership with the University of Madras, and we are currently developing partnerships for our MSc International Wastes Management. The University of Northampton is not alone in working actively overseas in environmental and waste areas; some universities even have campuses in foreign countries, for example the University of Nottingham, Ningbo (China). Students, however, still want to come to the UK to study, particularly at postgraduate level, and this is a vital aspect of capacity building in developing countries, for emerging subjects such as wastes management.

The variety of courses and methods of delivery mean that there is a course for every student to suit their needs and interests. Some of our students are already working in the sector wanting to advance their careers and some have just left school and see wastes management as a rewarding career. Students range from the 18 year old who has just left school to the 90 year old who wanted to prove that he could do it (and he did).

**“We ensure that our students look beyond the hype... to the underpinning science – a skill particularly important in contentious areas such as Energy from Waste.”**

Students who graduate from wastes management rarely possess only purely theoretical skills, as we all make sure that they understand the practicalities of wastes management. A key skill that is embedded in the graduates from UK universities is critical thinking. We ensure that our students look beyond the hype and hysteria to the underpinning science and facts to make their decisions, a skill particularly important in contentious areas such as Energy from Waste.

Our graduates have moved into a range of careers including working for waste and resource management companies, the Environment Agency, local authorities, consultancies, teaching and research both in the UK and overseas. The ever increasing importance of waste management on the national and international scale provides a new wave of ambitious and dedicated individuals for the workforce.

It is vastly important to an industry such as ours that we value and nurture our workforce and provide opportunities for people, now and in the future, to enhance their skills and adapt to the constant state of change being driven by targets, policy and aspirations.

## ESSAY SEVEN

# Recruiting in waste: What sells to the sector?

Dr Philip Percival, Associate Director, Macdonald & Company

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With 84,000 new jobs expected within the waste sector over the next decade, it is clear that new opportunities are being created all the time (*Driving Green Growth*; SITA report 23rd April 2012). Therefore, given current high unemployment levels, is this ‘available workforce’ fit-for-task to meet the waste sector’s growing labour demand?

The waste industry has recently undergone a significant development in technology to facilitate more sustainable practices. Automated and process-driven services and the rapid development of Energy from Waste (EfW) facilities have increasingly led to waste companies requiring more highly skilled professionals. The appropriate existing skills within the sector to address this are, however, in short supply and, as such, everyone is vying for the same talent. The result is that this demand for a more highly skilled workforce has created a skills gap which is likely to continue to grow, especially considering the advances in EfW technologies.

The waste sector, however, is clear on what it wants: cross-discipline, multi-skilled, technical experience combined with postgraduate qualifications and innate commercial savvy being a common expectation. This is a result of many of the new facilities being designed to be run and operated by a leaner workforce per facility whereby each professional covers multiple requirements. Unfortunately, this further compounds the situation.

**“...the waste industry must be receptive to the idea of offering competitive packages in order to attract new, technically advanced, talent from sectors where higher pay scales are already in place.”**

Therefore, waste companies need to think laterally and utilise skilled professionals from other sectors that have transferable skills. The understanding of these skills and their application to the waste sector is crucial. The organisations that will benefit the most will be those that realise that many of the required skills do exist, but that they

must look outside their conventional sphere of reference to gain commercial advantage. As a leading recruiter in this space we have worked with companies to successfully fill technical requirements using expertise from complementary industries: people have successfully transferred into the waste industry from production, engineering, process, power and petrochemical industries. These industries can all provide suitably qualified and experienced candidates to enrich the waste sector's skills profile.

Up-skilling and attracting a new wave of talent into the industry itself, of course, remain key requirements for the long-term success of the sector. However, in order to fulfil the already looming skills gap, as I have highlighted, recruits must be attracted to the sector from other industries. These 'other industries' typically pay higher salaries than the waste industry. Therefore, the waste industry must be receptive to the idea of offering competitive packages in order to attract new, technically advanced talent from sectors where higher pay scales are already in place.

