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the environmentalist
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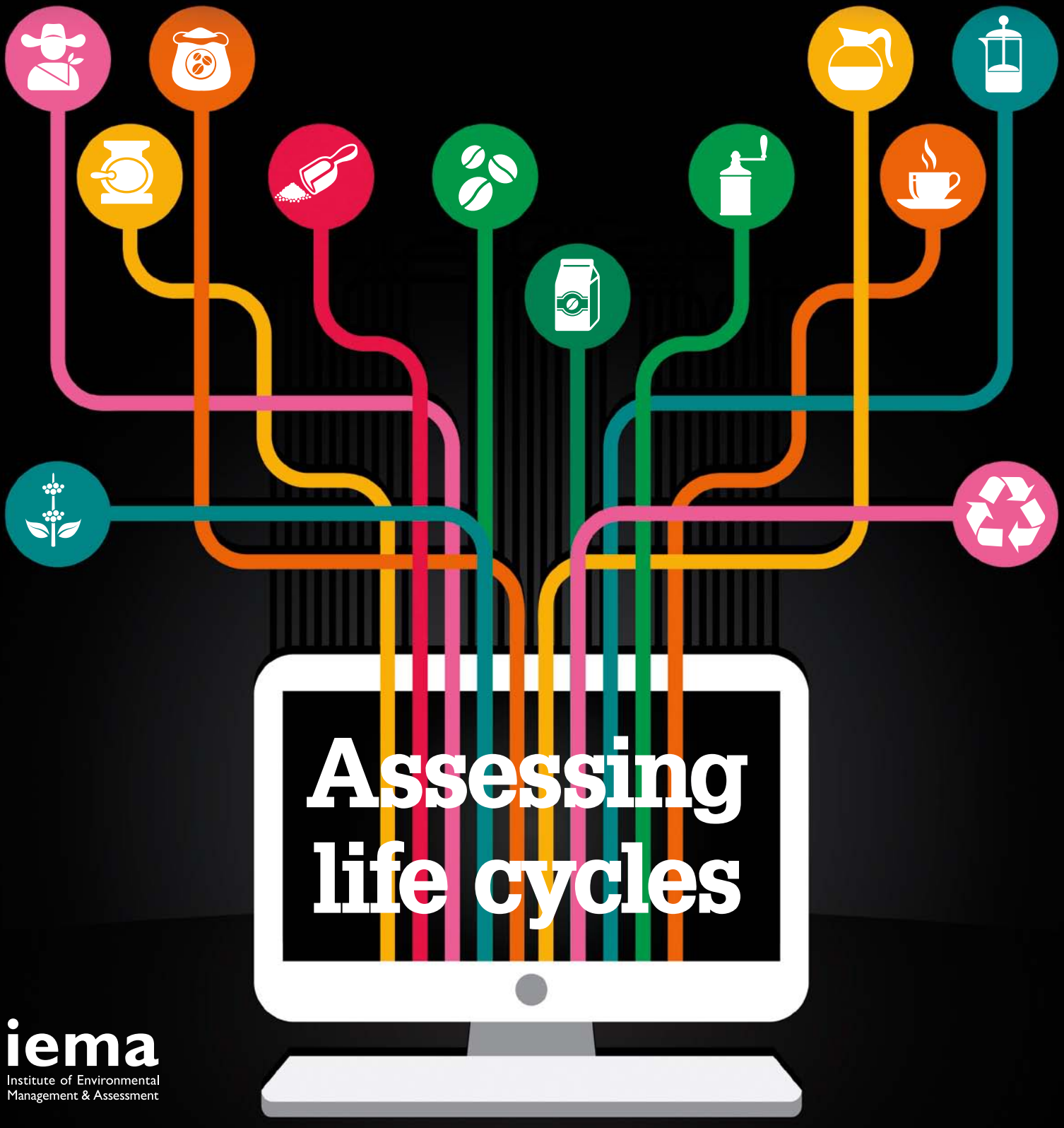
July 2012



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With many organisations now completing climate adaptation risk assessments, Helen Woolston provides a guide to risk management

In part two of his examination of the revised ISO 19011 guidance on auditing, Nigel Leehane looks at whether the changes will improve EMS audits

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IEMA works alongside government, the media and industry to enhance the recognition of the profession and promote the importance of practitioners in combating climate change, working towards a low-carbon economy and building a sustainable future.

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Limits of growth?

Is continued economic growth compatible with safeguarding the environment? For many environmentalists the answer to that question is quite simply no. They will argue that we cannot go on exploiting natural resources and polluting the planet without potentially catastrophic consequences.

