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# the environmentalist

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June 2017

## The beef with meat

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to save the planet?



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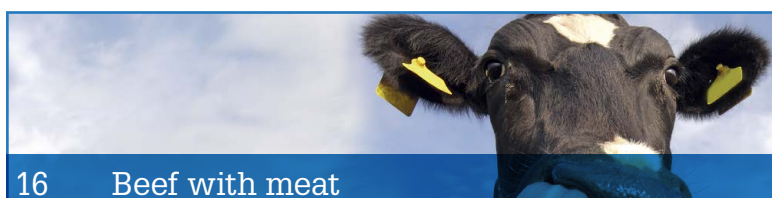
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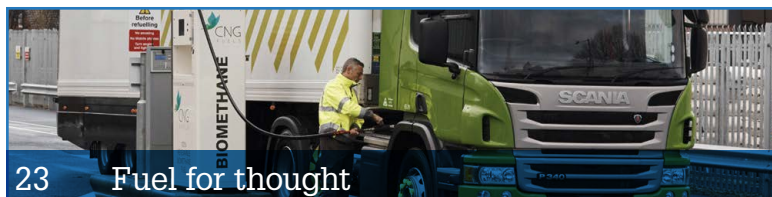
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# Dealing with change

The environment and sustainability profession is subjected to repeated short-term change. Some changes are popular, others less so, but largely it is clear that short term, short-sighted decisions are unhelpful. Every change of government, introduction of a regulation or withdrawal of a policy can significantly alter the shape of our day-to-day work. By the time you read this, there will be a new parliament in the UK, possibly a new government. This will result in changes for our profession. At the time of writing, the rumours were that President Trump would withdraw the US from the Paris Agreement. There will always be political to-ing and fro-ing, but it leads me to think that we need to look to ourselves and peers to provide certainty.

Rolling with the punches is fine, and being resilient is what this profession is all about, but piece by piece, short-term changes add up to long-term uncertainty. Successful economies do not run on insecurity. It impacts investment and shakes corporate confidence. The unstructured rhythm of constant review often means a substandard result for the environment. As the profession with a larger responsibility for ensuring long-term sustainability, we cannot allow governmental or regulatory short-sightedness to prevail. We're the ones with the day-to-day duty for making the right changes. We can do our jobs better if we don't have to spend valuable time dealing with ill-thought out legislation, and which diverts the focus away from creating sustainable outcomes.

A group of members, formed to examine the likely impacts of Brexit, are working together to ensure we get the right long-term result for the environment and sustainability. This is exactly what member collaboration should do; come together to challenge ideas, aggregate expertise and use combined influence to drive the right long-term solutions. It's powerful stuff when done right, and I'm keen to see much more of it. We are also helping members deal with change. Just in the past month, we've created two new guides on EIA (see p10) and one on getting to grips with ISO 20400 (p9). It is also why IEMA is bringing back the popular *The Practitioner* series later in the year.

My point is that change will happen around us, and we should always do what we can to shape the policies and laws that affect our work. But, as long as we share our successes and help to guide each other, we'll achieve even better outcomes.

We're the ones with the day-to-day duty for making the right changes for our organisations and clients. If we look to the best practice examples in our membership and learn from each other, we won't go far wrong



**Tim Balcon,**  
CEO of IEMA

IEMA is the worldwide alliance of environment and sustainability professionals, working to make our businesses and organisations future-proof. Belonging gives us the knowledge, connections and authority to lead collective change, with IEMA's global sustainability standards as our benchmark. By mobilising our expertise we will continue to challenge norms, drive new kinds of enterprise and make measurable progress towards our bold vision: transforming the world to sustainability.

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## Contest targets plastic packaging

A prize fund worth \$2m is up for grabs for individuals and organisations that come up with a solution to plastics polluting the oceans.

The Ellen MacArthur Foundation and the Prince of Wales' International Sustainability Unit (ISU) launched the fund to find ways to prevent plastics entering the seas. The competition is part of MacArthur's New Plastics Economy project, which is trying to discover how to break the 'take, make, dispose' nature of the plastics sector. A report by the project found that 32% of plastic packaging ends up polluting the environment. 'This is a systemic issue. We need to go to the beginning of the pipe, the manufacturing, and build a system that works,' said founder MacArthur.

The competition has two main categories. One focuses on ideas for how products can get to people without generating plastic waste. Solutions should focus on small-format packaging, which forms 10% of all plastic packaging, such as shampoo sachets, wrappers, straws and coffee cup lids, which are almost never



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recycled. The second is looking for new, more easily recycled materials for plastic packaging. Around 13% of packaging, such as crisp packets and food wrappers, is made of layers of different materials fused together, making them hard to recycle.

The businesses involved in scoping the project, which include Coca-Cola, Mars, PepsiCo and Unilever, will use the winning entries in their packaging, MacArthur said. Companies working with the project were willing to collaborate and share solutions, she added. 'We have Coke and Pepsi on board. I think that speaks for itself.'

## Models fail performance gap

Building modelling professionals are to blame for the difference between a building's estimated energy consumption in design and how much it uses in operation, according to a new study.

Academics at the University of Bath's architecture and engineering and psychology departments said it was vital to find the reasons behind this common performance gap, which resulted in non-domestic buildings using up to twice as much energy and emitting twice as much carbon dioxide as predicted.

The research focused on the building modelling stage of the design process and involved interviews with more than 100 professionals about energy-related aspects of a building, from the insulation in the walls to heat settings.

The professionals failed to agree on the aspects that were important and those that were not, or on how much difference to the energy bill changes would make. Professor of low-carbon design at the university, David Coley, said: 'The inaccuracies of building modelling professionals have severe financial

and environmental implications for the government's global warming targets, as well as building owners who are purchasing homes and other buildings that are sold to be energy efficient but are not.'

However, sustainability consultant Niall Enright said that the study's conclusions showed a 'complete lack of understanding' of the purpose of modelling, and its constraints. Modellers have to use the Standard Assessment Procedure (SAP) tool, which is very generic, and usually do not know a building's final occupants, he noted. 'The purpose of modelling at the design stage is to improve the quality of materials and equipment selection. To blame modellers for the performance gap is completely wrong,' he said. 'Occupiers of a new building should ensure heating, lighting and ventilation systems are set to meet their requirements.'

John Alker, campaign and policy director at the UK Green Building Council, said that solving the performance gap was a shared responsibility between everyone involved in designing, developing, constructing, operating and occupying a building.

### Short cuts

#### Climate litigation rises

Climate change litigation cases have tripled globally since 2014, according to a report by the UN Environment Programme and the Sabin Center for Climate Change Law. Cases were most prolific in the US, where 654 were filed, almost three times that in the rest of the world combined. Around 177 countries recognise the right of citizens to a clean and healthy environment, and courts are increasingly being asked to define the implications of this right regarding climate change, the study found. Governments were almost always the defendants in climate change cases. However, there have been cases against corporations in the fossil-fuel sector, mostly in the US. There was also a case filed in Germany against energy company RWE, and an investigation of 50 firms in the fossil-fuel industry by the Human Rights Commission of the Philippines. The report identifies emerging trends, including cases concerning climate refugees, as well as human rights as a result of migration, settlement, disaster recovery and access to resources. Litigation is addressing a widening range of activities, including coastal development and resource extraction, and has grown in ambition and effectiveness, it found. The Paris Agreement, signed in 2015, has enabled people, companies and campaign groups to argue that their governments' political statements must be backed up by concrete measures, the report concludes.

#### Insurance protection

Specialised insurance for environmental contractors has been launched by the British Insurance Brokers' Association (BIBA). The sector's insurance needs are complex and contractors often find themselves without all the cover they need, the organisation said. The new scheme includes multiple classes of coverage under one policy, including contractors' liability for pollution, environmental impairment liability and professional indemnity, as well as material damage cover for premises and motor fleets. The scheme is being sold through insurance broker Direct Insurance London Market.

## Businessplans

**Unilever** has reported that 15 of its sites in the UK are now using electricity from renewable sources as part of its plans to become carbon positive by 2030. Since April, the company has purchased 165GWh (87% of output) from a 23-turbine wind farm in Lochluichart in the Scottish Highlands. Unilever said that across its entire business, 63% of its grid energy was generated from renewable sources.

**LEGO Group** has achieved its ambition to balance 100% of its energy use from renewable sources, three years ahead of schedule. Since 2012, the Danish firm has invested in more than 160MW of renewable energy capacity, most recently taking a 25% stake in the Burbo Bank Extension wind farm off the coast of Liverpool. It takes the total output from investments by LEGO in renewables to more than the energy consumed by its factories, stores and offices. In 2016, more than 360GW hours of energy were used by LEGO to produce the more than 75 billion plastic bricks sold during the year.

**Tesco** has announced its intention to use only renewable electricity in its operations by 2030. The message was accompanied by updated climate change targets for its stores and distribution centres. The new targets, based on 2015 levels, are to achieve absolute carbon reductions of 35% by 2020, 60% by 2025 and 100% by 2050. The company has set an interim milestone to source 65% renewable electricity by 2020 and said its UK and Ireland operations will all move to using renewable electricity this year.

Software business **SAP** has announced that it is planning to become carbon neutral by 2025. Achieving the target involves a three-step strategy: avoid – wherever possible, SAP will aim first to steer clear of creating of emissions, such as by using virtual telecommunications; reduce – where emissions cannot be avoided, it will seek to cut emissions, for example, through building efficiency, datacentre operations, carpooling and car sharing; and compensate – SAP will extend existing compensation models, such as embedded internal carbon pricing model for CO<sub>2</sub>-free train and air travel.

## Coal subsidies continue in EU

Governments across Europe are continuing to provide the coal industry with financial help, despite commitments to tackle climate change.

A review by the Overseas Development Institute (ODI) of the subsidies to coal in ten EU countries that produce 84% of Europe's energy-related greenhouse-gas emissions found that six, including the UK, had introduced new subsidies to support the sector since 2015, the year of the Paris climate agreement. It said these were worth €875m a year.

The subsidies can undermine measures, such as the carbon price support in the UK, that aim to increase the cost of coal-fired power to achieve emission reductions, said the ODI. It found measures, such as capacity mechanisms, which seek to balance the objectives of increasing renewable energy with ensuring security of supply, had tended to result in large payments to fossil fuel-fired generation, including to coal plants.



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The think tank calculated that countries covered by the study provided on average €6.3bn annually to the industry overall between 2005 and 2016. The study found that only a minority (14%) of subsidies by value (€859m a year) went to support workers and communities to transition away from coal mining. It estimated that annual subsidies to coal in the UK, including mineral extraction allowances and the payments under the capacity market, amount to £356m.

UK transparency of its subsidies is described as very poor, with the government explicitly denying that it provides any subsidies to fossil fuels, said the ODI.

## Transport disruption coming

A new report predicts that 95% of US passenger miles travelled in 2030 will be in on-demand autonomous electric vehicles owned by fleets not individuals.

According to think tank RethinkX, the switch to so-called 'transport-as-a-service' (TaaS) models will have enormous implications across the sector and oil industries, decimating entire portions of their value chains, causing oil demand and prices to plummet and destroying trillions of dollars in investor value.

At the same time, TaaS would create new business opportunities, consumer surplus and GDP growth. The study estimates that the average American family would save more than \$5,600 a year in transportation costs by using TaaS, equivalent to a wage rise of 10% and boosting the overall annual disposable income for US households by \$1tn by 2030.

Co-author and RethinkX founder Tony Seba said: 'We are on the cusp of one of the fastest, deepest, most consequential disruptions in history. But there is nothing magical about it. This is driven by economics.'

TaaS should also bring dramatic reductions or the elimination of air pollution and greenhouse gases from the

transport sector, leading to improved public health, said RethinkX. It predicts a big reduction in the number of vehicles on US roads, from 247 million in 2020 to 44 million in 2030. This is because fleet-owned autonomous electric vehicles (AEVs) will be used more often and will travel further over their lifecycles, potentially one million miles by 2030. As demand for new vehicles plummets, there will be 70% fewer passenger cars and lorries manufactured in the US each year, according to the report.

Maintenance, energy, finance and insurance costs of AEVs are also forecast to be lower than human-driven, internal combustion engine vehicles.

Using TaaS will be up to ten times cheaper per mile than buying a new car, and up to four times cheaper than operating an existing paid-off vehicle by 2021, RethinkX said.

The TaaS transport system would reduce energy demand by 80% and tailpipe emissions by more than 90%. Assuming a concurrent disruption of the electricity infrastructure by solar and wind, we may see a largely carbon-free road transportation system by 2030, the report states.

# UK imposes most ETS fines

More operators of installations covered by the EU emissions trading system (ETS) in the UK have been fined for non-compliance than in other countries, according to the latest assessment by the European Environment Agency.

In 2015, eight countries imposed fines on installation operators. Italy imposed the largest fine, €12.3m for operating without a permit, while the UK issued the most – 22. The most common reason for imposing a penalty was the failure to submit a verified emissions report on time. Six countries imposed excess emission penalties on installation operators for failing to surrender sufficient allowances, a similar number to the previous reporting period. Again, the UK imposed the most excess emission penalties (eight).

Five countries – Iceland, Poland, Portugal, Spain and Sweden – fined aircraft operators for ETS infringements. Sweden reported the largest penalty, €465,227, for failure to surrender sufficient emission allowances. Excess



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emission penalties were imposed on 72 aircraft operators in seven countries – Iceland, Italy, the Netherlands, Portugal, Spain, Sweden and the UK. In total, just over 13% of aircraft operators received excess emission penalties. The agency said this relatively high number was because some countries were still issuing fines for previous years. For example, all penalties reported by Portugal and the UK (67 aircraft operators) refer to activities in the last year of the previous phase of the ETS, from 2008 to 2012.

## Agency reviews OPRA scheme

The Environment Agency is reviewing the way it appraises sites that require environmental permits.

It is planning to replace the Operator Risk Appraisal (Opra) scheme for sites operating under the Environmental Permitting Regulations with a more holistic approach to monitor performance, according to an informal consultation paper from the regulator.

The current scheme ranks operators A to F, based on how well sites comply with the terms of their permits. It takes into account hazards relating to the nature and scale of activity and how close the facility is to receptors, such as people and wildlife habitats.

Under the proposed new scheme, the agency wants to also consider the likelihood of a breach in compliance, according to operators' attitude and how they respond to advice given by the regulator. This would enable it to identify early indications that a site might breach its permit, so it can intervene and focus resources on mitigating risk. The A to F rankings would be replaced by 'exemplary'; 'expected'; 'improvement needed'; and 'significant improvement needed'.

'We want an approach that is fairer to industry, supports growth, and protects our environment and local communities,' the consultation document states. It further says: 'We want to make a system that not only describes an operators' performance more accurately, but is also more reflective of the regulatory effort we have to apply.'

The new approach would also allow the agency to recognise operators that voluntarily make extra effort above compliance, and which would therefore need less effort to regulate. These organisations would benefit from 'light-touch' regulation and a reduction in fees, the agency said. The regulator believes its plans would encourage self-reporting and recognise positive behaviour in addressing minor incidents.

The agency said the new scheme would enable it to focus on poorly performing sites where operators are unresponsive, obstructive or hostile. Such businesses would pay higher fees to cover additional agency costs.

The consultation asks opinions on what criteria the agency should assess under the new system. It plans to review responses and launch a formal consultation in July.

### Short cuts

#### Into the unknown

New research published in *Nature Climate Change* shows how reducing carbon emissions can prevent billions of people from being exposed to unheard of changes in climate in the coming decades. The study by academics at Reading and East Anglia universities in the UK and Victoria University of Wellington in New Zealand found that new climates are emerging faster in inhabited areas, especially in the tropics, than in the world as a whole. 'People living in tropical regions, such as the South East Asian nations and the Pacific Islands, are almost certain to experience "unfamiliar" or even "unknown" climates by the end of this century if climate change is not slowed down,' said lead author Professor Dave Frame from Victoria University of Wellington. The researchers said avoiding the emergence of unfamiliar or unknown climates helps societies to better adapt to climate change. Co-author Dr Manoj Joshi of the University of East Anglia said the emerging effects of climate change in the coming decades could be dramatically reduced through mitigation.