There is more to it, however, than just attractive salaries. Encouraging new talent can be a time consuming and potentially fruitless process. It is critical to accurately evaluate and determine synergies between industries and identify where crossover exists. Commonly, the recruitment process, including managing job adverts, setting agreements with agencies and processing any response, is delegated through a non-technical HR function. An unfortunate consequence of this is that the evaluation of crucial technical transferable skills and experience can be missed, especially if each individual is not spoken to. It is all too common for the process to become a 'tick-box exercise' of matching keywords and education rather than technical identification and understanding of the transferable skill set to meet each business model.

**“...the waste industry now demands a more highly skilled and qualified workforce to advance its development.”**

In today's market, there is no shortage of recruitment agencies offering their services and new agencies are popping up all the time. To break into a competitive market, lowering costs and under-cutting the competition is commonly the first tactic these agencies use to try and leverage client relationships. Given the current economic climate and need to reduce spend it can make it seem like an attractive proposition, however it must be remembered that the waste industry now demands a more highly skilled and qualified workforce to advance its development. To identify, qualify and deliver these professionals, a consultative, pro-active recruitment approach that fully

understands the technical requirement, market conditions and an individual's capabilities is required.

I believe companies within the sustainable resource sector should look to partner exclusively, or with a small select number of agencies that can offer such a service, providing a solution-based service. An astute recruiter will know to look for the right person in the right place, but also the right person from the wrong place! Working cohesively with an agency that can compare and contrast companies within an industry can help educate both clients and the recruitment sector itself about what practices have been successful and help them implement them.

## ESSAY EIGHT

## Skills symbiosis: How can we make better use of, and bring together, key skill sets in the waste industry?

Neil Robertson, CEO, Energy and Utility Skills (EU Skills)

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With the rise of new technologies such as Anaerobic Digestion (AD) and Mechanical Biological Treatment (MBT), and the increased sophistication of the processes involved, there is an expectation that skills levels within the waste management industry will need to increase. More technically qualified staff will be needed to design, operate and maintain these technologies. The industry will also need to supplement traditional skillsets with additional skills, in order to extract maximum value from their outputs.

As waste increasingly acquires value as a resource, there will be a much broader requirement for strategic and commercial thinking. Along with an increased awareness of regulatory and legislative changes, skills in waste brokering – arranging the buying and selling of waste as a commodity – will be a key addition to managerial skillsets. Skills in sales and marketing will come to the fore as waste, along with the by-products of its processing, is sold to a variety of markets. As firms seek new markets overseas for recyclates, an understanding of international contracts will be required, and language skills could also be advantageous, especially given the foreign ownership of many UK operators.

Managers will increasingly need to liaise with designers, manufacturers and reprocessors, undertaking lifecycle analysis, to ensure that the waste being processed is of the highest possible quality. In extracting value from that waste, skills in process optimisation will be needed to ensure operational efficiency.

With increased cross-departmental working, greater knowledge of new processes and treatment technologies will be required, along with more emphasis on reporting of financials, recycling rates and operational efficiencies. By increasing project and performance management skills, and exploring processes which offer the best value, senior managers can lead transformational change across the industry.

**“...graduates with degrees not traditionally associated with the sector, such as law, could be invaluable to the managerial strata of the waste industry as it matures and transforms.”**

Supervisors will need to acquire skills in internal auditing and reporting, knowledge of quality management systems, and an understanding of waste law, along with increased financial awareness. All this means graduates with degrees not traditionally associated with the sector, such as law, could be invaluable to the managerial strata of the waste industry as it matures and transforms.

Historically, career progression into supervisory and managerial roles in the industry has been based on time served and experience. There is therefore a need for more management and leadership training at this level, to help those in such roles manage more complex processes, and a more diverse workforce.

But it is not just at managerial level that additional skills will be required. All levels of the workforce will need to become more skilled as the industry progresses. While in some cases, such as workers operating processing plants, there will be a requirement for more advanced technical and engineering skills, often, the additional skills relate mainly to a greater understanding and knowledge of the industry and its regulatory and technological landscape, or more understanding of how existing skills can be deployed in different contexts.