But for most of the world's population the growth versus environment argument is nonsensical. People in developing countries quite rightly demand the sort of living standards enjoyed by many in developed ones. The global "middle class" is predicted to grow 172% over the next 20 years, and it will consume a vast amount of additional resources. At the same time, people in the developed world are unlikely to relinquish their own living standards without a fight.

So, we need to secure continued economic growth without further damage to the planet. That will require a huge cultural shift and technological innovation, but it is not impossible. Humans are good at innovating.

As well as greater innovation and a new business model, we need to change how economic prosperity is measured, so that it captures the value of the environment

Companies such as GE (p.22) are already proving this by achieving superior economic and environmental performance. Many of the businesses attending the Rio+20 talks (p.8) were there because they believe it is possible to prosper without further harming natural ecosystems – in fact, they understand their very survival depends on it. Also, as the report (p.10) from the Aldersgate Group highlights, moving to a circular economy model, where industrial and agricultural systems are restorative and eliminate waste, would ensure that resources are used time and time again, removing the need to deplete virgin sources.

As well as greater innovation and a new business model, we also need to change how economic prosperity is measured, so that it captures the value of the natural environment. In one of the few positive outcomes from Rio+20 there was agreement that a new understanding of wealth was needed that goes beyond gross domestic product (GDP), and UN statisticians are to investigate how to incorporate natural capital into GDP.

There should be no limits on growth; we just need the right sort of growth.

Paul Suff, editor

Short cuts

New Seveso law

A new Directive to replace the existing Seveso Directive (96/82/EC as amended by 2003/105/EC) has been agreed by the European council. Known as Seveso III because it is the third version of the original 1982 legislation (82/501/EEC), the new Directive aims to further improve prevention of major-accident hazards involving dangerous substances and will apply to 10,000 establishments across the EU. New measures include: aligning Annex I of the Directive (which defines the substances falling in its scope) with the new EU system for the classification of dangerous substances (Regulation 1272/2008/EC); improving public access to safety information and participation in decision-making as well as access to justice; and stricter standards for inspections of installations to ensure the effective implementation and enforcement of safety rules. The original Directive came into being in response to an industrial accident in 1976 at a small chemical manufacturing plant in the Italian town of Seveso, exposing the local population to dangerous dioxins.

Sustainable events

A new international management standard has been launched to help organisations improve the sustainability of their events thanks to the London 2012 Olympics and Paralympics. ISO 20121 is based on BS 8901, the British certification standard created at the request of the London 2012 organisers to help demonstrate that this year's games were meeting sustainability goals. Ana Inacio, from certification body SGS, which certified the London 2012 organising committee against 20121, said that the standard is applicable to events of all sizes. "From conferences and sports matches, to weddings and product launches, 20121 is suitable for any event you can think of," she said. "The standard will help organisations to raise their profile in the sustainability arena, reduce costs and build a great relationship with suppliers, staff and local communities."

UK carbon budgets at risk

Climate change The pace of progress in cutting greenhouse-gas (GHG) emissions is currently too slow to meet the UK's carbon budgets, the committee on climate change (CCC) has warned.

According to its latest report, the UK's GHG emissions fell by 7% in 2011, but only 0.8% could be linked directly to implementation of proactive carbon-lowering measures. The CCC cautioned that underlying progress is only one-quarter of what is needed to meet future carbon budgets, and that the government needs to stop planning and start delivering change.

"Much of last year's fall in emissions was due to a combination of mild weather, rising fuel prices, falling incomes and transitory factors in power generation," said David Kennedy, chief executive at the CCC. "As the economy recovers it will be difficult to keep the country on track to meet carbon budgets."

Commenting on the report, the energy and climate change secretary, Ed Davey, acknowledged that the government faced some very big challenges. "[It] highlights key areas where we need to raise our game to ensure that we meet our ambitious energy and climate change goals," he said.

The CCC report identifies a lack of investment in renewable and low-carbon energy as a major stumbling block to faster progress in bringing down emissions.

There has been only one-third of the annual investment required in onshore and offshore wind, says the CCC, which also points out that investment prospects for nuclear power remain uncertain and that government plans for carbon capture and storage (CCS) are behind schedule.

The committee advises the government to act urgently to overcome this uncertainty, calling for the proposed electricity market reform (EMR) to include a carbon objective and contracts for four CCS demonstration plants to be signed by the end of 2013 at the latest. It suggests the EMR set a target to achieve carbon intensity of 50gCO_2/kWh in 2030 through investment in a portfolio of low-carbon technologies.

The CCC report also warns against a second "dash for gas", something it says is more likely after the government announced in March that its planned emissions performance standard would allow unabated operation of gas-fired power plants through to 2045.