#### Research into WEEE

Money from the waste electrical and electronic equipment (WEEE) compliance fee fund is being used to support two research projects. Sustainability consultancy Anthesis is to examine what happens to the estimated 139 tonnes of unreported, discarded WEEE treated outside of the official producer-financed regulatory regime. Richard Peagam, principal consultant at Anthesis, said the research would help to further understand how the electrical equipment that is not visible in official data is handled and treated once it has been used. Meanwhile, waste consultancy 360 Environmental, in partnership with the Local Authority Recycling Advisory Committee (LARAC), is to look at the unauthorised removal of WEEE from local authority designated collection facilities. Waste body Wrap has estimated that nearly 100 tonnes of WEEE is removed each year from council sites.

# Water firms urged to consider natural capital

The water industry must consider natural, social and human capital in addition to financial capital in its business planning if it is to address the challenges it faces over the coming years, including population growth and climate change.

Global infrastructure services firm AECOM said water companies tended not to include natural, human and social capital in their planning, but that by identifying and valuing these they could transform the basis on which investment decisions were made.

AECOM pointed out that the water sector faces a myriad of pressures, from population growth to the rise of high-consuming single occupancy households and the impacts of climate change. It also warned that tougher environmental regulatory standards, the need to provide a better service to customers and the potential impact of competition in the domestic market must be considered when considering where to channel its financial resources.

'While there is growing recognition of the need to include natural capital in expenditure planning, very few organisations in the water sector are yet to fully take account of their investment programmes' social and human impacts and look at how these capitals can be applied when managing assets,' said director of asset management Adrian Rees.

Thinking beyond financial considerations requires water companies to take a long-term approach to investment, said AECOM. It highlighted the installation of a new sewer to illustrate how including other forms of capital may could be more beneficial. Whereas the sewer may bring immediate flood prevention benefits, installing sustainable drainage systems as well could provide habitat for biodiversity and improve local air and water quality. Accounting for these types of factors when deciding between different investment options could support the introduction of measures that deliver multiple benefits



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by adding to existing natural, social and human capital stocks, AECOM said.

Meanwhile, Thames Water is surveying the land it owns to assess trees and habitats. A database will be created to help manage trees, removing those that are damaged to protect staff and the environment.

From [environmentalisonline.com](http://environmentalisonline.com)...

## Air quality plan

The environment and transport departments have finally published their draft proposals to tackle poor air quality in urban areas after being ordered to by the courts. The proposals relate specifically to nitrogen dioxide pollution, which is produced mostly by diesel engines and is linked to respiratory diseases, including asthma. Some 37 of the 43 regions of the UK are in breach of the EU limits for NO<sub>2</sub>. The plan includes local authorities in England establishing clean air zones and possibly charging drivers of older, higher-polluting vehicles to travel in pollution hotspots. The plan also includes targeted infrastructure investments to improve air quality, such as: the redesign of local roads to improve traffic flow and reduce idling traffic; the creation of park and ride services; the promotion of infrastructure for electric vehicles; bus and rail improvement measures; the promotion of car clubs; and infrastructure improvements for cycling and walking. [bit.ly/2pc3o02](http://bit.ly/2pc3o02)

## Supplier metric

A network of businesses has unveiled a way for companies to calculate the impact of their supply chains on the natural environment, which it hopes will improve decision-making and inform investors. The metric has been developed by firms including Kering, Interserve, Mars and Asda. The firms are all members of the Natural Capital Impact Group (NCIG) and the Investment Leaders Group, an international network of investors. The metric should help companies identify where they have sufficient information, and where there are gaps, said Gemma Cranston, director of the natural resources security portfolio at the University of Cambridge, which convenes the NCIG. The group has so far focused on biodiversity, but is planning further work on soil and water. A working paper sets out how the metric was constructed and provides insight into the impacts of business operations on biodiversity. [bit.ly/2q2D88S](http://bit.ly/2q2D88S)

## Forestry impacts

Eight companies have started to gather information from suppliers on what they are doing to end deforestation related to their products, as part of the CDP's expanded supply chain platform. The firms, including McDonald's and its Latin American franchise Arcos Dorados, and L'Oréal, are focusing on the commodities responsible for most tropical forest loss, cattle, timber, palm oil and soy. The firms have requested information on the strategies used by suppliers to measure and monitor use of these commodities, progress against deforestation targets and engagement with their supply chains. The initiative is the first time purchasers have requested information from companies in their supply chain through the CDP and the aim is to improve transparency among small- and medium-sized businesses that had not previously disclosed data. The number of companies that have pledged to end deforestation in supply chains has increased in recent years. [bit.ly/2q6V16p](http://bit.ly/2q6V16p)

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# New government is chance to secure sustainability in UK post-Brexit

The incoming UK government must put environment and sustainability at the heart of its policy and legislative programme, IEMA members have said.

An online poll of UK environment and sustainability experts, conducted immediately after the general election was called, found overwhelming support for the implementation of a circular economy strategy.

The 669 professionals responding also said action to reduce carbon emissions needs to be accelerated.

Respondents also called on the new administration to prioritise resolving the environmental, health and wellbeing effects linked to air pollution, which is estimated to lead to approximately 40,000 deaths a year. Some 97% said improving air quality should be a priority for the next parliament; 45% of these said it is such a critical matter that it should be considered a cross-departmental priority led by whoever becomes prime minister.

Martin Baxter, IEMA's chief policy advisor, said that strong environmental and sustainability standards must underpin the new government's approach: 'It is essential that the government puts in place a long-term, ambitious policy framework for transitioning the UK to a sustainable economy. As we make plans to leave

the EU, high environmental quality standards must be maintained, enhanced and consistently enforced, and used to create the conditions to support exports from UK businesses.

'The UK's sustainability experts must be heard, so we look forward to working with the government to protect the UK's future sustainability reputation and performance.'

Further findings from the survey revealed a high level of support (93%) for EU environmental law to continue to apply in the UK after Brexit, as well as the belief that the government should include environmental protection in future trade deals (96%). Some 96% of respondents backed the implementation of a circular economy strategy in the UK, with more than half believing it should reflect a UK wide understanding and not be constrained by the EU's preferred approach.

Environment and sustainability professionals overwhelmingly (97%)



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backed measures by the new government to include sustainability in lifelong learning programmes for UK workers. Two-thirds also said national needs must take priority on major infrastructure development, where there is conflict with local interests.

Some 92% backed alternatives to GDP to measure how well society is performing; 81% backed retaining the UN international development aid target of 0.7% or more of GDP; and 99% called for cross-party support on the long-term sustainability agenda.

## IEMA Futures – What can we learn from the Future Generations Commissioner for Wales?

As politics is in a constant state of flux, it is time to take a step back and think about what needs to happen to ensure real commitment to sustainable development and secure the needs of future generations.

Like the Conservative Party mantra quoted throughout the recent general election campaign, leadership on the environment and social justice needs to be 'strong and stable'. Strong in that it is sufficiently embedded into institutional decision-making to affect real change; and stable in that the body set up to deliver it cannot be shut down at the whim of a future government.

Taking lessons from the untimely demise of the UK Sustainable

Development Commission (SDC), the Welsh government brought in the Wellbeing of Future Generations Act in 2015. Tied in with this legislation was the position of the Future Generations Commissioner, currently held by Sophie Howe. The role promotes sustainable development across public services in Wales, ensuring wellbeing objectives are met, as well as enabling future generations to meet their needs. As was pointed out previously by the SDC, this long-term approach is necessary to ensure a commitment to sustainable development across multiple political cycles.

Is now a time when we should push for real commitment to the sustainable development goals through the

constitutional integration of a UK Future Generations Commission or Futures Commissioner? This topic was the subject of debate in April at an event organised by the Foundation for Democracy and Sustainable Development, the Centre for the Study of Democracy, and the Centre for the Understanding of Sustainable Prosperity. Speakers included Sándor Fülöp, former parliamentary commissioner for Future Generations of Hungary, and Howe's predecessor Peter Davies.

A recording of the event is available at [bit.ly/2qZJYJM](http://bit.ly/2qZJYJM). For more details visit [CUSP.ac.uk](http://CUSP.ac.uk).

**Sophie Parsons.** Go to @IEMAFutures on Facebook, Twitter and LinkedIn to join.

# Procurement standard published to deliver sustainable outcomes

ISO 20400 is the world's first international standard to provide guidance on delivering sustainability objectives through supply chains.

Its publication in April ([bit.ly/2oJ9sII](http://bit.ly/2oJ9sII)) was in response to increasing government, corporate and societal demand for sustainable supply chains to become a core business objective, with measurable results. ISO said 20400 is intended for stakeholders involved in, or impacted by, procurement decisions and processes. IEMA and consultancy Action Sustainability have published a guide to help members understand and adopt the standard principles.

A free copy of *Delivering Sustainable Outcomes Through Supply Chains Using ISO 20400* can be downloaded at [iema.net/home/whats-new](http://iema.net/home/whats-new).

## ISO 20400 – a summary

Shaun McCarthy, chair of the IEMA professional standards committee and director of Action Sustainability, explains what ISO 20400 is:

‘The standard provides guidance for any organisation of any size or type that needs to deliver sustainable outcomes through their supply chains. It is relevant to anybody in an organisation who contributes to procurement decisions and/or works with suppliers, including sub-contractors. The standard is similar in structure to the standard it succeeds, BS 8903, in that it provides a strategic framework for an organisation to procure sustainably.

‘It is a guidance standard, not a requirements standard. You cannot be certified against it.

‘A guidance standard means you are free to work with a client to understand how they have interpreted it in the context of their business; establish evidence to confirm they have done what they said they would do; and then to express our professional opinion through findings and recommendations.

‘It is a much more engaging and constructive process where the client builds their strategy over time and can be evaluated to gauge their progress at a time when they most need professional advice. Too many audits end up as a competition between the auditee's ability to hide bad stuff and the auditor's ability to unearth what they have hidden. A guidance standard helps us to engage more openly and transparently.’

## Sustainability and trade – looking to the post-Brexit future



The recent European Court of Justice (CJEU) opinion on the free trade agreement between the EU and the Republic of Singapore ([bit.ly/2rY7XYR](http://bit.ly/2rY7XYR)) is important from a Brexit and sustainability perspective.

The question before the court was whether the EU had ‘the requisite competence to sign and conclude alone the agreement with Singapore?’ or whether some parts of the agreement are the shared or the sole responsibility of member states.

From a Brexit perspective, it is important to know that if you negotiate and conclude an agreement at the EU level, it can be ratified at that level and cannot be voted down by one member state. The CJEU opinion is

also of interest regarding the content of trade agreements, particularly as it was concluded as one of the first ‘new generation’ bilateral deals – that is, a trade agreement which contains, in addition to the classical provisions on the reduction of customs duties and of non-tariff barriers, provisions on broader matters, such as intellectual property protection, public procurement and sustainable development.

Sustainable development provisions in the agreement include:

- environmental protection, including the preservation and improvement of the quality of the environment and the sustainable management of global natural resources; and
- social protection of workers, relating to the effective implementation of the principles concerning the fundamental rights at work – specifically: freedom of association and the effective recognition of the right to collective bargaining; the elimination of all forms of forced or compulsory labour; the effective abolition of child labour; and the elimination of discrimination in respect of employment and occupation.

The European Council and member states were of the opinion that the sustainable development provisions fell within the competences shared between the EU and nations. The European Commission and Parliament disagreed.

In the court's opinion, the provisions with respect to sustainable development in the Singapore agreement were within the sole competence of the EU, rather than jointly with the member states.

Why does this matter? It is highly likely that any free-trade agreement negotiated between the EU and UK will contain chapters on sustainable development, environmental protection and worker rights. This is good news and should be relatively uncontroversial, given that the UK and EU both apply the provisions through the single market. Perhaps the bigger question is whether similar provisions will be included by the UK when it seeks trade deals with non-EU countries post-Brexit.



**Martin Baxter** is chief policy advisor at IEMA: @martinbaxter on Twitter.

# IEMA publishes free EIA guides as the EU Directive is transposed into UK law

IEMA's policy experts have welcomed the arrival of vital amendments to the EU Environmental Impact Assessment (EIA) Directive, which came into force across the UK on 16 May (pp12–13).

'This is a significant point for EIA professionals,' said policy lead Josh Fothergill. 'It marks the culmination of a great deal of reflection and review by practitioners, where they have needed to make some noise to achieve the right outcome, particularly around the definition of "competent experts". IEMA members will be pleased to see the amendments finally become law, so policy and practice can realign effectively.'

IEMA was involved throughout the consultation of the EIA Directive review. It fed member views into all stages of the process, and was positively referred

to by the European Commission in its proposals in October 2012 to revise the directive – the only professional body to be mentioned. IEMA has spent the past three years priming its practitioners to handle the changes.

To support members' understanding of key EIA areas, IEMA has published two free guides:

- *The Environmental Impact Assessment Guide to Assessing Greenhouse-Gas Emissions and Evaluating their Significance* – created in partnership with consultancy Arup; and
- *Health in Environmental Impact Assessment: a primer for a proportionate approach* – written in collaboration with health consultancy Ben Cave Associates and professional body the Faculty of Public Health.

The guide on EIA and greenhouse-gas (GHG) emissions focuses on the effects of emissions, which are integral to the understanding of any project's impact. Professionals who deal with ensuring best practice in assessing GHG emissions and evaluating their significance in EIA projects are advised to familiarise themselves with the guide.

The second guide focuses on the population and human health factors that should be on the list of environmental topics considered by assessments, something demanded by the changes to the directive. The document explains the changes and their implications for industry.

Both guides can be downloaded at [iema.net/home/whats-new](http://iema.net/home/whats-new).

## Time to hire

The main gripe I hear coming from recruitment managers is 'it took a lot longer to hire than I envisaged'. Bringing new staff into a team can be a difficult part of any job, especially people who are not accustomed to recruiting. It can cost time, money and patience. It is important for both recruiters and candidates to understand timescales and the complexities behind hiring someone. That understanding can reduce the time it takes.

Luckily Environment Works has put together some key information.

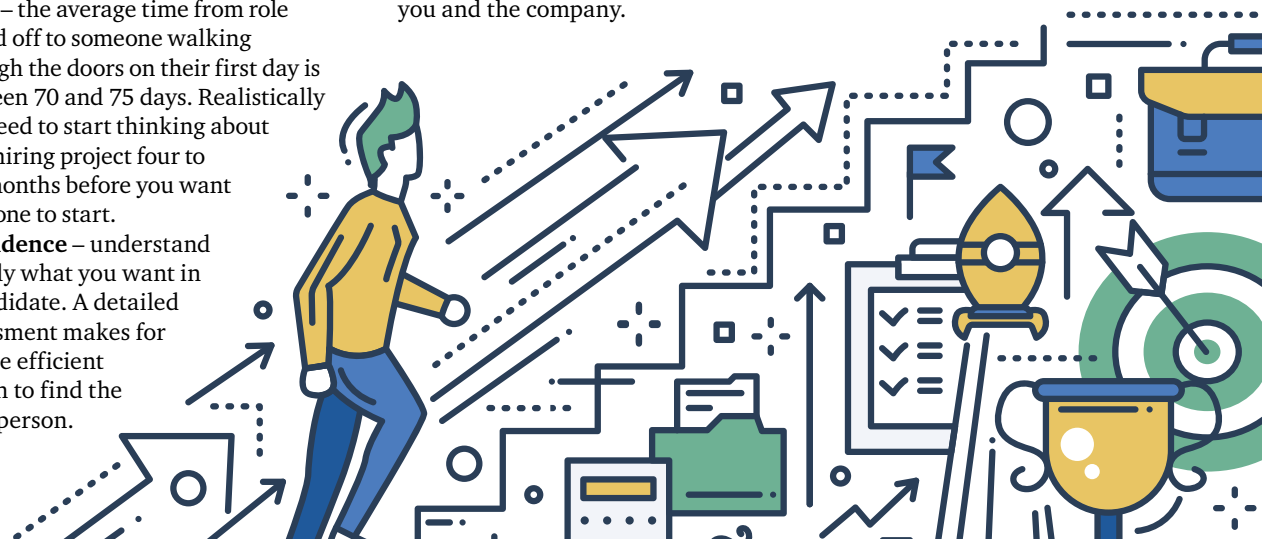
- **Time** – the average time from role signed off to someone walking through the doors on their first day is between 70 and 75 days. Realistically you need to start thinking about your hiring project four to five months before you want someone to start.
- **Confidence** – understand exactly what you want in a candidate. A detailed assessment makes for a more efficient search to find the right person.