**“All levels of the workforce will need to become more skilled as the industry progresses.”**

‘New’ skills may already be in use in other process-driven industries such as fast moving consumer goods, water and power, and so can be added into existing waste skillsets. Training in transitional skills will be critical for those working in more traditional, declining areas, such as landfill, to avoid losing the skills of these employees altogether.

Processors need training in the grading of recyclables and the avoidance of contamination. The need for new skills and knowledge extends even outside of the industry: customer behaviours will also need to change, as materials need to be appropriately separated for collection to achieve maximum efficiency and a high quality resource. Refuse and recycling operatives will need advanced communication skills to advise householders and businesses.



Across the industry, knowledge will constantly need to be updated as technologies, processes and their requirements change. Facing long-term goals (such as renewable energy targets and reduction of waste to landfill) and a changing policy landscape, as well as materials security issues, the sector can only continue to evolve and change. This means that workers with the ability and drive to renew and develop their knowledge constantly will be a real asset to any waste employer.

The waste workforce is not just expected to become more highly skilled, but also to increase substantially in size. Fifteen times as many people are required to recycle a tonne of waste than are needed to landfill it, undoubtedly making the case for the waste sector's key role in the development of a 'green economy'.

So, how can these new skills be brought into the industry? New skills can be recruited and combined in multi-disciplinary project teams, driving change in the short term. However, over time this may prove unsustainable, given the potential size of the future waste workforce. The industry might also choose to tackle the skills issue by bringing in consultants to set up systems operable by non-specialists. A more sustainable long-term solution might be to identify suitable individuals within the existing workforce and offer them accelerated training in new specialities, retaining their existing skills within the industry and ensuring their career progression. The industry is collaborating to develop solutions to this skills challenge. EU Skills is working closely with the Waste Management, Recycling and Resource Recovery Industry Skills Initiative (WRRISKI), the industry's strategic skills group, to address strategic skills issues through the development of tools such as the EU Skills Workforce Planning model, which shows how workforce requirements can be met by up-skilling as an alternative to marketplace recruitment.

EU Skills, in collaboration with employers, has developed an Apprenticeship in Sustainable Resource Management, which can be used to up-skill existing employees as well as new recruits; a Higher Skills Strategy is also being developed to ensure better outputs from Higher Education, helping to provide the broader range of skills that the industry will require.

Historically, the industry has been less complex with fewer skills requirements in some occupations. But, with the step change from waste disposal to sustainable resource management, there is a need to combine existing market and infrastructure knowledge with new commercial skills and different paradigms of processing. There is also an unprecedented opportunity to take advantage of the effective rebranding of the industry from the negative associations of 'waste' to the more positive

associations of 'resource management', building sector attractiveness and attracting more skilled workers to meet its new resource requirements.

# SECTION FOUR: LOOKING FORWARD

## ESSAY NINE

### Future skills: Managing the transition to new technologies

Peter Jones OBE, Director, Ecolateral

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Without doubt the transition from regarding waste as a problem, to regarding it as a resource opportunity, is now complete. Initiated in response to a subtext of the sustainability debate and fuelled primarily by the economic driver of an, initially, timid landfill tax, this process is throwing up numerous challenges for the sustainable resource management sector. Not least is the realisation that some technologies and needs emerging in the sector are so new that skills plans are not yet in place to ensure they can be delivered.

This demand for new skills is a clear consequence of the development of an increasing number of new, cutting-edge, technologies for waste treatment such as biochemical, mechanical and high-temperature thermochemical systems. This is symptomatic of the shift away from landfilling towards a mentality which prioritises the recovery of materials and embedded energy.

These new routes to resource extraction demand far more active management, more akin to conventional manufacturing systems approaches. Careful interplay of particle size, calorific value, moisture, acidity, flow rate and reaction times demand an entire review of personnel, investment risk and end-market security. In terms of absolute numbers the original 'wastecentric' sector employed around 35,000 staff, mainly in logistics. In landfills, four staff could handle the disposal of 400,000 tonnes a year, with a further four 'man-years' needed for gas management engineering at each site, representing management of 50,000 tonnes per head. In these new technologies

50,000 tonne process plants need at least three times that number working in continuous shifts, representing an obvious increase in the number of jobs the sector can offer.