"A second dash for gas would be a very bad thing … and would increase costs and risks of meeting carbon budgets," it states.

Meanwhile, the latest data from DECC reveal that renewable sources of energy generated 11% of the UK's electricity in the first three months of 2012, a 39% increase year-on-year.

Over-abstraction damaging environment

Water A group of MPs has called on the government to tackle urgently the environmental damage caused by over-abstraction of water, and warned that its current plans will not stop rivers in England running dry.

In its white paper *Water for life*, which was published last year, the government acknowledged that ecosystems were already being harmed by unsustainable levels of water use, and outlined plans to reform abstraction licensing over the next 15 years. But the environment, food and rural affairs committee says the changes to the 60-year-old regime will not be implemented fast enough to prevent further damage to water environments.

"The reform of abstraction licences must be brought forward to protect against the effect of severe droughts such as the one we saw earlier this year," said committee chair Anne McIntosh. She also said that Defra needed to work with Ofwat and the Environment Agency to get to grips with abstractions that are already causing severe damage to rivers.

The MPs say that a reformed abstraction regime should be in place no later than 2022. They have also set a 2014 deadline on reform of the agency's restoring sustainable abstraction programme, which currently provides a mechanism for licences to be removed where an abstraction is causing damage.

The outcome of the committee's inquiry into the white paper also recommends more action to improve the management of surface water through sustainable drainage systems, which can prevent flash flooding during heavy rain. It also advises the government to set clear targets to improve water metering.

Clegg orders mandatory GHG reporting from 2013

Emissions After months of delay, the deputy prime minister has confirmed that new legislation will be created requiring some of the UK's largest businesses to reveal the amount of greenhouse gases their operations emit.

In a speech at the UN Earth summit in Rio (see p.8), Nick Clegg announced that from April next year all 1,200 companies listed on the London Stock Exchange will be required to include data on greenhouse-gas (GHG) emissions in their annual reports, with the obligation likely to apply to some 24,000 large UK businesses from 2016.

The government hopes the introduction of mandatory disclosure will encourage companies to improve their energy efficiency. "Counting your business costs while hiding your greenhouse-gas emissions is a false economy," said Clegg. "Being energy efficient makes good business sense. It saves companies money on energy bills, improves their reputation with customers and helps them manage their long-term costs too."

The new regulation, the first of its type in the world, should save four million tonnes of CO_2 by 2021, according to Defra.

Business and environment groups, including the CBI, the Aldersgate Group and Friends of the Earth, many of which have lobbied the government in favour of mandatory reporting over the past year, welcomed the news.

The measure was also supported by more than 90% of IEMA members surveyed in 2010, who argued that forcing firms to report their GHG output would be an important tool to motivate businesses to better manage their emissions. Martin Baxter, IEMA's executive director of policy, said: "Mandatory reporting will deliver benefits for both the UK economy and the environment, and turn the environment into a mainstream business opportunity."

However, he warned that the real benefits of mandating GHG disclosure will not be seen until it is introduced for all large businesses, as the majority of listed businesses already report their emissions. "We strongly urge government to speed up the process of introducing mandatory reporting on GHG emissions to all large companies as soon as possible," he said.

IEMA expects draft regulations implementing the policy to be published by the end of July (see p.34).

Confirmation of the regulatory change has also prompted renewed calls for the Carbon Reduction Commitment Energy Efficiency scheme (CRC) to be scrapped. David Workman, director-general of the Confederation of Paper Industries, which previously argued against the introduction of mandatory reporting, warned of the dangers of increasing the regulatory burden on businesses.

"The paper industry already has a climate change agreement, we are within the EU emissions trading scheme and we're subject to the CRC. There is a very real danger of overkill here," he said. "At a time when Whitehall is supposed to be reducing red tape, we want to know whether mandatory reporting is something new or if it will replace the CRC."

Rhian Kelly, the CBI's director for business environment policy, agreed: "To avoid unnecessary duplication, the government now needs to scrap the CRC." In a new report on UK environment legislation, the CBI strongly criticised the CRC. "The overwhelming business view is that it is damaging, rather than driving, business investment," it states.

Short cuts

No air-quality delay

The European Commission has refused to allow the UK to postpone meeting its air-quality obligations until January 2015 in half out of 24 zones. Only three of the UK's 43 air pollution zones complied with the January 2010 deadline for limits on nitrogen dioxide (NO_2) under the EU ambient air quality Directive (2008/50/EC). Extensions to 2015 were permissible if compliance by the new deadline could be demonstrated. However, Defra's request for an extension confirmed it did not expect to meet the targets until at least 2020 in 16 of the areas, and not until 2025 in London, effectively admitting that the UK would be in breach of EU legislation for at least a decade. In April, Defra amended its application, asking the commission to examine its air-quality action plans only for the 24 sites it believed could lower NO_2 levels by 2015. After reviewing the plans, the commission has agreed to an extension in just 12 of the zones affected, arguing that the UK had not shown that the NO_2 limits could be met in the other areas by 2015.