- **Deadlines** – plan the process and set realistic timelines. This includes more than just end-dates for applications. Set out first and second interview dates and offer dates, for example. It is a full-time project to recruit, so treat it like one.
- **Interviews** – this can be the lengthiest and most frustrating part. Prepare yourself as much as you expect the candidate to prepare. Make the most of your two to three hours of interviewing so you can make an informed decision. You also need to give the right impression of you and the company.

- **Help** – You are not on your own. Whether support is from your internal recruitment team or a specialist consultant to source the people you need, sort out interviews and negotiate offers, help is at hand. Remember time is money and a specialist consultant can be worth their weight in gold.

If you have any questions on hiring and its process, contact [enquiries@environmentworks.co.uk](mailto:enquiries@environmentworks.co.uk)

**Matt Bransby**, head of client services at Environment Works



# Appeal overcomes challenge to 'deadly' Scottish windfarms

Judges in Scotland have ruled that ministers did not act unlawfully when granting consents for four offshore wind farms in the North Sea.

The Scottish government had appealed the decision by the Court of Session in July 2015 to uphold a legal challenge by the bird charity RSPB Scotland against the construction of the wind farms in the Firths of Forth and Tay. Lord Stewart had concluded that the consents were not lawful on several grounds, including that key requirements of the environmental assessment process had not been met. This included a failure to consult properly and to provide reasons why ministers had rejected the advice of their own statutory nature conservation advisers, Scottish Natural Heritage and the Joint Nature Conservation Committee, when granting permission. He said the appropriate assessment (AA) had taken both irrelevant and relevant considerations into account, had applied the wrong legal test, and reached a 'perverse' conclusion in relation to ornithological risk.

However, at appeal the Inner House of the Court of Session ruled that Scottish ministers' AA process was not defective nor had there been any breach of the relevant regulations (Environmental Impact Assessment (Scotland) Regulations 2000).

Lord President stated: 'The regulations are intended to provide for the effective publication of environmental information and for public participation in the EIA process. The extent of such provision must, however, be tempered with a degree of realism. It should not create an endless process of notification of, and consultation on, every matter which is, or becomes, available to the decision-maker prior to the decision. The process is to inform the public of the application, and its perceived environmental impact, and the responses from defined statutory consultative bodies (additional information). The public then have an opportunity to comment on these matters and, no doubt, to raise any concerns about other issues which they perceive to arise. That process was fully complied with here.'

Scottish ministers had approved consents for four offshore wind farms in the Firths of Forth and Tay with a combined total of 335 turbines in October 2014. RSPB Scotland raised

concerns about the plans, believing they posed a great risk to resident and migratory seabirds. It mounted a legal challenge in January 2015.

Reacting to the outcome of the appeal, director Stuart Housden said RSPB Scotland was hugely disappointed by the judgment. 'While we fully support deployment of renewable energy, this must not be at any cost. Combined, these four huge projects threaten to kill thousands of Scotland's internationally protected seabirds every year, including thousands of puffins (pictured), gannets and kittiwakes. These could be among the most deadly wind farms for birds anywhere in the world.'



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## Talking about impact assessment with Rufus Howard

Proportionate EIA remains a key priority for the impact assessment community. I have often linked the drive for more concise, effective and proportionate EIA to the government's deregulation agenda.

Practitioners do not want to reduce protections for the environment, but we do want to ensure assessments are fit for purpose and accessible to non-experts. The Red Tape Challenge has now been joined by 'digital by default', a government phrase that can be heard on the lips of civil servants and echoes the Scottish drive for Digital Scotland 2020. In essence, these initiatives recognise that smart phones, tablets, laptops and personal computers are increasingly the way a large proportion of the public access information, fill out forms and apply for services.

So how does digital by default affect impact assessment? This is not a new question. The theme of the 2015 IAIA conference in Florence, Italy was impact assessment in the digital era. I presented on 'big data and impact assessment'.

EIA has embraced new technology over the years with ground penetrating radar for archaeology, ecological DNA sampling, high-definition aerial video for ornithology and augmented reality visualisations, for example. However, the use of technology and software for surveys and analysis has not made much headway.

Step forward the digital ES, much discussed, rarely seen. Royal HaskoningDHV has recently completed a pilot in the Netherlands (pp28–29) which has set heads talking in terms of what the UK might be able to replicate.

IEMA, through the IA network that I chair, is already in discussions with key statutory bodies such as PINs, NE and NRW on potential benefits, as well as the challenges of moving towards online and digital reporting solutions. One of the key challenges is bringing all the complex and varied stakeholders involved in impact assessment to a common understanding and agreement on the best way forward.

What is clear though is that time will not stand still, cars will become electric, houses will have solar tiles, and environment statements will be online.



**Rufus Howard**, director at Royal HaskoningDHV and chair of IEMA impact assessment network



## In court

### UK falls foul of EU wastewater treatment rules

The UK has been prosecuted by the EU for failing to properly treat sewage after complaints from the public.

The European Commission began legal proceedings in 2009 against the UK for breaches of the Urban Waste Water Directive. This requires wastewater from towns and cities with a population of more than 2,000 (known as an agglomeration) to be collected and treated, while those with a population higher than 10,000 and in environmentally sensitive areas must apply more advanced treatment methods.

The breaches concern the Gowerton and Llanelli agglomerations in Wales; Gibraltar, which has no urban wastewater treatment plant; Banchory and Stranraer in Scotland; Ballycastle in Northern Ireland; and the agglomerations of Tiverton, Durham, Chester-le-Street, Islip, Broughton Astley, Chilton, Witham and Chelmsford agglomerations in England.

In 2014, the commission warned the UK of its intention to take legal action. In response, the government said wastewater treatment systems in Gowerton and Llanelli had not performed as intended, and that it would not achieve compliance there until the end of 2020. Compliance work was continuing in 24 other areas. The commission said it was not satisfied with the UK response and took the case to the European Court of Justice (ECJ). The court noted that work on sustainable drainage systems in Gowerton and Llanelli had started too late, which is why compliance would be delayed.

The government told the court that Ballycastle would be compliant with the directive by September 2017. Work to install secondary sewage treatment facilities had been delayed by problems with purchasing land needed for the work, it said. In Gibraltar, work to solve the problem was complex and involved reclaiming land from the sea, but would be complete by the end of 2018, the government confirmed.

In Tiverton and Broughton Astley, work was under way to ensure compliance. However, the commission argued that, until the work was complete and data showing compliance for a full year was available, the two areas remained in breach of the directive. Although the government maintained that advanced treatment works had been completed in Durham, Chester-le-Street, Islip and Chilton, the commission said the areas would be judged to be in breach of the directive until a full year's data was available to prove otherwise. The commission withdrew the complaints about Banchory and Stranraer after the UK provided new data.

A spokesperson for Defra said: 'All sites in England included in the judgment now comply with the directive and plans are in place elsewhere across the UK to deliver compliance by 2020 at the latest.'

### Supreme Court ruling on NPPF

The Supreme Court has clarified the interpretation of para 49 of the National Planning Policy Framework (NPPF) and the NPPF's relationship with the statutory development plan.

Paragraph 49 states: 'Relevant policies for the supply of housing should not be considered up to date if the local planning authority cannot demonstrate a five-year supply of deliverable housing sites.'

The court rejected appeals by the local authorities in *Suffolk Coastal District Council v Hopkins Homes Ltd and another* and *Richborough Estates Partnership LLP and another v Cheshire East Borough Council*. In *Suffolk*, the High Court had ruled that the planning inspector had

erred in thinking that para 49 applied only to "policies dealing with the positive provision of housing" and so quashed his refusal. In *Richborough*, the High Court concluded the inspector had erred in treating one of the local policies as a relevant policy under para 49.

In its judgment, the Supreme Court said: 'The NPPF makes clear that, as respects the determination of planning applications, it is no more than "guidance" and as such a "material consideration" for the purposes of s 70(2) of the Town and Country Planning Act 1990. It cannot, and does not purport to, displace the primacy of the statutory development plan. It must be exercised consistently with, and not so as to displace or distort, the statutory scheme.'

## Case law

### Court upholds decision to reject green belt plan

In *Goodman Logistics Developments (UK) Ltd v Secretary of State for Communities and Local Government and Slough Borough Council*, the High Court dismissed a claim to quash the decision to refuse planning permission for a strategic rail freight interchange (SRFI) near Slough.

Goodman Logistics applied in 2010 for planning permission for the interchange on land north of the A4 between Slough and Heathrow. The site is in the green belt and is designated as a strategic gap in the council's core strategy. The council refused planning permission. This decision was backed at appeal by the secretary of state.

Goodman then applied under s 288 of the Town and Country Planning Act to quash the minister's decision. It argued that the need for SRFI would sometimes require schemes to be built on green belt land given that they need to be sited alongside major rail routes and roads and near to conurbations. The inspector and secretary of state agreed that the proposed scheme would meet the compelling need for an expanded network of SRFIs around London. They also acknowledged the difficulties in finding a suitable site. However, in deciding to attach no weight to the scheme being inevitably sited in the green belt, they relied on the protections in the National Planning Policy Framework, which made no exception for SRFIs in the green belt.

The court agreed, saying that the need for new SRFIs was qualified by the statement that green belt locations for such developments would not be approved unless very special circumstances were shown to clearly outweigh the harm caused.

Sarah Bischoff

Lexis®PSL




# New regulations

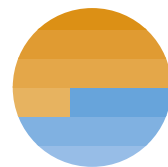


In force	Subject	Details
29 Mar 2017 	Energy	<p>The Electricity and Gas (Energy Company Obligation) (Amendment) Order 2017 amends the 2014 order to increase the carbon emissions reduction target and the home heating cost reduction target. The amendment also introduces new minimum requirements for home heating. To achieve a qualifying action under the scheme, these requirements must be met where applicable to discharge the duties against targets set under the scheme. It extends the ECO scheme to 30 September 2018.</p> <p><a href="http://bit.ly/2oovG3G">bit.ly/2oovG3G</a></p>
31 Mar 2017 	Water	<p>The Water Act 2014 (Consequential Amendments etc.) Order 2017 and The Water Act 2014 (Commencement No. 9 and Transitional Provisions) Order 2017 amend various pieces of legislation to reflect the implementation of the new powers under the Water Act 2014, including allowing non-household customers to change their water and sewerage suppliers.</p> <p><a href="http://bit.ly/2pB9I1n">bit.ly/2pB9I1n</a>; <a href="http://bit.ly/2n99x8j">bit.ly/2n99x8j</a></p>
1 Apr 2017 	Environment protection	<p>The Electricity Supplier Payments (Amendment) Regulations 2017 make technical changes to the financial administration of the contract for difference (CfD) regime. The regulations update the rate of CfD operational costs and settlement costs levies on electricity suppliers. The operational levy rate is raised to £0.0524/MWh from 1 April 2017.</p> <p><a href="http://bit.ly/2qifR1J">bit.ly/2qifR1J</a></p>
1 Apr 2017 	Environment protection	<p>The Environment (Wales) Act 2016 (Commencement No. 2) Order 2017 brings into force P 6 of the Environment (Wales) Act 2016 on marine licensing and associated fees – for example on varying, monitoring or advising on marine licences in Wales or the Welsh inshore region.</p> <p><a href="http://bit.ly/2qilAo3">bit.ly/2qilAo3</a></p>
10 Apr 2017 	Water	<p>The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 revoke and replace the 2003 regulations by setting out in detail the provisions of the Water Framework Directive rather than cross-referencing it.</p> <p><a href="http://bit.ly/2rhEZ6Z">bit.ly/2rhEZ6Z</a></p>
18 Apr 2017 	Environment protection	<p>EU Regulation 2017/605 amends the definition of ‘new equipment’ in relation to aircraft under Annex VI to reg 1005/2009. This definition has been amended for clarity reasons and does not add any new compliance obligations.</p> <p><a href="http://bit.ly/2oaPcmZ">bit.ly/2oaPcmZ</a></p>
5 May 2017 	Planning	<p>The Planning (Listed Buildings and Conservation Areas) (Wales) (Amendment) Regulations 2017 amend the 2012 regulations by revising the listed building consent procedure for applications referred to the Welsh ministers. Information to be submitted for appeals against local planning authority decisions or where they have failed to make decisions is also revised.</p> <p><a href="http://bit.ly/2pMx8ND">bit.ly/2pMx8ND</a></p>
6 May 2017 	Environment protection	<p>The Town and Country Planning (Trees) (Amendment) (Wales) Regulations 2017 amend the 1999 regulations to extend information required when submitting appeals on tree preservation order consent applications.</p> <p><a href="http://bit.ly/2pB4H8Z">bit.ly/2pB4H8Z</a></p>
9 May 2017 	Environment protection	<p>EU Regulation 2017/698 amends 1062/2014 to update the review programme to evaluate existing active substances in biocidal products. Biocidal products listed in the programme may continue to be placed on the market pending review. Regulation 2017/698 removes biocides found compliant under the programme from the list of substances and product-type combinations pending assessment.</p> <p><a href="http://bit.ly/2pALoNo">bit.ly/2pALoNo</a></p>

This legislative update has been provided by Waterman's Legal Register available at [legalregister.co.uk](http://legalregister.co.uk)

# New regulations

In force	Subject	Details
16 May 2017 	Environmental impact assessment	The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2017 amend the 2007 regulations by transposing revisions made to the EIA Directive 2011/92/EU by 2014/52/EU. Significant changes are made to the EIA regime for works requiring a marine licence under Part V (marine licensing) of the Marine and Coastal Access Act 2009 or Part II (deposits in the sea) of the Food and Environment Protection Act 1985 – both as amended. <a href="http://bit.ly/2qiT9pG">bit.ly/2qiT9pG</a>
16 May 2017  	Environmental impact assessment	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 revoke and replace the 2009 regulations 2009 (as amended). They transpose the revisions made to the EIA Directive 2011/92/EU by 2014/52/EU. Changes are made to the EIA regime in relation to nationally significant infrastructure projects (NSIPs) in England and Wales. Planning applications for NSIPs are processed outside the Town and Country Planning Act 1990, and therefore specific EIA legislation is required. The Water Resources (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2017 amend the 2003 regulations to transpose 2014/52/EU. <a href="http://bit.ly/2qin7dS">bit.ly/2qin7dS</a> ; <a href="http://bit.ly/2pMJbu7">bit.ly/2pMJbu7</a>
16 May 2017 	Environmental impact assessment	The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 revoke and replace the 2011 regulations to transpose the amendments made to the EIA Directive 2011/92/EU by 2014/52/EU. <a href="http://bit.ly/2rgLnua">bit.ly/2rgLnua</a>
16 May 2017 	Environmental impact assessment	The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 implements the amendments to the Environmental Impact Assessment (EIA) Directive 2011/92/EU made by 2014/52/EU. It requires an EIA and the submission of an EIA report with planning applications for larger developments. The report should describe the likely significant effects of the development on the environment and proposed mitigation measures. The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 revoke and replace the 2007 regulations to transpose the amendments made to the EIA Directive 2011/92/EU by 2014/52/EU. Changes are made to the EIA regime for works requiring a marine licence under the Marine (Scotland) Act 2010. The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 implement changes to EIA made by 2014/52/EU in Scotland in relation to the construction and operation of generating stations. The Transport and Works (Scotland) Act 2007 (Environmental Impact Assessment) Regulations 2017 amend the Transport and Works (Scotland) Act 2007 to implement 2014/52/EU in relation to the construction and operation of transport systems and inland waterways under the 2007 Act. The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017 implement Directive 2014/52/EU for construction projects for new roads and any improvement and maintenance projects for roads. <a href="http://bit.ly/2pKNV6B">bit.ly/2pKNV6B</a> ; <a href="http://bit.ly/2pAhCDI">bit.ly/2pAhCDI</a> ; <a href="http://bit.ly/2pMnZog">bit.ly/2pMnZog</a> ; <a href="http://bit.ly/2pNYXnH">bit.ly/2pNYXnH</a> ; <a href="http://bit.ly/2qlZQ8W">bit.ly/2qlZQ8W</a>
16 May 2017 	Environmental impact assessment	The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 revoke and replace the 2016 regulations to transpose the amendments made to the EIA Directive 2011/92/EU by 2014/52/EU. The changes to the EIA regime in Wales mirror those in England and Scotland closely. <a href="http://bit.ly/2rhUuMe">bit.ly/2rhUuMe</a>
29 May 2017 	Finance	The Scottish Landfill Tax (Administration) Amendment Regulations 2017 amend various definitions and references under the Scottish Landfill Tax (Administration) Regulations 2015. Obligations under the 2015 regulations remain unchanged. <a href="http://bit.ly/2pNWEL7">bit.ly/2pNWEL7</a>



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# Beef with meat

**David Burrows** wonders whether people will go meat-free to save the planet

**T**he Paris Agreement on climate change is a big deal, but little has been made of the emissions gap between reduction commitments and requirements, or one of the most credible but unpalatable strategies to plug it.