**“... it is likely that up to 60% of the 60 million tonnes of feedstock will ultimately pass through MRFs. Thus their numbers will continue to rise and they will continue to create jobs.”**

In terms of skills needed for these cutting edge technologies, mechanical engineering still has a key role because, regardless of the end conversion route, any mechanically engineered process (be it a car or a biscuit bakery) runs best on consistent supply of ingredients or, in this case, waste feedstock. Thus, unsurprisingly, much initial investment has been in approximately 200 Materials Recovery Facilities (MRFs), each with around 40 staff operating conveyors, trommels, shredders, balers and other equipment. Reliance on low grade manual skills has given way to investment in sophisticated measuring, monitoring, diversion and integration telemetry systems often copied from the food process industries – experienced in handling multi-material blending, except that now the emphasis has shifted to separation and grading. With 40 million tonnes already diverted from landfill (and a further 20 million tonnes available) it is likely that up to 60% of the 60 million tonnes of feedstock will ultimately pass through MRFs. Thus their numbers will continue to rise and they will continue to create jobs.

Final conversion technologies will be driven by the value of their outputs – as recycle, energy, transport fuels or other compounds. The most profitable will most likely be those that share three simple attributes: first, high conversion of ‘scrap’ to saleable output; second, a high sales price per gigajoule of output and, finally, (because governments will start taxing carbon before long) a low carbon footprint.

Those processes challenge the laws of thermodynamics to reach a ‘sweet spot’ where energy inputs stop at the point where energy outputs decline. The industry is therefore taking its first tentative steps towards a rising curve of energy inputs to secure high transformational outputs. Recycling scores heavily because virgin products have a high embedded input not featured in recovery – most notably in metals and rare earths. The use of biological systems – with the presence of oxygen or without it (anaerobically) – require little energy input at levels lower than 90 degrees Celsius, but suffer the drawback of reaction speeds and low efficiencies of recovery. Increasing temperatures to 350-400 degrees Celsius permits higher levels of energy recovery (as a synthetic gas) in pyrolytic reactors but then suffers from gas purity

constraints. Moving further up the energy input graph to 1000 degrees Celsius maximises energetic conversion and gas purity but raises corresponding challenges in on-line systems management.

**“...many are expanding their employee base by adding on specific divisions focussed on the estimated £15billion waste infrastructure market available over the next decade.”**

Those challenges are new for waste companies but not elsewhere in the economy. For that reason there is an accelerating migration from large civil engineering companies, with experience in providing ‘risk wrappers’ on the design and build of infrastructure such as cement plants, car plants, oil refineries, steel works and the like, toward waste operations. Indeed, many are expanding their employee base by adding on specific divisions focussed on the estimated £15 billion waste infrastructure market available over the next decade. The skill sets of the latter thus reflect the pools of experience in all sectors from agriculture to petrochemicals.

It is also important not to ignore the substantial opportunities in logistics. Profitability in the old waste sector was decided by logistics skills but the sector has always operated independently of the inbound logistics economy. That may be about to change as the latter realise that ‘what goes in must come out’ in tonnage terms. Recent possible shifts in ownership of old style waste companies demonstrate how end market convertors eyeing the energy market are gaining interest in acquiring waste companies as a conveyor for their feedstock needs. There is an abundance of skills in the UK contract logistics and parcels sectors that could move seamlessly into running waste logistics and even displacing municipally run collections as the internet and home delivery network expands. Greater emphasis on front end separation, quality, just-in-time and overall systems integration will provide a rich opportunity for those in stable or declining logistics, food handling, petrochemical and similar occupations.