ETS surplus must be cut

Energy firms are calling on the European Commission to withdraw at least 1.4 billion allowances from the EU emissions trading (ETS) scheme to prevent its failure. In a letter to the commission, Shell, E.ON and others argue that the huge surplus of ETS allowances is pushing the costs of carbon down and failing to provide sufficient incentive to implement energy-efficiency measures or invest in low-carbon technologies. In its annual assessment of the ETS, think-tank Sandbag concluded that with EU growth well below expectations, participants need 2.2 billion fewer allowances than have been allocated. It claims that most of the surplus credits are spread between just 10 steel and cement companies, which have already made €1.8 billion from selling spare allowances. Chris Davies, MEP, said: "The commission needs to up its game ... We need a vision for the future, and we need the commission to drive it forward."

IN PARLIAMENT

Lowering demand

Alan Whitehead is MP for Southampton Test

The committee on climate change's latest report (p.4) reveals how much more we will have to do to meet our CO_2 emissions targets. Given this, you might expect to see some stern demand-reduction measures and incentives in the new Energy Bill currently being looked at in draft form by the energy and climate change committee prior to its passage through parliament next year.

The Bill, which is to be the main measure to push the energy market into low-carbon mode, focuses on how we meet the requirements of more capacity and is surprisingly shy on detail about the imperative of demand reduction.

As a member of the committee, I will be looking to see how the legislation might incentivise demand management by redistributing variable power, such as wind generated when not needed, through interconnectors to the continent so that we can share demand two ways. I also hope to see support for new electricity storage capacity, such as pumped hydro, which can store and supply electricity for when it is most needed.

But demand management is not necessarily demand reduction. What we should be incentivising is permanent energy-use reduction through what might be called demand-side feed-in tariffs. These require an aggregator to manage the process and ensure efficient recording of "start dates" for energy reduction. Capacity-reduction rewards then follow on from the remeasurement of consumption on a regular basis. A recent report from Green Alliance estimates that using incentives to cut demand still works out three times cheaper than paying for the equivalent in additional generation.

We will have to wait and see whether any demand-management and reduction incentives make it into the final Energy Bill. If they don't, we will have missed an opportunity to really lower carbon emissions through not emitting them at all.

Hospitality firms pledge to cut food waste by 5%

Waste American fast-food chain McDonald's has joined forces with the Houses of Parliament, Cardiff's Millennium Stadium and Greggs the bakers, in a bid to reduce food and packaging waste.

They are among 73 organisations from the hospitality sector to sign a new voluntary agreement with WRAP. Under the Hospitality and Food Service Agreement, signatories will work together to meet a shared target to cut waste by 5% by 2015, and increase the proportion of food and packaging waste sent to compost or used in anaerobic digestion to 70%.

According to WRAP, if just one-quarter of hospitality companies in the UK sign up to the agreement, the sector could save the equivalent of 100 million wasted meals a year and cut greenhouse-gas emissions annually by 570,000 tonnes.

Mark Linehan, managing director at the Sustainable Restaurant Association, described the agreement as "a great step forward" in the battle to reduce food waste. "We particularly welcome the emphasis on waste prevention," he said. "Producing less waste saves operators money and time spent managing the waste."

In June, WRAP also launched the Product Sustainability Forum, an initiative bringing together 80 organisations to tackle the environmental impacts of common consumer products. The forum, whose members include Coca Cola and Waitrose, will analyse the waste, energy, water and carbon impacts of products such as tinned foods and DIY materials throughout their life cycle, and collaborate on how best to minimise them.

Four firms fall foul of CRC rules

Regulation A failure to provide the Environment Agency with reports on time under the Carbon Reduction Commitment Energy Efficiency (CRC) scheme has cost four companies a total of £99,000 in civil penalties.

All participants in the CRC had until 29 July 2011 to submit both a footprint report (detailing the total energy supplied and the associated CO_2 emissions) and an annual report (a summary of emissions covered by the CRC) to the agency, covering year one of the scheme. Late submission attracts a fixed £5,000 penalty, plus a further £500 for each day's delay.

The Glasgow-based arm of French water firm Saur submitted its reports 31 days late and incurred a £41,000 penalty, while Henkel, whose brands include Loctite and Sellotape, received a £38,000 penalty for submitting its reports 28 days late.