'Meat consumption has to be tackled,' said Tim Lang, professor of food policy at City University, London, at the Future Proteins summit in March, adding that culture was at the heart of the issue.

Policies to cut back on bacon are not universally popular, though – just ask Germany's environment minister. In March, Barbara Hendricks took the symbolic step to demonstrate that her department practises what it preaches – vegetarian food is more climate-friendly than meat and fish – and banned schnitzel and salmon at official functions. Her government colleagues felt the diktat was too heavy-handed – *The Guardian* reported that only one other ministry would be following the lead – but there is increasing evidence to support a shift to diets low in meat consumption.

## The meat on the bone

Food consumption is responsible for 20% of the UK's greenhouse-gas (GHG) emissions, and livestock is the hotspot. Globally, the sector produces around 7.1 gigatonnes of GHG emissions each year, the same as tailpipe emissions from all the world's vehicles. Global consumption of meat is forecast to increase 76% by the middle of the century. These trends are incompatible with the objective of avoiding dangerous climate change.

A report by the United Nations Environment Programme in November detailed an emissions gap between the collective carbon reduction commitments already made and those required to keep global warming levels below 2°C. GHG emissions should be no more than 42 gigatonnes by 2030, but on current projections these will be between 54 and 56 gigatonnes. That translates to a temperature rise of up to 3.4°C by 2100, and the consequences include catastrophic biodiversity loss, as well as growing numbers of climate refugees hit by poverty, illness, conflict and hunger.

'Feeding ourselves without desecrating the planet is one of the biggest challenges we face,' says Marta Zaraska, author of *Meathooked: the history and science of our 2.5-million-year obsession with meat*. 'We are running out of land, water and time. To make matters worse, as the world warms, agriculture will get harder.'





But as one commentator neatly put it, the food sector is both victim and villain. 'Even with best efforts to reduce the emissions footprint of livestock production, the sector will consume a growing share of the remaining carbon budget,' says Laura Wellesley, a resource associate at UK-based think tank Chatham House. She suggests that worldwide adoption of a healthy diet is vital to keep global warming in check. 'There remains a significant gap between the emissions reductions countries have proposed [in the Paris Agreement] and what is required for a decent chance of keeping temperature rises below 2°C,' she noted in her report, *Changing Climate, Changing Diets: pathways to lower meat consumption*. 'Governments need credible strategies to close the gap, and reducing meat consumption is an obvious one.'

### Political process

That may be, but German minister Hendricks is not the only one to have proved it is a bitter political and cultural pill to swallow. According to a front-page story in *The Times* in 2010, Lord Stern, author of the groundbreaking report on the economics of climate change and chair of the Grantham Institute on Climate Change, had advised people to 'give up meat to save the planet'. Since this was not what he said verbatim in the interview, Stern issued a clarification: 'It's a fact that the production of meat can be relatively carbon-intensive because of the energy used and to rear and feed the animals, and the methane emitted by livestock. I was not demanding people become vegetarians, but instead suggested that they should be aware that the more meat that they eat, the higher the emissions of greenhouse gases.'

The science supports his point yet some continue to ignore it. Reacting to Hendricks' policy, Germany's food minister, Christian Schmidt, said: 'With us there won't be a veggie day through the back door. Instead of paternalism and ideology I stand for variety and freedom of choice.'

### Clean meats and cloning

'Would you eat foods generated in a laboratory rather than grown in a field?' has been a popular polling question for some years. In 2005, research by the European Commission found that 54% of the public would never approve of growing meat from cell cultures if it were a way to avoid slaughtering animals; only cloning human beings so that couples with a genetic disease could become parents was less appealing (59%). More recent research in the US by Pew found that 78% of consumers would not eat lab-grown meat, which at the time made it less attractive than a brain implant to improve memory or mental capacity (26% were keen on the idea).

Polls should be taken with a pinch of salt, of course. 'They ask the question without any context,' the Good Food Institute's Bruce Friedrich told October's conference on cultured meat in Maastricht, the Netherlands. He said once consumers understood that clean meat was the same as conventional, 71% wanted to buy it; 25% said perhaps and only 4% said 'probably not'.

Similar battles have been played out across Whitehall. The most notable perhaps occurred in 2009 when Andy Burnham, then health secretary, and Ed Miliband, climate change secretary, were promoting a paper in medical journal *The Lancet*. This showed how a 30% reduction in livestock production would be necessary to meet the UK's GHG reduction targets in the Climate Change Act and help to reduce heart disease. Officials at Defra had not been told of the plans and forced Burnham to withdraw his endorsement – and even emphasise his meat-eating credentials.

### Cutting back

That was eight years ago, and little has changed. In March last year, researchers at the University of Oxford published a study showing how a global switch to healthier diets that relied less on meat and more on fruit and vegetables could save up to eight million lives by 2050 and slash GHG emissions by two-thirds. 'What we eat greatly influences our personal health and the global environment,' says Dr Marco Springmann, who led the study. 'We do not expect everybody to become vegan, but climate change impacts of the food system will be hard to tackle and be likely to require more than just technological changes. The scale of the task is enormous.'

But Sainsbury's has taken up the baton. A few weeks ago, the supermarket chain revealed that it was working with Springmann and his team to help customers reduce meat consumption: in an in-store trial vegetarian options would be placed alongside meat and vouchers would be offered to shoppers who bought vegetarian products. The move was criticised by farmers' union NFU. Charles Sercombe, chair of its livestock board, said: 'The NFU has major concerns

over the anti-meat agenda that Sainsbury's is pursuing in its recent involvement with in-store trials attempting to change customer buying habits. The trials are based on analysis from Oxford academics on the impacts of eating meat on climate change and public health – analysis the NFU firmly contests.'

'Many farmers have worked with Sainsbury's closely to reduce their carbon footprints. Livestock farmers are committed to playing their part in tackling climate change by carrying out activities as part of the farming industry's GHG Action Plan [GHGAP]. They also manage the large reserves of carbon stored in the soil of UK grasslands.'

In March, Defra updated the GHGAP, which is a voluntary agreement to reduce on-farm emissions by three million tonnes of CO<sub>2</sub> equivalent a year by 2022. Some farmers are making considerable progress, installing renewable energy, trialling new rations that help to limit methane emissions from their herds and minimising the use of fertilisers to help to cut nitrous oxide emissions (methane and nitrous oxide both have significant global warming potential).

However, not all farmers believe they need to act. Defra's report revealed that just 48% of farmers think it is important to consider greenhouse gases when taking decisions about their land, crops or livestock, and only 57% are trying to reduce emissions. What is more, 64% are not acting to reduce emissions because they claim there is insufficient information or they feel there are too many conflicting views on the issue.

The mayhem created every time the meat issue is raised is not helping – but something has to give, not least because technological advances alone will not plug that emissions gap.

### Feeding the world

The Paris Agreement states that part of the commitment to strengthen the global response to the threat of climate change will be through 'increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production.'

Feeding a global population set to reach 10 billion by 2050 will require some creative solutions – and unpalatable compromises, Zaraska explains in a report for *New Scientist*: 'Perhaps we can learn to love algae, corn husks and crickets, but what about lab-grown meat, synthetic milk and genetic modification?'

Which brings us back to the Future Proteins summit. Speakers included Shami Radia, co-founder of Eat Grub, which produces a range of natural energy bars made from ground-up crickets, and Peter Verstrate, chief executive at MosaMeat, the firm born from a team of scientists that brought the world the first lab-grown burger in 2013. 'We have a mild addiction to meat,' Verstrate explains, 'so if anything is going to replace it, it had better be just like it.'

His team spent £215,000 making the burger with stem cells taken from a cow and MosaMeat now has almost enough investment to start the next phase. 'We're still at the lab stage so we need to upscale it,' he says.

## Food for thought: climate change nightmares



A recent survey by farmers' union NFU provided a reminder that agriculture is on the front line of climate change impacts: two-thirds of UK farmers have encountered an increase in extreme weather and 10% believe winters are becoming milder. Meanwhile, the most recent reports by the Intergovernmental Panel on Climate Change revealed that climate change is already cutting into global food supplies, with price spikes and social unrest in some regions of the world. The rate of crop yields is also beginning to slow, especially for wheat, which is sensitive to heat.

So how long before we see it available on supermarket shelves? Ten years is the optimistic estimate: there are regulatory hurdles to jump and a new supply chain must be established, but within five years there could be lab burgers available on a small scale. They are unlikely to be cheap, however. And the biggest challenge could lie in convincing consumers.

Still, investors have spotted an opportunity in what are now called 'clean meats' (real meat grown without animal slaughter), as well as those generated using proteins from plants. The Impossible Burger is perhaps the most high-profile example of the latter. The plant burger that 'bleeds' is already available in the Bareburger chain in North America. That innovation took five years and a reported £64m from premise to plate, but investors are hungry for more. The capital- and time-intensity of the technology to bring low-impact meat to the table has dropped dramatically, says Niccolo Manzoni, an investor in food tech. 'I'm excited about the shift in diets, functional ingredients, personalised nutrition and new sources of protein,' he adds.

### Changing appetites

There is an appetite for sustainable diets: 44% of people in Britain do not eat meat, have reduced their intake or are considering doing so, according to research commissioned by the Vegetarian Society last year.

How to market new products is a headache though. 'The worst thing we can do is label "less meat" or "reduced meat",' says Claire Hughes, head of nutrition and science at M&S. 'We don't want these products to look [like] alternatives.'

Shoppers could also feel they are being hard done by: 'less sugar' is regarded as a good thing; 'less meat' might seem a cost-cutting con. But attitudes are changing. 'Health messages do tend to hit home harder than environmental ones,' says Nick Hughes, food sustainability adviser at WWF UK.

A study published in February by the Global Food Security (GFS) programme detailed where consumers stood on food and climate change. Although 24% of respondents to a survey said they would not change what they ate even if there were droughts, sea level rises and ocean acidification, two-thirds agreed that the food system was a major contributor to these and that diets ought to reflect this in order to reduce the impact of climate change. But there is a catch, the authors noted: 'In order for the British public to make changes to their diet it is vital that it does not adversely impact their finances, health or enjoyment of food.'

As Lang says, this is a seriously big challenge. In his keynote speech at Protein Futures, he said everyone had become a little too wrapped up in 'innovative wizardry' and 'trite' arguments like 'meat's a problem, so let's eat insects'. 'We need to set new cultural values, so that the average person is not making a rational choice to protect the environment when eating, it's the norm,' he argued.

Indeed, the GFS poll discovered that almost half (46%) of people thought about the environmental sustainability of a product when they bought groceries, while one-third said the carbon footprint of a product was an important consideration. Research involving

more than 5,000 consumers across Europe by Glasgow University Media Group came to a similar conclusion. Environmental issues in themselves will not necessarily trigger behavioural change, says lead researcher Dr Catherine Happer.

How about carbon labels to flag the hefty environmental footprint of some foods? The Carbon Trust launched the concept in 2007 with a little logo and '75 g CO<sub>2</sub>' (later adjusted to 85 g) appearing on packets of Walkers' crisps. Others jumped in, most notably Tesco with a promise to label all its 70,000 products. The interest was not purely altruistic – there were business benefits too. Walkers worked closely with its supplier towards a 7% reduction in emissions, achieved through improved energy efficiency (the label being amended accordingly to 80 g), saving about £400,000 each year in the process.

The Carbon Trust's ultimate aspiration was that every product would have a carbon measure attached but, as *The Economist* noted in 2011, the earliest labels 'indicated the promise of the idea but also highlighted the complexity of making it work'. A year later, Tesco had pulled the plug, citing expense and a frustration that competitors had not followed its lead to create much-needed critical mass.

The European Commission is running a series of pilots across several food and drink categories to try to develop a common EU methodology to assess and label products with an ecological footprint. It is a fine concept in theory, but in practice there are problems, says Simon Hann, a lifecycle assessment (LCA) specialist at consultancy Eunomia. He cites the example of beef products, which have will have a much larger footprint than chicken and could give them an unfair advantage, running contrary to competition regulations.

There's another problem too, adds John Kazer, an LCA expert with the Carbon Trust: 'If you say beef is high carbon and therefore "bad" you remove the incentive for the industry to change.'

Springmann's team has calculated that a carbon tax on foods could slash GHG emissions by one billion tonnes and save half a million lives – beef would need to be 40% more expensive to account for the significant emissions during production, but consumption would fall 13%. Milk and lamb would increase by 21% and 15% respectively, with consumption dropping by 8% and 6%. There would also be subsidies to promote healthy food for low-income families but, as Springmann readily admits, food prices are a sensitive topic.

Wellesley's research suggests that consumers are more receptive to the idea than politicians think. 'Even unpopular interventions to make meat more expensive, for example through a carbon tax, would face diminishing resistance as [people] come to understand the rationale behind the intervention,' she explains.

Diets are shifting but the changes are not happening fast enough or deep enough to plug the emissions gap. Politicians keen to keep their Paris promises – and food on the table – will therefore have to provide a push rather than a nudge, however unpalatable that may feel.

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David Burrows is an environment writer.