The pace at which those opportunities emerge and are recognised is subject to the rate at which senior management in logistics, civil, mechanical, electrical and process engineering sectors grasp the opportunities to build on their existing business acumen. That implies an important role for strategic thinkers familiar with the financial and operational risk appetite across these diverse sectors too. In short order the UK may even become a leader in rebalancing a major western economy between input and output materials management systems, underpinned by a strong investment appetite, established academic/research institutions and a legal

framework. At the heart of that lies the re-balancing of the skills base in an holistic policy framework offering certainty and clarity.

## ESSAY TEN

## Personnel development: The importance of leadership and expertise to the future of the waste management industry

Alex Galloway, CEO & Professor Carolyn Roberts, Society for the Environment

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Professionalism is a vital ingredient of waste and resource management, which itself is one particular part of a much wider range of issues affecting the environment. If the waste management industry is to tackle the changing resources and policy landscape, it needs a strong base of professional experts with the knowledge to keep the sector innovating. Much of this knowledge is already embedded within in the industry, but can also be sourced elsewhere. The Society for the Environment has brought together the experience of cognate areas, including engineering, environmental sciences and environmental audit and stewardship, to develop a professional qualification – Chartered Environmentalist – that can be applied across all sectors. It is modelled on the Chartered Engineer qualification, which provides a common and respected benchmark of professionalism across over thirty different branches of engineering.

**“... waste can offer long-term positions with on-going development of skills and professionalism as a visible benefit.”**

The word ‘Chartered’ is important. Royal Charters are granted to professional institutions only if they can demonstrate high levels of professional skill and experience among their members, and have long been recognised as a hallmark of professionalism in the UK. The sustainable resource industry increasingly requires this level of skill and experience, as well as a boost in more basic training in areas such as health and safety. The ‘skills gap’ now faced by the industry needs to be plugged by a range of professional skills. The Society for the Environment is able to license professional institutions to assess their members for the award of Chartered

Environmental status, disseminating these high-level skills across the many sectors.

Members of the Society for the Environment are the leading bodies in a variety of specialist professions, including the CIWM. Full professional membership of a licensed body is a must for those looking to become chartered, with all that this entails in terms of adherence to a code of professional conduct and Continuing Professional Development (CPD) requirements. Maintaining rigorous standards for professional conduct and CPD enables the waste industry in general to ensure the continued up-skilling of its workforce. It also boosts the attractiveness of the industry to external applicants, showing that waste can offer long-term positions with on-going development of skills and professionalism as a visible benefit.

Registration as a Chartered Environmentalist requires an equivalent level of knowledge to a Master's degree and sufficient relevant and practical experience to demonstrate the required competences. The combination of testing acquired knowledge and practical application provides assurance to employers that Chartered professionals have a strong skills base and represent the top end of the skills agenda.

**“Employees who can demonstrate a broad and coherent knowledge of the issues and their environmental implications will be increasingly in demand in sustainable resource management, across a range of contexts.”**

There is a rigorous application process during which candidates have to demonstrate that they can apply knowledge and understanding of the environment to further the aims of sustainability. They also have to show that they have the necessary leadership ability to bring about cultural and behavioural changes in others. Both are vital qualities for the calibre of professional the waste industry needs to attract in the new skills landscape. Employees who can demonstrate a broad and coherent knowledge of the issues and their environmental implications will be increasingly in demand in sustainable resource management, across a range of contexts.

Applicants must also demonstrate effective communication and interpersonal skills, vital to helping the waste industry sell new services to their customers. Strategic thinking and the ability to motivate others to work together towards sustainable objectives are also required. Registration is not limited to UK members, and many



bodies with overseas members are registering Chartered Environmentalists across the globe.

Though Chartered Environmentalist is a cross-sector qualification, it is by no means a badge for generalists. The level of knowledge and experience required presupposes that applicants will be specialist professionals. Its value is as a common and reliable standard across, potentially, all professions. It shows that holders of the qualification understand the effects that their professional activities can have on the environment; and can ensure that the positive effects are maximised and the negative effects mitigated by using existing best practice or by developing new approaches based on professional knowledge and understanding. These qualities, combined with rigorous strategic thinking, could be vital components in transforming the waste sector into an attractive prospect for long-term employment.