Two engineering companies, Coventry-based BI Group and Tomkins, part of the Dutch firm Pinafore Holdings, incurred a lower financial penalty after the agency applied its discretionary powers. Both firms received only the £5,000 fixed penalty for each late report. The agency can waive or modify penalties at its discretion if CRC participants have taken all reasonable steps to comply with the reporting requirements or quickly seek to rectify any failure in compliance.

The first CRC performance league table, which was published last year, placed Tomkins joint 627th out of 2,103 organisations, with the company disclosing that its annual CRC emissions in 2010/11 were 5,326 tonnes of carbon dioxide (tCO_2).

The other three companies receiving civil penalties were among 803 participants which scored zero against the early action metric – that is, the proportion of automatic meter readers voluntarily installed and participation in the Carbon Trust Standard or an equivalent scheme.

Henkel's reported CRC emissions in 2010/11 were 6,470 tCO_2, while BI Group and Saur UK emitted 4,642 tCO_2 and 7,782 tCO_2 respectively.

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Kayley, RRC Customer Services Manager

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Private sector ambition outstrips that of policymakers at the UN Rio+20 summit

Sustainable development Global consumer goods manufacturers and international finance houses have been praised for doing more to drive the sustainable development agenda than world leaders, following the conclusion of the Rio+20 Earth summit.

More than 700 voluntary commitments, worth hundreds of billions of pounds, were made by private sector firms, non-governmental organisations (NGOs) and national administrations at the fringe events that ran alongside the main UN conference held at the end of June.

While environment campaigning groups, including WWF and Friends of the Earth, strongly criticised the formal outcome of the summit as weak-willed and lacking in ambition, commentators argued that organisations meeting away from the main political negotiations were making strides forward in tackling the issues of sustainable production and consumption.

"The 3,000 side events are where the energy, the momentum, the inspiration and the aspiration lay in Rio," confirmed David Symons, director at WSP Environment & Energy. "That's where all the ideas and commitments were coming from .... [and] it shows us where the movement is going to be in the future."

Firms attending Rio+20 were keen to pursue sustainability

Formal commitments include:

- a new partnership between the US government and the Consumer Goods Forum (CGF), which represents more than 400 retailers and manufacturers, to work together on eliminating deforestation from CGF members' supply chains by 2020; and
- firms such as Puma, Unilever and Dow joining 39 banks and 50 national governments in signing the Natural Capital Declaration – a promise to work towards integrating natural capital considerations into products and services.

Peter Boyd, chief operations officer at the Carbon War Room NGO, who attended the summit, told delegates at the Green Corporate Energy conference the following week: "In Rio there was despair over the words of the final text – which were of the lowest common denominator – and despair over the culture of professional negotiation, but people were there and they were making deals.

"Climate change is an area where business and governments can work together, and businesses have to step up because governments can't."

The formal output document signed by all 190 countries, entitled "The future we want", was criticised for merely acknowledging the existence of sustainability issues.

Achim Steiner, executive director of the UN Environment Programme, admitted the final outcome would "disappoint and frustrate many".

CASE LAW

Lexis®PSL

Contracts and ETS compliance

In *Deutsche Bank AG v Total Global Steel Ltd* [2012] EWHC 1201 (Comm) the High Court held that the claimant was entitled to damages of €4,182,000 for the breach of four contracts for the delivery of certified emission reductions (CERs) under the EU emissions trading scheme (ETS).

CERs can be resold by ETS participants to third parties, such as investment banks, that participate in carbon markets through buying and selling EU greenhouse-gas emission allowances (EUAs) and other carbon credits, although they do not themselves have any obligations under the scheme.

Member states allocate EUAs to EU energy-intensive installations as part of the ETS, with each allowance equal to the emission of one metric tonne of CO_2. At the end of an ETS year, the operator of an installation must hold at least the same number of, or more, EUAs than the total volume of emissions from the facility. Companies with insufficient allowances can buy EUAs from those with a surplus to comply with their emissions limit.

To comply with its ETS obligations, a participating installation can also surrender other carbon credits – such as those offered through the UN's Clean Development Mechanism and Joint Implementation projects.

In March 2010, Total Global Steel agreed four contracts to sell a total of 492,000 CERs to Deutsche Bank for €5,737,440. After realising that Total had delivered previously surrendered CERs, the bank wrote to the steel company stating that it had not performed the contracts properly because the delivered CERs could not be used for ETS compliance. Deutsche requested that Total replace the surrendered CERs with ones that could be used for ETS compliance. Total did not deliver any further CERs.