# How technology is tackling food waste

The commercial food industry is looking to technical innovation and online platforms to reduce waste, reports **Samantha Lyster**

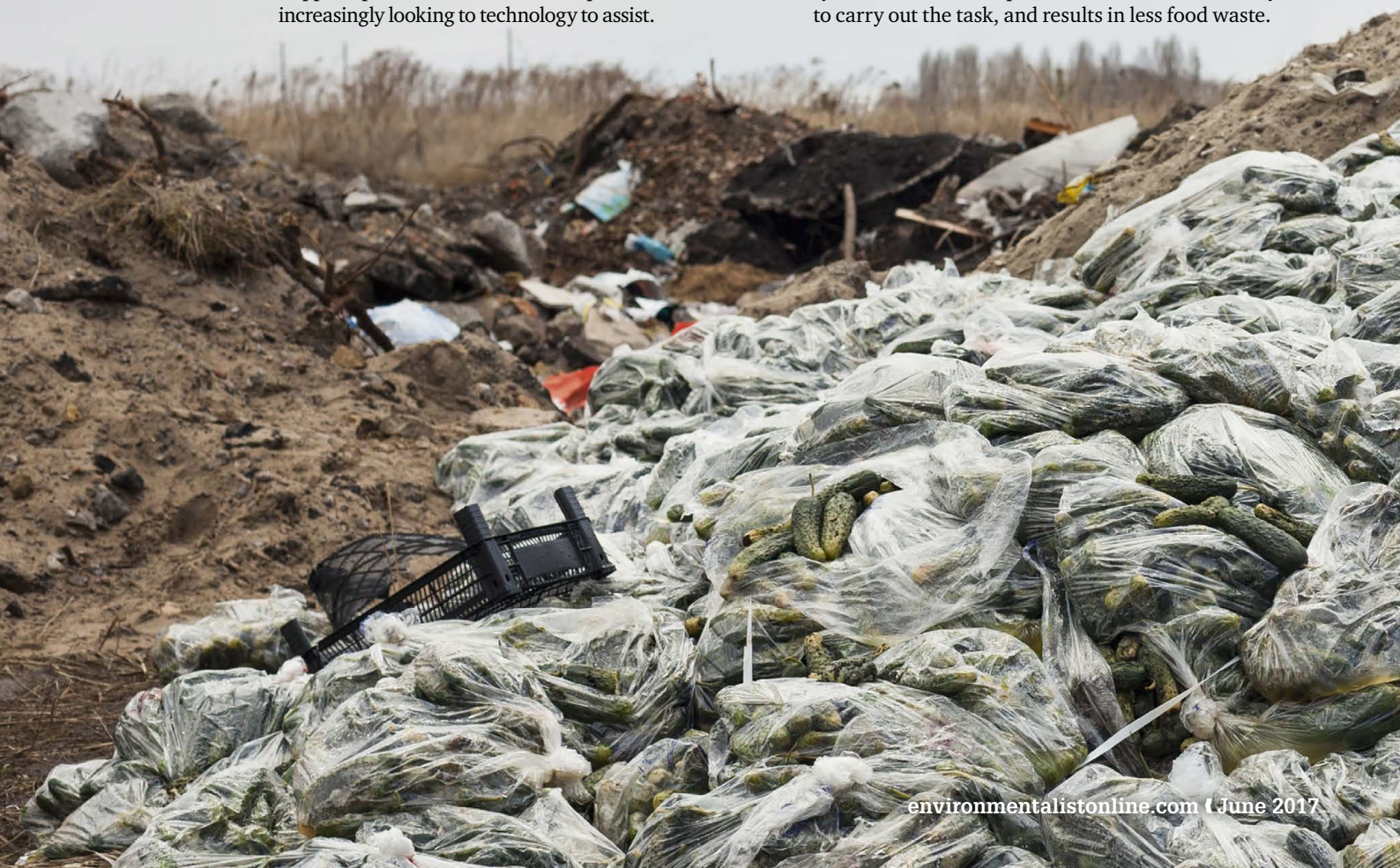
**F**or consumers the issue of food waste is on the table more than ever, as media coverage and campaigns raise the profile of how much produce is put into bins rather than mouths.

But less attention is paid to waste in the commercial sector. The Food and Agriculture Organization of the UN estimates that up to half the world's root crops, fruit and vegetables are lost to wastage before they reach the shops. And in the UK alone more than 600,000 tonnes of food a year is sent to landfill in the UK food manufacturing industry, according to Defra. The causes are many, ranging from rejected loads to spoiling in storage and incorrect labelling. In recent years, the food industry has stepped up its efforts to address the problem, and it is increasingly looking to technology to assist.

## Rotten fruit

One area of food waste that slips below the radar is rejected loads, such as shipments of imported fresh produce that are judged to have deteriorated during the journey. Normally, when loads arrive at ports an assessor manually takes samples at random from a few boxes. The decision on whether to keep the load or return it to the producer rests on that process. Should the assessor be unfortunate enough to pick from a particularly bad box in an otherwise sound shipment, the entire load could be rejected.

Wageningen University Food & Biobased Research in Holland has developed an automated quality checking system that is a more precise and time-efficient way to carry out the task, and results in less food waste.



Rick van de Zedde, a senior researcher and business developer for computer vision at the university, says the technology already exists in high-speed sorting systems, but that the team at Wageningen, working under the project title GreenCHAINge, has adapted it to the task of measuring the quality status of produce.

For fruit, the system determines its quality by testing the chemical components, such as the dry matter content and sweetness. It can replicate everything a human can, including gently squeezing the fruit to test firmness. But instead of taking just a few samples, the system can scan and assess hundreds of crates within an hour. This way an importer has a much wider and in-depth picture on which to base the decision whether to accept or reject a shipment.

The system is still at the trial stage with some traders, including Total Produce BV and Hillfresh, but van de Zedde says there is huge potential for reducing food waste, especially with exotic produce.

### Future food

Last year UK waste body Wrap published its *Food Futures* report that gave an overview of the global food industry. As part of its research, the waste and recycling organisation estimated that much of the UK's annual £17bn bill for food waste could be prevented through changes in business and consumer behaviour, and that technological solutions would be essential to supporting such change, and in some cases negating the need for it.

This includes ensuring there is more efficient production of food through better data gathering. Already large commercial farms use drones and unmanned aerial vehicles to collect data on crop damage and yield potential (see *the environmentalist*, October 2016, pp24–25).

With the cost of such technology declining each year, Wrap suggests that use of this type of equipment for precision agriculture will become more widely available, even to small farm operations.

'The growth in smart technology is driving a revolution in how the entire food system operates, from a better understanding of land resources to automated factories and kitchens,' says Wrap spokesperson Kirsty Warren. 'Data-enabled technology is becoming cheaper and more accessible all the time, but the food system has yet to fully capitalise on the benefits these technologies can unlock.'

'Over the next ten years these benefits will be explored as companies, households and policymakers seek to make better use of data. Those organisations that have the capabilities to realise this potential will be better placed to respond to the challenges of tomorrow.'

Warren adds that more could be done, pointing out that Innovate UK and the UK Research Councils are directing funding into this area. 'Prerequisites for harnessing the power of technology are an awareness that individual businesses or households are creating food waste that could be prevented and an understanding of how to make best use of the technology,' she says.



‘There is huge potential for technology, but communications to raise awareness and encourage us all to get the best out of innovations in products, packaging and labelling must progress in parallel.’

### What is on the tin

Labelling is an area that is often overlooked as a source of food waste. The food and drink industry is highly regulated, and much of the data required for traceability is retrieved through barcodes. Food processing environments can be harsh, with barcode printers operating in extreme temperatures that can cause them to jam or fail.

A printer that issues faulty barcodes with incorrect information can have an impact on the supply chain, especially for perishable goods. Supermarkets will take the cheaper option and condemn the food rather than return it to a supplier for re-labelling.

Printer firm Datatrade has developed a device that provides quality control for barcode printers. Director Peter Laplanche says the online data validation system, or ODV, analyses the information on each label to ensure the linear codes fall well within the symbology specifications. ‘If the label doesn’t meet the spec, the ODV uses its datastream analysis to overstrike the bad label and print a good replacement,’ he says.

‘It delivers 100% scannable barcodes to production areas every time. There’s no costly human intervention in the validation process and [it] ensures that all barcode delivery labels are legible, thus avoiding unnecessary costs of duplicate transportation. The cost saving and minimal food waste benefits of ODV are a real advantage and far more significant for perishable goods like dairy, meat, fish and fresh produce.’

### Supply management

Perishable goods are clearly a significant source of food waste, and one of the biggest challenges for suppliers is changes in demand. Supermarket buyers may decide to drop a product, leaving the source with an over-supply.

The costs of storage are often too high to justify for an industry where margins are small. Therefore, it is cheaper to send the produce to landfill. This has given rise to a new online platform called Takestock that acts like a storefront for such produce, as well as surplus dry goods. If a grower or trader has surplus product, they sign up to the free system. Once registered, they can list items, uploading photos and information. The seller stipulates the minimum quantity they wish to sell and declares the price they want per unit. The seller is notified of an offer and they can decline, accept or counter-bid.

Takestock chief executive and co-founder Campbell Murray says buyers range from the catering and restaurant trade to soup, jam and chutney makers and juice bars. More than 1,000 companies have registered for the service, which has 26,000 unique users. ‘We set up Takestock because two of my co-founders have food industry businesses and they saw a lot of good food go to landfill,’ says Murray. ‘When asked why the prevailing answer was that there was no easy way to reach buyers. The problem sounded to us like it could

be solved by an efficient market online and we are still building out on that hypothesis.’

Murray claims that surplus food is worth around £1bn in the UK and, although the food industry is making strides in reducing waste, it has far to go.

‘The 2015 Courtauld agreement had most of its impact in the first five years of the ten-year programme and food waste halved, [but then] plateaued,’ he says. ‘It’s all about effort and reward. Many large companies we work with, such as Unilever, M&S and Waitrose, are actively addressing this. I don’t just mean as a marketing pitch; they have integrated [this] into supply chain standards, and management bonuses. So, it’s changing but more can be done.’

Firms signing up to the Courtauld 2025, the most recent scheme, pledge to cut the waste and greenhouse gas emissions associated with their production of food and drink by at least one-fifth per person in ten years.

### At source

The ideal, of course, is to manage waste at source. In the catering and restaurant industry, discussions continue on best practice to prevent food being binned.

One strategy is to keep track of how much is thrown away, which can help to establish waste reduction processes. The challenge lies in keeping count in a highly pressured, fast-turnaround environment.

This is where the Winnow system comes in. It is an electronic scale that weighs waste as it is thrown into the bin, making it easier to monitor volumes. The technology is now used in commercial kitchens in Europe, the Middle East and Asia. Global catering company ESS rolled out the system to three sites in the UK in February 2015. The company estimates food waste so far to be down by 70% by value and 46.5 tonnes by weight, providing significant financial savings and a lower environmental impact.

It is to be expected that, in the developed food industries of western Europe and North America, technology will play a part in combating waste. However, Asia and Africa are also turning to tech to eliminate waste in food production and manufacturing sectors.

Specifically, access to mobile phones is helping small-scale farmers and producers to be more agile and connected in the supply chain. In March 2015, the University of Nottingham produced a report, *The Impact of Reducing Food Loss in the Global Cold Chain*. It pointed out that at the end of 2014 there were more than 635 million mobile phone subscriptions in sub-Saharan Africa, a figure that is expected to rise to 930 million by the end of 2019. This is prompting the development of apps to empower farmers to use the best working practices and to find ways of reducing food waste. M-Farm and Mkulima Young are apps that help to connect buyers with farmers, so that growers can establish new markets.

From online applications to smart bins and drones, the range of technology available to the food industry and its accessibility is increasing year on year, meaning that one day it could hit zero waste.

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Samantha Lyster is an environment writer.



# Fuel for thought

**Maxine Perella finds out how UK hauliers are attempting to drive down emissions**

**F**ew would oppose the proposition that the freight transport sector needs to reduce emissions. The challenge lies in engineering a decarbonisation solution that is compatible with the diverse range of vehicle configurations, weights and fleet sizes. According to the government's Freight Carbon Review 2017, heavy goods vehicles (HGVs) account for around 17% of UK greenhouse-gas (GHG) emissions from road transport, while being responsible for just 5% of vehicle miles.

'There's no one silver bullet to help to reduce freight emissions,' says Rachael Dillon, former climate change policy manager at the Freight Transport Association (FTA). 'Technology that is right for one vehicle may not be right for another. A refuse vehicle dependent on stop-start operations, frequent stops and low mileage is doing something entirely different from a supermarket retailer trucking up and down the motorway.'

In the review, which was published in February, the government acknowledged that a range of measures was needed if the road freight sector were to make a meaningful contribution to the UK's target for emissions to fall 57% below 1990 levels by 2032, in line with the fifth carbon budget.

## Improving performance

Although the delayed emissions reduction plan (known as the Clean Growth Plan) should outline the steps the government is proposing to decarbonise transport, there is still uncertainty about the right solutions for road freight. 'This will necessarily be an evolving picture over time as HGV technologies continue to emerge and develop,' the review points out.

It identifies five themes the sector could take forward to improve emissions performance. These centre on eco-driving, optimising fleet design, reducing road miles through modal shift, alternative fuels and more radical proposals such as electric trucks.

Dillon says the adoption of alternative fuels is already proving fruitful for some of the UK's large freight operators: 'The most progression has been with the gas vehicles over the past few years, so being able to switch from diesel to gas, and ultimately biomethane – that's been the most viable solution, certainly for heavier trucks.'

One such operator is Waitrose. In February, the retailer rolled out a fleet of ten biomethane compressed natural gas (CNG) powered trucks, each capable of an operational range close to 500 miles. The Scania-built lorries are said to be the first in Europe to use twin

26-inch diameter carbon fibre fuel tanks, which store gas at 250 bar of pressure to enable such high mileage.

By running entirely on biomethane, the trucks emit 70% less CO<sub>2</sub> than diesel. Waitrose calculates that each lorry will save more than 100 tonnes of carbon a year. Although the upfront cost of the trucks are 50% more than their diesel equivalents, expected payback is two to three years with fuel savings of £15,000 to £20,000 a year depending on mileage. The vehicles should operate for at least five more years, generating overall lifetime savings of £75,000 to £100,000 compared with diesel equivalents. 'We can run five gas trucks for the same emissions as one diesel lorry,' says Justin Laney, general manager of central transport for the John Lewis Partnership, which incorporates Waitrose. 'We will be able to make deliveries to our stores without having to refuel away from base.'

Biomethane supplier CNG Fuels has been working with Waitrose on the initiative, and has invested in a fuelling station outside the retailer's Leyland depot in Lancashire. 'Leyland is just one of four stations that will be put in,' says chief executive Philip Fjeld. 'We will install another station for Waitrose next year and then between 2019-2020 we will put in another two. That will then cover all of their truck demand [which is] 500-plus trucks.'

Significantly, the refuelling station will have public access, enabling other fleet operators to benefit from them. 'The station at Leyland has capacity to refuel between 500 and 1000 trucks per day,' says Fjeld. 'If Waitrose were our only customer we wouldn't be even remotely close to full utilisation. Waitrose is an anchor customer that can get us off the ground and underpin a certain percentage of usage, but the ultimate business case for us relies heavily on other users coming in over time and using the station.'

### Going further

The biomethane CNG Fuels supplies is from food waste, but Fjeld says other waste streams, such as sewage sludge, can be used in future. The company has ambitious plans for growth. 'From 2018, we are looking to roll out between four to six stations a year,' he says.

With Waitrose, the proof of concept is now there to scale up supply of CNG biomethane as a clean, cost-effective alternative to diesel, he adds: 'There are a lot of other companies now taking a very serious look at this and are ordering trucks for delivery later this year.'

Meanwhile, other freight operators, such as Howard Tenens, have introduced dual-fuel vehicles into their HGV fleets. The logistics firm has invested about £650,000 in conversions and operates 36 dual-fuel vehicles that used a combination of gas and diesel – 28% of its fleet.

'At present we only use CNG, but we've always seen that as a stepping stone to biomethane,' says Anna Rickard, environment manager at Howard Tenens. 'By operating dual fuel vehicles in our fleet we have reduced our CO<sub>2</sub> emissions by nearly 750 tonnes per annum, which equates to a reduction in fleet emissions of 6.5% per annum.'

The company is due to trial the UK's first pair of dedicated biomethane 26-tonne rigid vehicles as part of the government's low-emission freight strategy. Meanwhile, technology provider Advanced Plasma



Power is building a prototype waste-to-biomethane plant to supply the biogas and should be on-stream early next year. 'For vehicles that run 100% on gas, this will achieve a reduction in well-to-wheel CO<sub>2</sub> emissions per vehicle of about 75% compared with diesel,' says Rickard.

She adds that the rising price of diesel is helping to strengthen the business case for gas trucks – the company has invested more than £1m in gas refuelling infrastructure so far. Displacing diesel with gas also results in fewer air pollutant emissions, an important consideration given the wider policy push for improving air quality and the rise of city clean air zones.