A good example of the variety of professional skills involved in becoming, and then being, a Chartered Environmentalist is Bryan Hartlin. Currently holding a senior position in an environmental consultancy, Bryan has worked with Canadian government agencies in the field of waste and resources management and volunteered for an NGO in Botswana. Like many other Chartered Environmentalists, Bryan also holds another professional qualification: Chartered Engineer. He has worked in the chemical and retail industries, as well as in manufacturing and Government. It is this depth of expertise and experience that will characterise the leaders of the field in the future of waste management. Bryan's Chartered status is a testament to the quality and variety of experience he would bring to any sector.

The Society for the Environment will seek to grow the number of Chartered Environmentalists and to recruit more professional institutions as members. As the numbers increase so will the likelihood that employers recruiting staff and tenderers will specify Chartered Environmentalist as a prerequisite. Initiatives are being developed to add value to the qualification through bringing Chartered Environmentalists together to encourage cross-sector dialogue. The vitally important EU dimension is also recognised through membership of the European Network of Environmental Professionals, which offers an opportunity to develop Europe-wide links. It is one of its strengths that its members, though representing a variety of different specialisms and agendas, including sustainable resource management, are agreed on the overriding importance of a professional approach to the environmental issues.

ESSAY ELEVEN

## Reflecting on how roles and job opportunities in the sustainable resource management sector have changed

Sarahjane Widdowson, Principal Consultant, AEA

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I read an excellent blog recently that was titled – ‘Want to change the world? Stop solving yesterday’s problems’. It struck me that the waste industry within the UK still sits between two worlds. We’re still dealing with what feels like yesterday’s problems – waste, but we’re also an industry that is highly innovative and forward thinking. You only have to look at the resource scarcity agenda and the debate around the circular economy to see how we are preparing for the future already, and thinking beyond waste. Like materials being pushed up the waste hierarchy, professionals within our sector also have to evolve and change if they are to keep up.

The traditional profile of waste managers within our sector has been someone that deals with waste materials and the cycle of collection, treatment and disposal – an operationally focussed environment that has employed significantly more men than women. There have always been women working in the sector but the number of women entering the industry in recent times has increased and the roles they have undertaken diversified.

**“The sector is no longer just about the end product but about the entire life cycle of a product, from cradle to cradle.”**

Whereas female roles within the sector were traditionally within local authority recycling and communications, in helping to roll out new schemes and encourage participation, we’re now seeing more women in front-line operations (from collections to processing) and in more professional service type roles like client managers, business development and of course consultancy – the sector in which I have spent the majority of my last ten-plus years. It is still male-dominated in comparison to many other sectors but it’s positive to see the industry reflecting wider society, and embracing the skills and experiences that female engineers, scientists and communicators have to offer.

We are now travelling up the hierarchy and rethinking our waste materials (residues) so that they can either be prevented in the future, or go on to better things through reuse, recycling and recovery. This shift in requirements, from green design and procurement, to advanced technology implementation, has meant that the waste sector has both diversified and expanded to become a sustainable resource management sector, one that has a critical role to play in protecting environmental and human health, and more importantly, in driving the UK's economic development. The sector is no longer just about the end product but about the entire life cycle of a product, from cradle to cradle.

Waste management is also an increasing element of many job roles beyond traditional environmental professionals and the core waste sector. We are seeing many more job specifications with a remit for managing waste issues including Corporate Social Responsibility (CSR) managers, facilities managers and design professionals. There are also different sectors now becoming major players within our industry such as the hospitality and food, retail, and manufacturing sectors. This has opened up more (and new) career options for people wanting to join the waste management profession.

Today's graduates are more 'work ready' than ever before thanks to the skills they are developing as part of their undergraduate and postgraduate courses. Computer literacy and effective communication skills are an integral part of their applied learning, which makes them very valuable for employers.

**“Self-investment is also a key priority for those that are in the early stages of their careers.”**

Social media has also played a significant role in how individuals and organisations communicate and has opened doors both for new entrants and those established within the sector. The ability to communicate directly and often publicly with individuals and organisations and create a sector profile is a powerful one. We are already seeing individual's online presence complimenting the use of CVs and job applications when organisations are selecting future employees, this has certainly been the case with the recent recruitment activities at AEA.