Deutsche claimed that Total was obliged to deliver CERs that could be used for "compliance with emissions limitation commitments" in accordance with the ETS. Total disputed this.

The court calculated damages on the basis of the surrendered CERs' value at 22 March 2012. This judgment will reassure the carbon markets and support the European Commission's efforts to prevent surrendered CERs from being reused under the ETS.

Colleen Theron and Deirdre Lyons, LexisPSL

New Directive aims to cut energy use in EU by 17%

Energy EU member states will have to take steps to ensure energy consumption is cut by 1.5% a year, under the new Energy Efficiency Directive (EED).

At the final negotiations in June, representatives from national governments rejected the European parliament's proposal of country-level energy-saving targets, in favour of requirements to undertake actions that will help reduce energy use.

Together with commitments to renovate public sector buildings and ensure that all large companies undergo regular independent energy audits in line with ISO 50001, the key requirement of the final EED text requires member states to set up an energy-saving obligation scheme that cuts consumption by the equivalent of 1.5% a year up to 2020.

Although the decision to reject national targets was criticised by environmental campaigning groups, including WWF, Liberal Democrat MEP Fiona Hall, who took part in the talks (see her opinion, right), said that it had never been a realistic aim. "The commission consulted before coming forward with the draft legislation and it got a very clear message from member states that they didn't want binding targets," she confirmed. "The UK, along with virtually every other member state, was much more in favour of binding measures."

The EED has been developed to ramp up efficiency efforts across the bloc, after the European Commission confirmed that existing policies were failing to deliver the energy savings needed to meet its 20-20-20 goal – to source 20% of energy renewably and reduce CO_2 emissions and energy consumption by 20% by 2020. However, even if member states fulfil all of their obligations under the final EED, the EU will still fall short of its 20% target. Despite this, Hall declared the new Directive a success.

"Although the text on the energy-efficiency obligation schemes is not as strong as the parliament wanted, it is an important achievement; for the first time, member states will have to have a long-term strategy, with policy and measures in place for dealing with the energy efficiency of their buildings," she said. "Thanks to the changes insisted upon by the parliament, the Directive will now achieve 17% energy efficiency savings by 2020 – as compared with less than 15% before negotiations."

A new clause inserted during the final negotiations will see a review of how the Directive is being implemented in 2016 and, if targets are not being reached, new negotiations will be initiated to improve energy savings.

Designed to inspire schemes similar to the UK's forthcoming green deal, the final EED text was agreed just days after DECC published more detailed information about the implementation of its flagship energy-efficiency initiative.

In the government's response to a consultation on the scheme, DECC revealed that the green deal will now roll out to businesses and homeowners at the same time, despite previously stating that the commercial element of the scheme would be delayed. However, while assessors and installers operating under the green deal will be ready to start work in October, as planned, homeowners and businesses will not be able to apply for finance under the scheme until the end of January 2013.

DECC also revealed that it had expanded the list of technologies eligible for funding under the scheme to include more options for non-domestic buildings. Firms will now be able to apply for green deal finance to install energy-efficient taps and showers; heating and air-conditioning controls; and radiant heating, as well as biomass boilers, cavity-wall insulation, solar panels and lighting controls.

COMMENT

Saving energy across Europe

Fiona Hall is a Liberal Democrat MEP for the North East of England

For the past year I have been working with other MEPs, the European Commission and representatives from member states on what is seen as the EU's biggest piece of legislation aimed at curbing energy demand, the Energy Efficiency Directive (EED) (see left). Its aim is to ensure the EU's 20% energy-savings target is reached in 2020, and to reap the resulting economic, environmental and social benefits.

Following 12 months of very tough negotiations the text, as provisionally agreed, will now take us to roughly a 17% saving by 2020. This final result is better than nothing, particularly considering the current budget constraints in all member states and a reluctance to provide upfront funding for new measures, as well as persistent demands from the outset for the EED to allow sufficient flexibility so that national energy-efficiency measures already in place do not have to be rewritten completely.

One of the most significant measures outlined in the EED is a requirement on member states to put in place energy supplier obligations to achieve annual savings among final customers. This measure was in part modelled on the UK's carbon emissions reduction target and its successor, the energy company obligation, which are seen as an effective way of kick-starting the market in energy services and encouraging investment in energy-efficiency improvements. Another important new element in the Directive – introduced not by the commission but by MEPs – is a requirement for member states to adopt long-term national strategies and measures for the substantial renovation of existing buildings.

The EU's existing building stock accounts for more than one-third of the EU's energy consumption and its carbon emissions, so getting national governments to tackle the energy efficiency of new and existing buildings is a major step forward.