Previously Howard Tenens has participated in several low-carbon truck trials, part-funded by Innovate UK, which involved extensive emissions testing. 'Understanding the benefits of dual-fuel vehicles was an important aspect of the trials,' says Rickard. 'We tested five vehicle types over the same route, first when the vehicle was running on diesel only and then when it was running on dual fuel. The tests showed that the NO<sub>x</sub> emissions averaged 16% lower when the vehicles were running on dual fuel.'

### Zero-risk option

Richard Carter, sustainability and finance lead at drinks business Adnams, regards dual fuel as a 'zero-risk approach' to establishing biomethane trucks in the UK. The Suffolk-based brewer has been working with fuel technology specialist Diesel Dynamics to convert one of its 18-tonne trucks to run on biomethane using gas produced by Adnams' on-site anaerobic digester (through the grid). Trials of the dual-fuel HGV, which also runs on diesel, have returned some encouraging results. Based on the first six months of data, Carter says cost savings are more than 30%. 'We've saved 9% of the CO<sub>2</sub> emissions, which we are very pleased with. But best of all the NO<sub>x</sub> emissions are down by 63%. So this vehicle lets us reduce our cost, carbon and pollution.'

This is important as NO<sub>x</sub> emissions are fuelling concern about poor air pollution in urban areas.

Adnams' plan is to implement a full-scale solution. 'Clearly there's a lot of work to do before we implement that, but it is very much our intention,' says Carter. 'It's looking increasingly likely that we will adopt the same system on a second vehicle before we roll out it across the fleet.' He adds that going down the dual-fuel route makes more sense for Adnams because the vehicles it runs now can be converted. 'That makes the business case significantly more appealing.'



It is fair to say that the world will be stuck with diesel vehicles for some time to come, so finding a solution that can be retrofitted is critically important.'

### Electric power

For some, electric-powered trucks represent the holy grail, despite the technical challenges involved with battery capacity and concerns over embodied carbon. One company making headway with electric fleets is UPS, albeit with smaller HGVs. In the UK, it has converted 52 of its 7.5-tonne trucks from diesel to pure electric (pure EVs).

'It's quite possible with a pure EV to conduct about a quarter of all of the duty cycles that we operate on a daily basis with vehicles of that type in the UK,' says Peter Harris, UPS's director of sustainability for Europe. 'In the UK we've been focusing on London – we're lucky in that our operating depot in Kentish Town is relatively close to the city centre so, in theory, just about every vehicle we operate from that depot – there are 170 of them – could be electric.'

He says the biggest challenge is in securing enough power to charge the vehicles: 'Even when we only had ten pure EVs in London a few years ago we were already at the limit of our building's power availability overnight for recharging. We took the decision to invest in a major power upgrade and that increased our capacity from ten [EVs] to 63, but we're approaching that limit again.'

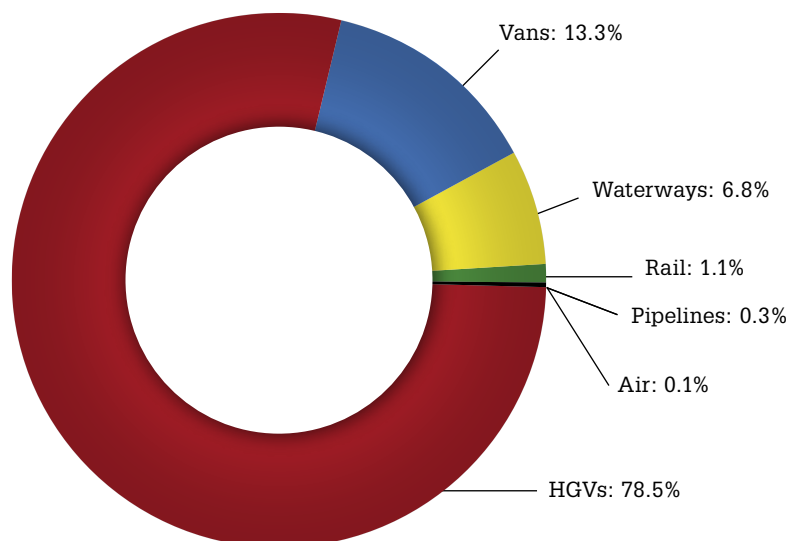
Keen to find a solution, UPS has formed a consortium with two companies, UK Power Networks and Cross River Partnership, and secured government funding to deploy a smart grid system to find a way to more efficiently connect its vehicles to the grid so it can minimise, or even eliminate, the need for further conventional capacity upgrades. 'Primarily this is about being able to access the power that is available at certain times of the night when other requirements within the building are lower,' says Harris.

If the two-year project is successful, it will be a key enabler for the company to electrify its other fleets throughout the UK and beyond, he adds. 'We think we're the first ones to deploy this type of fleet application of smart grid. We're not aware of any others, certainly at this scale.'

### Extending the range

For the three-quarters of duty cycles that cannot be covered by pure EVs, UPS is exploring the use of range extended electric vehicles (E-REVs). In a venture with E-REV specialist Tevva, it has built an E-REV prototype that has been operating for about a year. Further

### Emissions by CO<sub>2</sub>/tonne km for UK domestic freight transport



Source: CO<sub>2</sub> Emissions from Freight Transport: an analysis of UK data

government funding has been secured to build 15 more E-REVs, which UPS will deploy later this year in Birmingham and Southampton – both of which are proposed clean air zone sites.

Harris says: 'We serve Birmingham from Tamworth and we can't get from Tamworth into Birmingham, do a day's work and come back again using a pure EV. The battery range isn't enough. But with an E-REV, you can run from Tamworth to the outskirts of Birmingham with the range extender operating, keeping the battery at full capacity. The extender would switch off at Birmingham city limits and the vehicle would operate all day as a zero-emissions vehicle. To get home, the range extender would kick in again.'

According to Harris, lifecycle impact savings for E-REVs have been shown to be around 30% well-to-wheel, similar to a pure EV. For UPS's larger HGV fleet, he says electrification is not yet feasible: 'For the interim period, and I think we're talking several decades realistically, we think the answer lies with gas.'

Globally UPS has around 19,000 tractor units, 20% of which are running on both CNG and liquefied natural gas (LNG) – within this, renewable gas accounts for around 10% of use, mainly in the US. The situation is more complicated throughout Europe where the number of pure gas-powered HGVs is much lower.

In the UK, UPS has invested in 19 dual-fuel trucks, representing about 10% of its UK HGV fleet. Initially the vehicles ran on LNG biomethane but, due to a lack of government incentives, this is no longer feasible and UPS has reverted to conventional LNG.

But Harris is optimistic that the tide will turn for LNG biomethane: 'There is a great opportunity here. When you think about the options you have for an HGV on the motorway, this is probably one of the single best strategic uses of renewable natural gas.'

Maxine Perella is an environment writer.

# Making the transition: A consultancy perspective



## Kirsten McLaughlin provides an account of upgrading to the 14001: 2015 standard at WSP

**I**t took six months for WSP to achieve certification to the revised international standards for its environmental and quality management systems. The transition began with gap analysis comparing the EMS and QMS versions that were in use at the time against the requirements of ISO 14001: 2015 and 9001: 2015. For each new requirement we detailed several points of reference: what the business was already doing; what changes needed to be made; who would be responsible; the timescales to close gaps; and what evidence we would have for the auditor.

The document that came out of this became the framework for all our transition activities. There were four areas of significant change that we focused on to meet the requirements of the revised standard.

### Interested parties

The revised standards require organisations to understand the needs and expectations of interested parties. To demonstrate this, we mapped our internal and external interested parties. For each, we detailed what they expected from us and whether there were any legal compliance obligations. We then ranked the parties so we could prioritise actions. We developed a simple graph on which we could plot their interest against their influence using a scale of one to ten. They were then placed in one of four categories: manage closely, keep satisfied, monitor or keep informed (see panel, p27).

We found it was beneficial to involve different business functions in the mapping exercise, including facilities management, human resources, sustainability, procurement and finance. This exercise was also used to develop a communication matrix plan highlighting the health, safety, environment and quality information

we would need to communicate to interested parties, including the method and frequency. This single activity covered several of the new standard's clauses.

### What the auditors looked for

The auditors wanted evidence that stakeholders and their needs had been captured. Specifically, they wanted to see the compliance obligations and how this information would be used – in particular, whether it would feed into the management review and risk/opportunities planning.

### Leadership and commitment

There is more focus in the new standards on the role of top management, ensuring compatibility between environmental policy and an organisation's strategic direction. At WSP, the first action was to review and update our environmental policy. We involved the UK chief operating officer (COO), who signed it off. We also prepared a briefing note for the senior management team, explaining the transition, the key changes to the standards and our proposed actions. Presentations were delivered to operational directors. It was key to win senior management buy-in early.

### What the auditors looked for

The auditors were keen to see where the 'environment' was included at senior leadership meetings and in the longer-term strategy, and whether their roles and responsibilities were documented in relation to the EMS. During the assessment, the auditor interviewed the COO and head of corporate social responsibility.

### Risk and opportunity

The revised standards ask organisations to consider not only how it has an impact on the environment but also how the environment affects the business. WSP already operated a register for environmental aspects, covering all its offices in the UK and key business disciplines,

including building services, energy, rail, environment, major projects, industry, highways and bridges. We built on this piece of work by focusing on business risks, opportunities, and external factors and trends.

A consideration in implementing 14001: 2015 was its definition of risk as 'potential adverse effects (threats)' and of opportunities as 'potential beneficial effects'. To meet the implications of this we developed a risk and opportunity plan. It includes our significant environmental impacts identified in the aspects register, compliance obligations and other requirements. For each risk or opportunity, we detailed the impact, whether positive or negative and the proposed action to be taken to implement or rectify. To cover the external factors – that is, how the environment and other factors could affect our organisation – we conducted a PESTLE analysis. This tool helps business to look at the political, economic, social, technological, legal and environment factors that affect or may affect it and its activities now and in the future.

WSP already had an overarching business risk process so the PESTLE analysis focused on the factors that would affect environmental performance and the effectiveness of the EMS, whether client requirements could be met and whether the organisation could continually improve.

The key environmental trends that arose were:

- political changes;
- climate change;
- land use;
- population;
- catastrophes; and
- biodiversity and ecosystems

The results of the analysis, including forward planning, were added into the risk and opportunity plan.

#### What the auditors looked for:

The auditors wanted to see how WSP's aspects registers, PESTLE analysis, risk and opportunity plan were linked together. They were keen to see that high-level risks and opportunities had been addressed and evidence that potential emergencies had been identified and documented.

#### Lifecycle perspective

Under 14001: 2015, organisations must ensure environmental needs are considered during design and development processes for products and services. They have to take into account each lifecycle stage and determine the environmental requirements for the procurement of products and services, consistent with a lifecycle perspective. We mapped two lifecycle perspectives: one for our offices and one for client projects. WSP has more than 40 sites in the UK, varying in size and occupancy but with typical impacts from inputs (raw materials, supplies), operation (use of IT equipment) and outputs (waste, emissions).

We already had project lifecycle as part of our QMS, so we built on this, identifying the environmental considerations at each stage. This ties in well with Future Ready, WSP's flagship innovation and

#### Rating interested parties

High	1	Keep satisfied	Manage closely
	2		
	3		
	4		
	5		
Influence	6	Monitor	Keep informed
	7		
	8		
	9		
	10		
Low	1	Low	Interest
	2		
	3		
	4		
	5		
	6	High	
	7		
	8		
	9		
	10		

sustainability programme. It provides design teams with a practical view of the future and challenges them to engage with clients to design both for the long term and today. By mapping out the impacts we can identify where we already have good controls in place and where there are opportunities for improvement.

#### What the auditors looked for:

The auditors wanted to know what controls were in place to manage the impacts identified. They also wanted details on the environmental requirements related to procurement and suppliers/sub-contractors.

#### Words of advice

WSP achieved certification to 14001: 2015 and 9001: 2015 for its UK business in April 2017. We did so without receiving any major non-conformances and during a time of reorganisation within the business. There are some areas we still need to show further development, such as clarity on the difference between risk and significance in our aspects registers. We are also launching our new environmental and sustainability objectives, taking us to 2025.

Overall, we found the transition process demanding but achievable: the key was having a good gap analysis and implementation plan from the start. A lot of the activities, such as identification of interested parties, PESTLE analysis, and lifecycle mapping and communications planning are the same for 14001 and 9001. The process should also help WSP achieve the new health and safety standard, ISO 45001 when it is launched, probably in November.

It is important that people from business support functions and operational teams are involved. This lends reality to the system and raises awareness.

We also realised that the auditors are on a learning curve and, if we were open and honest with them, they would be realistic in their expectations. Finally, we still see this process as a journey. If you see the transition as an opportunity to improve your system, performance and embed 14001: 2015 in your organisation you will gain from it substantially.

**Kirsten McLaughlin**, MIEMA CEnv, is principal consultant in corporate environmental management at WSP.



## Paul Eijssen talks to **the environmentalist** about digital environmental impact statements and how they could transform assessments

**F**or many years, the environmental impact statement (EIS) has been widely regarded as an obligation rather than a useful tool for decision-making. New developments, including rapid advances in information communication technology (ICT), demand greater public participation and calls for community engagement offer big opportunities to develop the tool in a transparent, accessible and interactive digital form.

A pilot project at consultancy Royal HaskoningDHV has revealed the possibilities of, and enthusiasm for, using a digital EIS. Strategic consultant and associate director of smart urban environment Paul Eijssen says it marks the start of a journey to optimise the use of technology to empower stakeholders across the industry. Here, he explains how the digital EIS came about and where he foresees it will take the industry.

### Why change EIA reporting?

Recently, EIA experts have started to discuss producing more user-friendly statements. However, as an industry, we tend to look inward into existing tools and landscape and have not made any significant inroads into improving this instrument for a long time. There were several reasons why we need to transform the way we approach the reporting of EIAs, but the main factor concerns the role of the project stakeholder and how they portray the reporting process and what image they held of the statement.

These are the people who really need to understand the environmental impacts of the project. They can be government representatives, a local council or a member of the community. We need to take a different, modern approach to creating an EIS that is quick and easy to understand by everyone involved.

From talking to colleagues, clients and stakeholders we discovered that the thick, text-heavy and technical reports were read by few people. They also took the EIA team a long time to write and were expensive to produce.

When you weighed up all these factors the result was clear: the EIS had a poor image, and this had the potential to damage the assessment sector. I realised we needed to innovate and change to ensure that the EIS will continue to have relevance and impact.

The speed at which recent developments in ICT have taken place, coupled with the availability of geographic information system (GIS) technology and the call for greater transparency and accessibility, made the digital EIS a logical next step.

### How does digital EIS work?

The digital EIS offers a new experience for clients and stakeholders, changing the way all data surrounding the impact of a project on the environment is visualised and shared. This is not a pdf version or a digital version of the previous hard copy; this is a new interactive digital platform.

The design has at its core the realisation that must cope with today's world and the increasing demand for digitalisation and transparency. Therefore, it provides information using videos, photos, maps, tables, infographics and even audio, moving away from the traditional text-based statements, yet retaining the fundamental integrity of the EIS. We wanted to deliver a world in which EIA reporting is quicker, more interactive, transparent, concise and accessible; one that makes decision-making more rapid and efficient.

The techniques used in the digital EIS are not entirely new. Telling the story by using a combination of highly visual digital tools while still providing the



necessary substantiation and explanation to the same level as the 'traditional' EIS – that's new.

### What impact has the digital EIS had on the industry?

We started by examining the opportunities it would present. One of the most important was the increased accessibility a digital EIS provides, helping to encourage greater understanding and engagement from the local community in a project's development. This benefit touches on the principal reason for the existence of the EIA, which ultimately is to help clients gain consent for their projects.

During the pilot project for the digital EIS – the Dutch Ministry of Infrastructure and the Environment – we focused on a platform that promotes collaboration and enhances mutual understanding between stakeholders, such as governments and communities. Connectivity is a huge advantage of the digital EIS. Linking with social media and baseline data through sensor techniques are just two examples. Added to this is the highly visual aspect of the digital EIS, which links to the way future generations will experience the world.