The competitive nature of today's job market is also pushing students and career changers to gain (often free) work experience and develop their transferable skills early to differentiate themselves from the competition. Self-investment is also a key

priority for those that are in the early stages of their careers. Many employers are struggling to provide training or not investing in professional memberships for their staff – a short-term solution to reducing costs that may have detrimental long term effects.

It's been encouraging to see so many people within the sector joining the Chartered Institution of Wastes Management (CIWM), actively attending local meetings and enhancing their professional development. This has been particularly noted amongst the New Members Network (formerly the New Generation Group) of the CIWM which is for new entrants to the sector or the Chartered Institution. At last year's annual CIWM careers event the majority of the audience attended without time or funds provided by their employers. This is a clear reflection of how in our modern world we must all make the effort to invest in our development if we want to succeed.

So what about the future? Although I'm not quite ready to remove the word 'waste' from my job title I will be adding 'resource' to it, to reflect our sectors continuing transition. When I told my mum that I'd got a job in waste management, she responded with the parental logic that I'd have a job for life as 'there will always be waste to deal with'. I think I will have a job for life within the sector but not because there will always be waste (as we know it now) but because once you've entered the sector you recognise what a fantastic, vibrant and friendly place it is to work. Why wouldn't you want to work in waste?

## ESSAY TWELVE

## Skills success: How apprentices and trainees boost business

Emma Wordsworth, HR Director, Veolia Environmental Services

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One of the biggest challenges facing the waste and recycling industry is the ‘skills gap’. Meeting current and future needs in a sector with a self-acknowledged image problem, and high staff turnover might seem insoluble.

However, it is possible to future-proof your business and recruit and retain the best talent through an ambitious approach to apprenticeships and learning and development that encourages people to make their careers in a sector that is part of the expanding low-carbon economy.

Every year Veolia invests over £5 million in a comprehensive recruitment, retention, learning and development programme. Our goals are to increase routes into employment, develop talent and encourage employee mobility.

As an industry, we have not historically embraced apprentices. There has been a piecemeal approach which has lacked both co-ordination and the necessary investment across the sector, with smaller firms in particular struggling to allocate the necessary resources. Improvements are being made, however, and EU Skills now provide an authoritative voice in the marketplace.

At present, over 450 of Veolia’s 12,000 staff are apprentices who bring some of the latest skills and a questioning perspective into the business which encourages innovation and, in turn, stimulates our own management development.

With 750 different job roles within the company, our apprentices are not just restricted to traditional vocations. As well as engineering, driving, vehicle maintenance and horticulture, we also include areas like procurement and recycling and business administration, demonstrating the variety and versatility of the sector. Given this diversity, we need to recruit apprentices with a wide range of skillsets and life experiences – the common denominator is a determination to learn and improve

themselves. This includes school and college-leavers, NEETs (those ‘not in education, employment or training’), returners, Twitter followers, website applicants and our existing staff who may recommend friends or, equally importantly, themselves.

We don’t believe apprenticeships should just be restricted to 18-24 year olds outside existing employment. They also offer the opportunity of developing the skills of those already working outside or inside Veolia by becoming credible development routes within industries and professions.

**“High performance should be the basis of apprenticeships, not minimum competences.”**

We must remove the perception of apprenticeships being ‘dumbed-down’ learning: apprenticeships need to provide talent to compete with traditional qualifications and become a real route to professional development. High performance should be the basis of apprenticeships, not minimum competences.

The centrepiece of our employee training is Campus Veolia, a purpose-built facility in Staffordshire which now offers 200 vocational, technical and management training courses. In 2011, Campus Veolia delivered 14,450 trainee days to 12,604 trainees (up 27% and 36% respectively against 2010). At least 89% of our staff received one day’s training in 2011.

In 2011, 2676 staff completed National Vocational Qualification (NVQ) courses – more than double 2010’s figure and all staff now have the opportunity to be formally certified to NVQ level 2. NVQ programmes (from Levels 1-4) include waste management, health and safety, customer service and engineering maintenance.