Businesses seek a circular economy

Resources Adopting a circular economy framework, where industrial and agricultural systems are restorative and eliminate waste, is championed in a new report from the Aldersgate Group.

Launching the report at the BASE London conference, Aldersgate director Steve Wallace said the aim of the economy in the future should be to get value out of resources "time and time again". He warned that resource productivity would be one of the key determinants of economic success going forward and advised that a circular economy was not simply about more recycling.

Citing research earlier this year by McKinsey, Wallace said a shift to a circular economy, which aims to preserve or enhance the biological and technical "nutrients" in materials, would produce at least a £340 billion boost to the European economy each year.

The Aldersgate report says that moving towards such an economic model can start now, but could be accelerated if barriers, such as the lack of infrastructure to support efficient collection of used products and resistance to greater industrial collaboration, are overcome.

A circular EU economy would produce £340bn more annually

It claims that rather than investing in recycling and waste incineration plants, UK businesses could extract more value by shifting directly to a circular economy approach. Such a move needs government support, however, potentially including regulation to ensure "circular-economy" products can effectively compete.

The Aldersgate Group illustrates the need for regulation through the example of the carpet manufacturer whose circular-economy-based product has to compete against "one-use" products that are disposed of in landfill at end of life. It says that the market share of circular-economy carpet is rising in EU countries where landfill disposal of carpet is prohibited.

The report highlights the need for products to be designed to ensure materials can be easily extracted. "Approximately 80% of a product's environmental impact is locked in at design stage, so understanding production cycles and reconfiguring them for maximum effectiveness is essential," it says.

The ESA, the waste management association, also wants companies to improve product design, so products are more durable, repairable, reusable and/or recyclable. It has called on EU policymakers to demand companies design their products to take account of what will happen to them after they have been used and discarded. "We would like to see more work being done on improving product design, so that those harder to recycle composite products and materials do not end up in landfill," said ESA acting chair Ian Goodfellow.

Meanwhile, the Green Alliance has launched a new business taskforce, including AllianceBoots, BASF, Interface, Kyocera and Veolia, to tackle the threat of rising resource costs.

EIA UPDATE

iema

Future of the EIA Directive

The European Commission has indicated that it plans to launch proposals for a new environmental impact assessment (EIA) Directive in September. While the focus will be on making the EIA process more efficient and harmonised between member states, IEMA understands that serious consideration is being given to including provisions that would require monitoring the environmental effects of a development post-consent, and discussions are ongoing as to whether to introduce a mandatory scoping process.

Additional development

The European Commission has recently set out its view on how far the EIA of a main development should go in relation to ancillary and associated developments. The short advisory note details the commission's position on two key elements related to such developments. The first looks at when associated development should not be consented to prior to the main development's EIA. The commission suggests using what it terms a "gravity test". Second, the commission indicates that all likely significant effects of ancillary and associated development should be considered and included in the main development's EIA process and reported in the environmental statement.

Ecosystem services

Following the publication in January of IEMA's e-brief on considering ecosystem services in EIA, member Ben Miller was inspired to conduct further research in this area. Miller is a senior minerals planning officer at Somerset County Council and will be conducting a study into the application of ecosystem services in EIA in England over the next year. If you are interested in taking part in the study, please contact him at benjaminmiller@connect.glos.ac.uk

New EIA guidance

- Guides from the European Commission on integrating climate change adaptation and biodiversity into both EIA and strategic environmental assessment are expected to launch in August.
- The Scottish government is continuing to redevelop its PAN58 document on EIA and is interested in case studies of proportionate and efficient EIA practice from Scotland. Please submit your examples to cara.davidson@scotland.gsi.gov.uk.
- IEMA and the Landscape Institute plan to publish the third edition of the *Guidelines on landscape and visual impact assessment* in early 2013.
- A consortium, including WSP Environment & Energy and Levett Therivel, has been commissioned by RenewableUK to develop guidelines for cumulative impact assessments for offshore wind farms.