The aim was to make information more accessible to decision-makers and stakeholders so they become more involved and contribute to decision-making, and this is proving to be the case. It is a great opportunity for growth and development in the industry and it is exciting to see such a positive response.

### What challenges have you had to overcome?

As with any pilot project there are always lessons to be learned, both in the project and in the adoption of a new technique. And then there will be a learning curve with the adoption of any new process.

It is important to maintain the integrity of the EIS. The digital platform makes it easier for stakeholders involved with the project to understand, but it is a big step forward and we will need to work together to build trust for the platform. All the information included in the new visual digital EIS is the same and as reliable as previous, so this

must be reinforced at the same time we educate. On the face of it, it might look like a simple solution but we should not underestimate the impact of this new way of working and thinking. The new, interactive format will require new skills from the many stakeholders involved in the EIS process, which will be no mean feat.

### Is there potential to expand the new digital EIS to other industries and areas?

So far, we have developed the one pilot project using the new EIS. This was focused on the Netherlands and has provided a lot of information from which we will continue to learn and fine-tune. In the pilot project, certain choices were made in terms of how the digital platform should look, how technical issues were handled, how it was published. There are many other visualisations and formats possible, and each must be assessed to determine what works best, how we address security concerns and how the review process is completed, for example.

Qualified people will be required, from ICT experts to creative designers, as well as GIS and EIA experts. The need for lifelong learning is key to success and will be an absolute necessity if we are to follow the new path.

We are in the rallying phases. We know the digital EIS works and has tremendous benefits and we want colleagues and authorities in other countries to collaborate with us to shape the future of the platform.

### How has it been received by industry bodies?

Throughout the initial pilot project, we worked closely with various parties involved in the EIA process – government advisers, provinces and municipalities, lawyers, and the independent Netherlands Commission for Environmental Assessment.

The commission assesses the EIS to make sure it contains the necessary information for decision-making and sees this digital development as a positive step. It made several recommendations, including the addition of a search function to help readers quickly find information, as well as the ability to record annotations. It also said that managing and storing digital files would be an important consideration that must meet legal requirements.

### What lies ahead for the digital EIS?

The development of the digital EIS has generated discussion around the world. The speed with which this will be implemented across the industry will depend on a range of factors such as the early interaction between EIS writers and government bodies and their willingness to make resources available to invest in the process.

One thing is certain: through this innovation the digital EIS will put the environment higher on the agenda. I see a lot of potential in the digitalisation of the EIA process, which could also be interesting for a lot of other fields of work. The future has lots of potential and I am eager to aid its progression.

**Paul Eijssen**, MIEMA CEnv, is strategic consultant and associate director of smart urban environment at Royal HaskoningDHV.

For more information, including a video explaining Royal HaskoningDHV's approach to digital environmental impact statements, visit [royalhaskoningdhv.com/theneweis](http://royalhaskoningdhv.com/theneweis).

# How to plan a successful career

**John Barwise** reviews IEMA's membership and professional development programmes and charts the career paths of several members

**A**s the global community begins the transition to a sustainable low-carbon economy, businesses need staff with the right level of skills to make it happen. But what are the options for aspiring environmental and sustainability professionals, and what career path do they choose?

The world of work is changing. The continual impacts of climate change, water stress, volatile energy prices and the growing threat of resource depletion are forcing organisations to adapt their business models to a new, more sustainable way of working.

Yet research by IEMA shows that only 13% of organisations are fully confident that they have the right skills in place to compete in a sustainable economy, with only 25% of leaders believing they have the capabilities in their organisations to address the sustainability agenda.

IEMA chief executive Tim Balcon says progress is being made on improving on these figures: 'The research published in our seminal *Preparing for the Perfect Storm* report showed a massive gap between the supply and demand of skills that are critical to the economy. Since then, recognition of and reward for these roles have grown and the gap is perhaps narrowing. There is still much to be done by business to recruit and upskill in the right places. That's why environment and sustainability is attractive to people looking for a meaningful profession – it makes a difference, and there's room to do so.'

Prospects, the jobs, marketing and recruitment firm for post-graduates, lists more than 30 industry sectors that need people with

environmental qualifications. Sector-based jobs include environmental and energy management, sustainable development, environmental impact assessment, environmental engineering, resource management and nature conservation – the list is lengthy.

## Specialist skills

For many businesses, the transition to a sustainable economy will require specialist skills and contract services – for others it entails retraining and upskilling staff in environment management and sustainability. But employers need credible assurance that investment in training and human resources can deliver a sustainable business model.

IEMA's membership and professional development standards are recognised internationally as the career benchmark for this diverse and growing sector. It has a worldwide alliance of more than 14,000 environment and sustainability professionals, working to ensure organisations have the appropriate skills base and services to manage the transition to a sustainable future. Professional grade membership applications are growing each year, with an increase of 50% from July to December 2016 over the same period in 2015.

IEMA's chief policy advisor, Martin Baxter, says the rise in membership is inspiring: 'We face environment and sustainability challenges across the globe and we need professionals with the skills to make positive and transformative change. It's inspiring to see sustainability professionals from all parts of the world qualifying through IEMA's professional standards.'

### Continuing professional development

IEMA membership encompasses a wide range of services to help environment and sustainability professionals to plan and develop the next stages of their careers, including continuing professional development (CPD), approved training courses, mentoring, training facilities and a structured career to enhance the learning experience.

Managing personal goals and professional development helps individuals to evaluate and achieve their career aspirations. IEMA's step-by-step approach to CPD is designed to enhance members' learning experience and skills and simplify the process of retaining and updating records. IEMA has introduced a new evaluation method to support this process. By logging CPD activities, members can record and reflect on what they have achieved so far, decide what areas need strengthening and set realistic targets for future development. The CPD log sheet follows a logical four-step process:

- Setting goals: recognise what you want to achieve in the short and long term, identifying what needs improving and setting targets for building knowledge, as well as the skills to get there.
- Record: log the learning experience and how it can be applied.
- Reflect: evaluate performance and lessons learned, including a points system to evaluate activities.
- Review: assess progress towards overall goals and contribution to enhanced career.

Maintaining a CPD record is a mandatory requirement for all professional membership grades. CPD should be completed annually and members are invited to complete and submit their log sheets to IEMA as part of their membership renewal.

IEMA provides a free mentoring scheme to help members who have set their sights on Full membership or Chartered environmentalist to achieve their goals (see panel on membership levels, p32).

The scheme

provides structured support for up six months and enables members to connect and share knowledge with a mentor who has already achieved the higher grade.

A detailed description of what is required at each level of membership is available on the IEMA website ([iema.net/membership](http://iema.net/membership)).

### Skills mapping and training

IEMA's skills map is a career benchmarking tool to support and encourage members at each stage in their professional development. The map enables members to compare their current knowledge, skills and experience with the competencies required to progress to the next level of membership.

Members can use the skills map to perform a gap analysis to identify training needs, learning objectives and qualifications needed to improve competencies. Each of the membership grades are covered in detail. Employers also use the map to assess new job requirements that may be needed to support the strategic direction of their organisation.

The skills map is the link between CPD and IEMA's training programme and professional recognition.

Training enables staff to acquire new skills, build self-esteem and increase their contribution to the organisation they work for. This is particularly important in the transition to a sustainable, low-carbon economy, where the challenges of climate change, resource efficiency, regulatory compliance and environmental management are pushing the boundaries of current work practices to new levels.

IEMA offers approved environment and sustainability training courses covering a range of sustainability disciplines, including environmental management and auditing, legal compliance, carbon footprinting and sustainability strategy ([iema.net/training/training-courses](http://iema.net/training/training-courses)).

Successful completion of a one-week foundation certificate in environmental management, for example, leads to Associate status, whereas the extended three-week Certificate in Environmental Management course leads to Practitioner membership. ISO 14001 transition courses, as well as those in environmental auditing, legislation, carbon footprinting, corporate responsibility and sustainable development extend the learning experience for members who want to enhance their professional development.

### Ongoing compliance

Claire Kirk, head of professional standards at IEMA, says quality assurance is of the 'utmost importance' in all approved training programmes. 'We approve training centres, training courses and tutors. To be approved they

must demonstrate how they meet IEMA's established standards,' she says. 'All centres have to show ongoing compliance through an annual self-assessment, which is reviewed by IEMA. Teaching observations, visits and exam results help us monitor the ongoing performance of IEMA approved centres.'

IEMA members who undertake training in courses such as environmental auditing, environmental impact assessment and the government's mandatory energy savings opportunity scheme (ESOS) receive recognition through specialist registers.

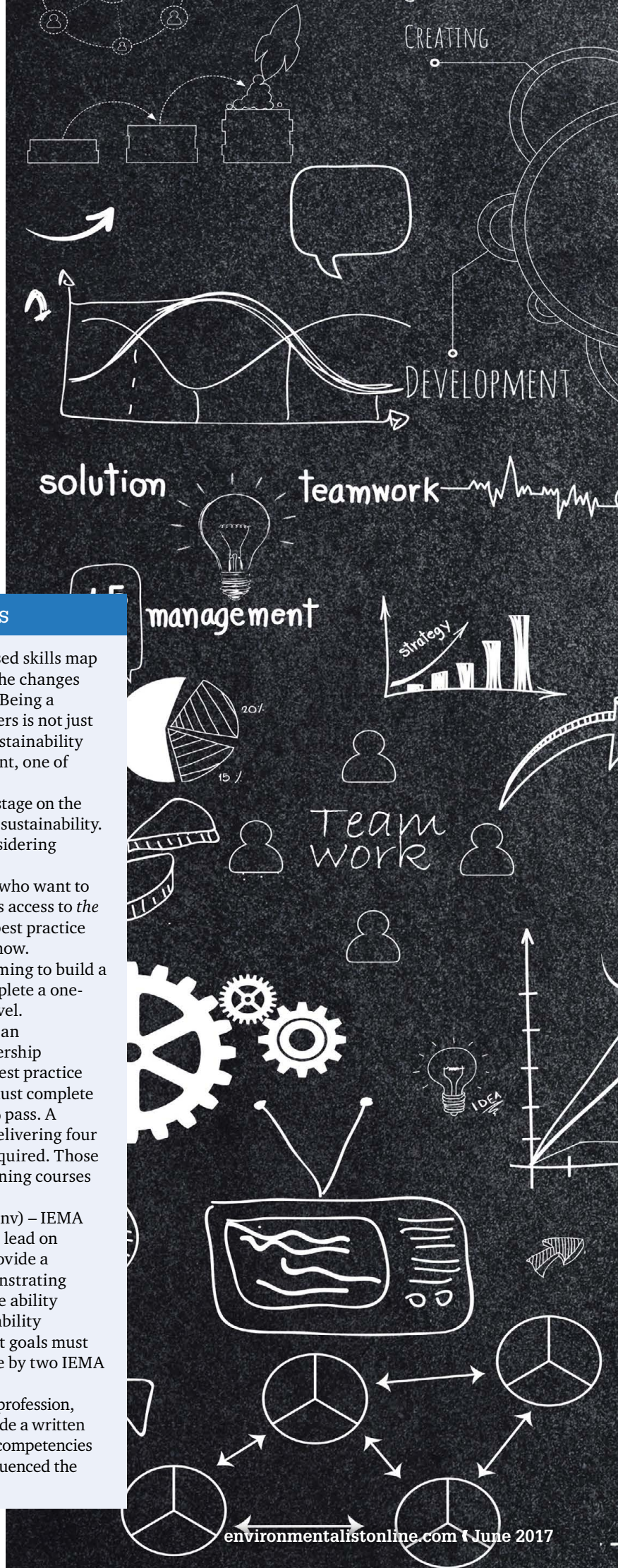
**John Barwise**, MIEMA, CEnv is a director at QoL, an environmental management and communications consultancy. IEMA's continuing professional development, skills map and training programmes are available at [iema.net/membership-benefits-map](http://iema.net/membership-benefits-map)

### IEMA membership – charting progress

IEMA unveiled its new membership structure and revised skills map last year. At the time, chief executive Tim Balcon said the changes would gear the profession up to achieve bigger things. 'Being a transformational change agent at all stages of our careers is not just about climbing a ladder. Life as an environment and sustainability professional is about a continued journey of achievement, one of learning, collaboration and leadership.'

Indeed, IEMA describes each membership level as a 'stage on the journey' to professional recognition in environment and sustainability.

- **Student and Affiliate** – an entry level for those considering careers in environment and sustainability.
- **Graduate** (GradIEMA) – a launchpad for graduates who want to take on a transformational role in business. Provides access to *the environmentalist*, networks and details of evolving best practice and other resources and recognition for what you know.
- **Associate** (AIEMA) – the starting point for those aiming to build a career in environment and sustainability. Must complete a one-hour online multiple choice exam, with 70% pass level.
- **Practitioner** (PIEMA) – professional recognition as an environment and sustainability practitioner. Membership includes practical guidance, support and access to best practice tools to advance knowledge and skills. Applicants must complete a one-hour online multiple choice exam, with a 70% pass. A written assessment demonstrating competence in delivering four environmental or sustainability initiatives is also required. Those who have completed particular IEMA-approved training courses are exempt from the exam.
- **Full and Chartered environmentalist** (MIEMA CEnv) – IEMA professionals with the knowledge and experience to lead on environment and sustainability. Applicants must provide a verifiable CV and a 2,000-word written paper demonstrating competencies in dealing with complex issues and the ability to analyse and evaluate environmental and sustainability opportunities and threats. Professional development goals must also be explained. Applicants are interviewed online by two IEMA assessors to discuss competencies in more detail.
- **Fellow** – ambassadors who are at the forefront of the profession, pushing practice and policy forward. Applicants provide a written submission to demonstrate how they meet IEMA's 13 competencies of Fellow membership and explain how they have influenced the profession on key issues.



## What members say

Here, a selection of members who have recently upgraded talk about the inspiration for upgrading, how they prepared and what it has done for their careers. They also offer some tips to others thinking of elevating their IEMA status.

### Hannah French, MIEMA, CEnv

I was inspired to progress through the full membership process to increase recognition of my knowledge, experience and influence and to raise the profile of the environmental profession in my industry. After reading *the environmentalist* and attending various webinars, I have been able to contribute to IEMA's endeavours in the circular economy and EIA.

My preparation began with a gap analysis against the MIEMA/chartership core competencies and the IEMA skills map to assess my readiness. I discussed my application with my mentors and peers. I followed the application guidance document, particularly the advice about staying up to date with the latest news, preparing responses to mock questions, reading past copies of *the environmentalist* and familiarising myself with my work history.

I have had various roles in the government and construction sectors in Australia and the UK and worked with amazing peers and mentors who have challenged me and broadened my experience and knowledge of environmental management and sustainability. This has given me an appreciation of environmental management issues faced by different industries and the opportunities for sharing best practice to improve performance.

Since beginning my journey to full membership and charter status I have started to fully appreciate the benefits of IEMA's CPD opportunities through webinars, workshops, mentoring, networking and *the environmentalist*. MIEMA has given me the confidence to take on more responsibility in my career and given my employers the confidence that I am at the forefront of emerging trends and issues environmental professionals are facing.

My top tips are to seek the advice and support of your mentors and peers who have gone through the MIEMA CEnv

process. Be familiar with your working history and prepare responses to mock questions – mentally or on paper.

### Emma Dixon, AIEMA

I am a safety, health and environmental adviser on a large confectionery site with different manufacturing processes and many environmental management requirements. My geography degree included environmental elements, but did not prepare me for legal requirements of environmental management. It was extremely valuable to my career to upgrade in order to gain a better understanding of environmental management and how to apply this in a workplace.

I completed a two-week course through a training provider. I also found it useful to read news articles on current environment topics, including climate change. I also consulted with colleagues who had previously completed the course. Practising past exam questions was extremely useful.

Gaining IEMA membership and a further qualification have enhanced my interest and knowledge in environmental management. I do have a personal interest in the subject but it has given me a better appreciation for the processes we follow and legal obligations to do so.