All our Quality, Health, Safety and Environmental Management (QHSE) staff training for managers, supervisors and operatives is organised via the Campus in addition to the mandatory driver training. As well as boosting our overall competitiveness, there have been specific benefits in areas like health and safety (see below) with consequent benefits in staff morale and a substantial contribution to our operating efficiency – demonstrating the wide-ranging impact of even the most basic up-skilling.

| Year                   | LTI*       | LTIFR**    | LTISR***   |
|------------------------|------------|------------|------------|
| 2010                   | 189        | 6.88       | 0.17       |
| 2011                   | 114        | 4.24       | 0.13       |
| <b>Total Reduction</b> | <b>39%</b> | <b>38%</b> | <b>24%</b> |

\*Lost Time Injuries    \*\*Lost Time Injury Frequency Rate    \*\*\*Lost Time Injury Severity Rate

Our training courses are not always strictly vocational. We recognised that many of our front-line employees would benefit from developing their numeracy and literacy skills, so we have designed a 'Skills for Life' initiative in partnership with the Unite trade union to help our employees increase their access to career opportunities at Veolia.

Entrants to our graduate training programme rotate their experience in different parts of the organisation every six months over two years to receive a thorough grounding in the business. We have seventeen graduates on our current two-year programme, each of whom receives a mentor from within the business. Areas for graduate recruitment include corporate, commercial services, municipal services treatment and hazardous waste.

The company has also developed specific degrees for employees who are interested in sustainability. The 'Foundation Degree in Sustainability and Environmental Management' is delivered and accredited by Staffordshire University and the course challenges students to transfer the broad ideas and principles of sustainability and environmental management into implementation at our 'local' level and draws on our employees' working knowledge.

One of the most important risks on our 'Risk Register' is the failure to recruit and retain appropriate staff. We believe by putting an emphasis on apprenticeships and learning and development, our staff will develop the high performing skills, both technical and behavioural, which are crucial in today's recycling and waste management workforce to both retain and win new business.

This is particularly important as a once 'traditional' sector is now changing rapidly. There is an increasing onus on customer service and a high requirement for those

with research and development skills given the minimum £12 billion investment need for new treatment infrastructure if the UK is to reach EU landfill diversion targets.

**“In effect we are in the process of permanently up-skilling our workforce and that represents the best possible insurance for our long-term future.”**

The reality is that rather than immediate return on our £5 million investment it will be a compound one. Since 2007 we have seen employee mobility quintuple from 517 to 2,600 and identified 1,324 potential successors for 475 management roles. In effect we are in the process of permanently up-skilling our workforce and that represents the best possible insurance for our long-term future.

Finally, what our investment in youth brings us is potential leaders of the future – even in a time of austerity we cannot only focus on the ‘now’ and must encourage age diversity. Planning for economic recovery requires developing recruitment and development channels that secure a loyal and committed workforce who bring with them the most up to date technologies and ideas straight from education.



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# THE APSRG

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## About the Associate Parliamentary Sustainable Resource Group

The APSRG is the leading forum informing the debate between Parliamentarians, business leaders and the sustainable resource community on the crucial policy issues affecting sustainable resource management in the UK.

Its mission is to provide an objective platform for effective communication between policy-makers, businesses and organisations with an interest in the sustainable resource management agenda and to raise awareness of sustainable resource issues within Parliament.



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## Our Parliamentary Officers

The APSRG is guided by a cross-party group of Parliamentarians with an interest in the sustainable resource management agenda. Parliamentary Officers of the APSRG are as follows:

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#### **Dr Alan Whitehead MP**

Member, Energy and Climate Change Select Committee  
Member, Environmental Audit Committee

#### **Dan Rogerson MP**

Member, Environment, Food and Rural Affairs Select Committee

#### **Mark Spencer MP**

Member, Environmental Audit Committee

#### **Professor the Lord Lewis of Newnham**

#### **Baroness Jenkin of Kennington**



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