To progress in my role, it was important for me to gain this qualification. It has given me a solid understanding of the key environmental management requirements, and I have been able to actively participate in these in my workplace.

When completing an IEMA course, it is useful to bounce stories and experiences off the other participants. Even though the exam was open book, don't rely on your notes too much. Prepare as if it were a closed book exam and practise lots of past papers.

### Eoin Harris, MIEMA, CEnv

I worked in another industry for five years before changing careers to become an environmental professional, so I've been motivated to progress through a professional membership structure.

Most of my preparation was through working for a variety of organisations on a range of projects, so I picked up a lot of information along the way. Guidance documents by regulators, industry bodies

and companies leading in their fields are especially useful. *the environmentalist* also provides a good overview of topics that are coming up.

A consultant needs to apply knowledge and skills in new industries and organisations regularly and you are always learning new things. It is rewarding working out how to fit an environmental topic into an organisation's culture and processes.

Having IEMA membership helps me to demonstrate my commitment as an environmental professional and is often a requirement for particular roles. It has helped me through my career by providing a structured way to learn and progress, but it also provides great learning opportunities, especially through the webinars.

My advice is to try to get a broad experience wherever you can. So many environmental issues are interlinked and it helps to know the whole picture. Develop your softer skills as you go. Being able to communicate, prioritise and manage effectively are essential skills for this profession. Allocate time every week to develop yourself – this one is easily overlooked when your diary is busy.

### James Dixon, MIEMA, CEnv

I had always planned to progress through the levels of IEMA membership as my career developed. I see it as professional recognition following a structured peer-assessed method. Chartered environmentalist qualification was a great inspiration for me to progress my membership level. The final push came from my new director who specifically included achievement of MIEMA and CEnv in my appraisal targets for 2014.

Resources and guidance on the IEMA website ([iema.net/reading-room](http://iema.net/reading-room)) were very useful in developing my application pack, including the supporting paper. IEMA's LinkedIn pages were also a good resource for learning about the experience of recently qualified MIEMA and CEnv members.

My career path has offered valuable learning experiences at each stage of my development. My first role in Newcastle City Council gave me the opportunity to assess and manage environmental impacts of multiple services and set objectives to improve performance.

## What members say

At Newcastle Hospitals, I progressed from waste management to head of environmental management. Building up experience with each job role, coupled with promotions to more senior posts, afforded me the skills and experience required for MIEMA and CEnv.

IEMA events and webinars are invaluable in maintaining my CPD to do my job effectively. In terms of career development, I wouldn't have made the interview for my current role as MIEMA and CEnv are listed as essential requirements in my job description and person specification.

My advice is to take every opportunity offered to you, even if it falls outside your comfort zone. Take time for CPD. It often falls down the priority list when deadlines are looming, but it is so important. Talk to the IEMA members' network – most people are very supportive.

### Laura Duggan, MIEMA, CEnv

I had invested considerable time and effort in preparing for the Associate assessment and wanted to keep up the momentum. Having reviewed the IEMA skills map for Full membership and given my professional experience to date, I felt I was ready to progress to the next level.

I reviewed the MIEMA competencies and assessment criteria set out in the application pack and watched the webinar. I drafted my application using my CV and the STAR approach (situation-task-approach-result). I also used IEMA's gap analysis tool to assess competency levels and prepared an action plan, focusing on topics in my own industry as well as global issues. IEMA webinars were really helpful, along with *the environmentalist* magazine.

After graduating with a Master's in leadership for sustainable development, I started work as environmental officer at George Best Belfast City Airport and progressed to become its environmental manager. I am responsible for driving the environmental and sustainable development agenda and am a member of the airport's corporate responsibility team. I have been exposed to a wide range of areas, including noise, energy and carbon, and resource efficiency and must keep abreast of current issues, policy and legislation in a range of areas. Working in a senior management

position has necessitated the development of my leadership and influencing skills, which I believe are critical to bring about positive environmental change and sustainable development.

Membership of IEMA has been pivotal to my career development. The skills map has guided me in the knowledge and skills essential for developing as an environmental professional and IEMA membership has given me access to a range of resources to help me to progress. In addition, through IEMA's regional network, I have met other environmental and sustainability professionals that I have been able to contact for benchmarking and advice.

Use IEMA's gap analysis tool and skills map to prepare for the Full and Chartered environmentalist membership application paper and interview. I would suggest preparing examples to demonstrate each competency and be specific about your role and the results you have achieved. Also, emphasise past activities and your future CPD plans to demonstrate commitment in this area.

### Tom Cramond, AIEMA

The revised EIA Directive raises the question of competent expert. IEMA membership is something I always intended to achieve, but the imposition of the directive was just the kick-start I needed to get moving.

I got a little confused as to what level of membership I was going for and therefore my revision changed through the process. I googled a lot of the key phrases highlighted in the AIEMA standard. For some aspects that I hadn't been aware of, such as the planetary boundaries concept, there are videos of seminars and presentations online.

My career path has been linear. Although I have not had much experience of implementing environmental management systems, I have gained a good depth of knowledge in other fields. Working for a large multi-disciplinary consultancy firm has exposed me to different types of projects and sectors, all with their own challenges, and has been a continual learning experience.

IEMA membership has highlighted various elements of being an environmental professional, including aspects that may be personal interest or practices that apply to day-to-day

working. Membership also allows engagement, involvement and access to the appropriate resources to further understand these elements and gain a greater insight to how these practices, concepts, work streams and policies are delivered in the working environment.

My top tip is to engage with IEMA and use the skills map to ensure you know what level to aim for and what you want from upgrading.

### Nick Baker, MIEMA, CEnv

I've recently returned to the profession after several years working in other roles in Skanska. Progressing to Full membership felt like the right way to mark this return and re-establish my credentials as a sustainability practitioner. I read the material provided online about upgrading to MIEMA. This proved a useful starting point. I also asked for advice from colleagues who had been through the process and took advantage of the IEMA mentoring scheme. This last step proved especially helpful in understanding what the assessors would be looking for.

About six years ago I took the decision to move away from an environmental role and pursue other opportunities to develop my career. I've been fortunate to work in procurement, business development and project management. That diversity of experience has helped me to understand the business context of sustainability better and, I hope, made me better at what I do today.

Within construction, my sense is that the importance of IEMA membership as a mark of professional competence is growing. IEMA has a wide selection of learning materials available, which have proved invaluable in helping me to build my professional knowledge. *the environmentalist* is also a constant commuting companion – there's always at least one interesting article that grabs my attention.

Take every opportunity to keep learning and developing yourself. Don't put off taking the step up to MIEMA – the application requirements force you to think about your experience and what drives you. In a busy life that is a rare chance to reflect, which is incredibly rewarding.

# Katie Anderton

Principal consultant, Temple Group

**Why did you become an environment and sustainability professional?** I have loved the environment since I was a child. My primary school was next to an airport and I used to write about air pollution. My parents always imagined me chained to a tree somewhere, protecting the environment. I like to think the job I do allows people to build much-needed homes and infrastructure, but with the fewest environmental impacts.

**What was your first environment or sustainability job?** One of the first environmental impact assessment (EIA) projects I worked on and my first experience as a project manager was at RAF Upwood in Huntingdonshire. It was for a large, mixed-use development on the former airfield with lots of environmental constraints but plenty of opportunities for enhancement.

**How did you get your first role?** I joined BWB Consultancy straight from university. I'd done some volunteering and extra GIS courses beforehand that provided me with the experience I needed to become an environmental consultant. I was also a Graduate member of IEMA, which I think helped my credibility when applying for EIA jobs.

**How did you progress your environment/sustainability career?** I attended seminars, training, conferences and networking events that furthered my understanding of the industry. I've also been fortunate to work on a varied range of projects, which has helped to build experience, and have worked with various project teams and clients across the industry. Sometimes being thrown into the deep end really pays off. During the early years of my career, I was also the committee secretary for the Chartered Institution of Water and Environmental Management's West and East Midlands new members' group and an East Midlands planning aid volunteer. Again, these opened up new networks and provided me with invaluable experience.

**What does your current role involve?** I am working on several schemes for Transport for London where I am an EIA consultant/environmental adviser. I'm also advising clients across London on the environmental impacts and environmental mitigation and construction issues – such as consents, targets for key performance indicators and environmental monitoring – on some major infrastructure schemes.

**How has your role changed over the past few years?** In the early days, I would support a number of projects or lead just one major project. Now I tend to be the project manager for several projects at the same time with a team around me to provide specialist advice. I also assist business development initiatives and get involved in key account management, which is completely different from project delivery and provides an opportunity to think strategically.

**What's the best part of your work?** Seeing projects being completed. It's sometimes frustrating that you work hard on projects that are never get built. In the infrastructure sector that rarely happens and to visit somewhere and say I helped to create this is the best part of my job.

**What's the hardest part of your job?** Convincing others that the environment is just as important as the engineering. Often the environmental disciplines are appointed far too late in the process when a lot of the design and construction options have already been decided.

**What was the last event you attended?** Speaking at 'Green Sky Thinking Week', discussing the opportunities for and benefits of proactive environmental management throughout all stages of a project.

**What are the most important skills for your role and why?** The ability to provide effective



## Career file

### Qualifications:

BSc (Hons), IEMA Affiliate – currently working towards Chartered environmentalist status

### Career history:

2012 to now principal consultant, Temple Group  
2007 to 2012 environmental consultant, BWB Consultancy

professional advice and guidance to clients on construction and environmental issues as well as having strong inter-personable skills to negotiate with various stakeholders, including local authorities.

**Where do you see the environment/sustainability profession going?** A lot of people talk about protecting the environment and adding sustainability but few know what this means and how to put it into practice. Hopefully, as time progresses and more exemplar projects are showcased, everyone will have the same understanding of what our profession can do.

**Where would you like to be in five years' time?** I would like to think that in five years' time I am still working on some of the major infrastructure projects in London. Maybe the next Crossrail or cable car?

### What advice would you give to someone entering the profession?

Never say no to an opportunity because you never know where it could take you or what experience you will gain from it. The more challenging the project the more experience you will gain.

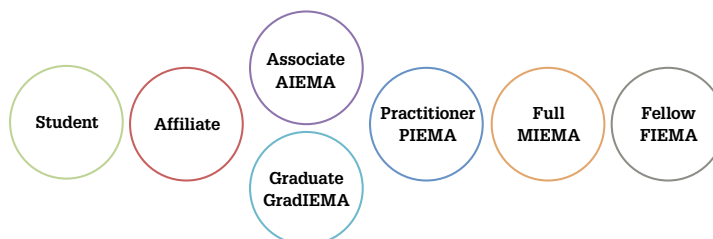
## Latest member upgrades

IEMA would like to congratulate the following members on recently upgrading their membership.

**Associate**

**Steve Ablewhite**, Surface Technology  
**Karolina Andrecka-Kazmierczak**, Chemring Defence UK  
**Richard Armstrong**, McVitie's Company  
**Leanne Arrowsmith**, Norman Hay  
**Carlo Augusto**  
**David Avery**  
**Gill Avis**, Alpha Group  
**Sara Aziz**, Queen Mary University of London  
**Nigel Ball**, SITA UK  
**Chris Barnes**, British Airways  
**Shay Bayford**, ERM  
**Sarah Bennett**, British Airways  
**Andrew Bradbury**, Alstom Grid UK  
**James Brennan**, JP Dunn Construction  
**David Bruce**, Willis Towers Watson  
**Claudia Calder**, Cardiff University  
**Anthony Child**, Bidwells  
**Danielle Crompton**, British Airways  
**Heather Crump**, Aberystwyth University  
**Nicola Daly**, 5 Boroughs Partnership  
**NHS Foundation Trust**  
**Scott Daniel**, Norgine  
**Yvonne D'Arcy**  
**Adam Dennis**, LRQA  
**Joanna Di Monda**, British Airways  
**Emma Dobbins**, Balfour Beatty Group  
**Sarah Eastham**, Kommerling UK  
**Emma Fallows**, James Kent  
**Katie Fargher**, Linbrooke Services  
**Michael Field**, British Airways  
**Nick Fox**, McGee Group

**Gabrielle Galea**, Foundation of Medical Services (Malta)  
**Chris Goddard**, Powell (UK)  
**Neil Gowers**, Network Rail  
**Kirsty Green-Mann**, Imperial Brands  
**Amanda Greer**, Dive and Marine Contractors  
**Rebecca Gysin**, Connect Plus Services  
**Rachael Hardman**, Johnson Matthey  
**James Harris**, JF Renshaw  
**James Hart**, Babcock  
**Richard Hinchliffe**, Vinci  
**Leigh Holbrow**, British Airways  
**Alice Hull**  
**Elizabeth James**, Reconomy  
**Matthew Kelk**, Natural Resources Wales  
**Sarah Ladkani**, Sheppard Robson  
**Kimberley Lewis**  
**Richard Lewis**, GMC Software  
**Vicki Loach**, 3M UK  
**Ian Lockton**, Paragon Finance  
**Annette Loettrup-Moore**, PMSL  
**Rick March**, Lighthouse Safety Training  
**Michelle Marks**, Coral Mountain  
**Jennifer McGrugan**, Coca-Cola Hellenic Bottling Company  
**Rohan McReynolds**, Tobermore Concrete  
**Rhianne Menzies**, Sustainable Commercial Solutions  
**Paul Mulcahy**, Toyota  
**Material Handling UK**  
**Barrie Nash**  
**Leonidas Neophytou**  
**William Nichols**, Verisk Maplecroft  
**George Petrie**, G Petrie Safety Solutions  
**Olivia Phillips**, Kier



**Zoe Purshouse**, The Company Shop  
**William Raikes-May**, Wessex Water  
**Daljit Rajbans**, British Airways  
**Anuradha Randev**, British Airways  
**Ben Reid**, University of Edinburgh  
**Alexandra Rickham**, PCSG  
**Stephanie Robson**  
**Alison Rodgers**, CITB-Construction Skills  
**Kat Rolle**, Kier  
**Stephanie Rooke**, Viridor  
**Jeff Scotford**, Barton Firtop Eng Co  
**Eugenia Siccardi**, GroundSure  
**Melinda Simon**, Willmott Dixon  
**David Skeoch**  
**Chris Spencer**, Mott MacDonald  
**Jacobus Stadler**, Continental Fine Foods  
**Lindsey Stewart-Miller**  
**Daniel Stock**, British Airways  
**Peter Walker**, Stanley Security Solutions  
**Harriet Webb**, Keltbray Group  
**Katie Williams**, Nuaire  
**Maurice Wilson**, British Airways  
**Emma Woodrow**, Arcadis Consulting (UK)  
**Iba Zupancic**, Government Office of the Republic of Slovenia for Development and European Cohesion Policy  
**Practitioner (PIEMA)**  
**Irshad Ahmed**, CH2M Hill

**Fergus Anderson**, Buro Happold  
**Jenny Barlow**, University of Leeds  
**Mary Conn**, City Building  
**Viktoria Hobbs**, SRL Technical Services  
**Rebecca Jones**, Network Rail  
**Catherine Morris**, University of Kent  
**Andrew Race**, Jackson Civil Engineering Group  
**Samuel Taylor**, Costain  
**Full with Chartered (MIEMA CEnv)**  
**Joseph Godwin**, BP Exploration  
**Jemma Gooch-Boags**, Plandescil  
**Alexandra Herschel**, Guernsey Electricity  
**Helen Kent**, Land Use Consultants  
**David Leonard**, BRE  
**Rachel Moore**, Jacobs  
**Debbie Nesbitt**, RPS Consulting Engineers  
**Russell Payne**, AECOM  
**Bethan Rose**, Jacobs  
**Steffan Shageer**, AECOM Infrastructure & Environment UK  
**Geraldine Smith**, Balfour Beatty Group  
**Terry Williams**, Defence Estates HBU  
**Rachel Xuereb**, ADI Associates  
**Environmental Consultants**

For advice on upgrading your membership call IEMA on +44 (0)1522 540069 to discuss your options with an adviser or visit [bit.ly/2jYPIFz](http://bit.ly/2jYPIFz).

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