Carbon (GHG) Accounting and Management

An IEMA-Approved 2-Day Training Course

Conestoga-Rovers & Associates (Europe) Ltd (CRA) is pleased to announce the continued delivery of its IEMA-approved Carbon and Greenhouse Gas (GHG) Accounting and Management course. This two-day course is aimed at professionals responsible for measuring, reporting, and managing carbon dioxide and other GHG emissions for their organisation. Also, this course will help organisations develop accounting processes and reduction initiatives for the future introduction of mandatory GHG reporting. The course modules will equip you with:

- *An appreciation of the background to climate change, and the business and socio-political drivers for addressing GHG emissions*
- *The capability to present business cases to senior management to gain commitment for initiatives to measure, reduce and report emissions*
- *An understanding of the key standards and protocols for GHG measurement and reporting*
- *The skills to develop a carbon (GHG) accounting system and to capture your organisation's footprint*
- *An understanding of techniques to reduce carbon and GHG emissions*

The next course in the UK is planned for 11th-12th September 2012 at the Park Plaza in Nottingham.
For more details, please visit www.cra.co.uk or contact us on:
0115 965 6700 or training@cra.co.uk

CRA's training partner, SHEMSI, delivers our IEMA-approved carbon course in Southeast Asia. For details, contact *mail@shemsi.com*.

Introduction of Mandatory Greenhouse Gas Reporting

Defra has announced that mandatory greenhouse gas reporting will be introduced for UK listed companies from April 2013. At this stage little guidance is available regarding the precise requirements of the forthcoming regulations, but we understand that Defra will be launching a further consultation exercise shortly. It is anticipated that the regulations will specify that:

- *The 6 Kyoto GHGs should be included;*
- *UK firms should report overseas emissions; and*
- *Scope 1 and 2 emissions must be reported, but Scope 3 emissions disclosures will be voluntary.*

It is anticipated that there will be an emphasis in the regulations on transparency and flexibility. Organisations already making disclosures to the Carbon Disclosure Project or in accordance with the GHG Protocol or the existing Defra voluntary guidance will meet most or all of the requirements. CRC disclosures also could be utilised, with additional arrangements being made for capturing the 5 non-CO_2 GHGs and overseas emissions.

CRA Europe has teamed with JRP Solutions, an energy management consultancy, and Loreus, an environmental software and training provider, to provide a full service approach to GHG reporting and carbon management.

For further information please contact Nigel Leehane on nleehane@cra.co.uk.

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Bringing sustainability and safety to the world's most complex environments

NEW REGULATIONS

In force	Subject	Details
1 May 2012	Natural environment	The Wildlife and Natural Environment (Scotland) Act 2011 (Commencement No.3) Order 2012 brings into force s.14 of the Wildlife and Natural Environment (Scotland) Act 2011, including prohibiting the keeping of specific plants. lexisurl.com/iema12624
17 May 2012	Waste	The Waste (Scotland) Regulations 2012 amend the Environmental Protection Act 1990. Changes include requirements to keep both dry recyclable waste and food waste separate from other kinds of waste. lexisurl.com/iema12630
24 May 2012	Emissions trading	The CRC Energy Efficiency Scheme (Allocation of Allowances for Payment) Regulations 2012 allow the Treasury to impose charges for allocating and issuing allowances in return for payment in the carbon trading scheme established by the CRC Energy Efficiency Scheme Order 2010. lexisurl.com/iema12885
30 May 2012	Environmental protection	The Environmental Offences (Fixed Penalties) (Miscellaneous Provisions) (Amendment) Regulations 2012 amend the 2007 Regulations by altering the prescribed range for a fixed penalty that a waste collection authority can impose under s.47ZB(2)(a) of the Environmental Protection Act 1990 (EPA). The Environmental Protection Act 1990 (Amendment of Fixed Penalty Amount) (England) Order 2012 amends s.47ZB(2)(b) of the EPA, reducing from £100 to £60 the amount payable for a fixed penalty for an offence under s.46 (receptacles for household waste). lexisurl.com/iema12627; lexisurl.com/iema12628
31 May 2012	Environmental protection	The Batteries and Accumulators (Placing on the Market) (Amendment) Regulations 2012 amend the 2008 Regulations, including giving effect to article 2 of the EU Directive on Batteries and Accumulators (2006/66/EC), which requires capacity labelling of portable secondary (rechargeable) and automotive batteries and accumulators. lexisurl.com/iema12626
1 June 2012	Planning	The Planning etc (Scotland) Act 2006 (National Parks) (Consequential Provisions) Order 2012 amends the national park designation for Loch Lomond (2002 Order) and the Cairngorms (2003 Order). lexisurl.com/iema12625
1 June 2012	Water	The Quality of Bathing Water (Amendment) Regulations (Northern Ireland) 2012 amend Sch. 1 of the 2008 Regulations, removing Cranfield (Nicholson's Strand) from the list of designated bathing waters. lexisurl.com/iema12891
4 June 2012	Emissions	EU Regulation 459/2012 amends Regulations 715/2007 and 692/2008 on emissions from light passenger and commercial vehicles. lexisurl.com/iema12901
18 June 2012	Planning	The Town and Country Planning (General Permitted Development) (Amendment) (Wales) Order 2012 amends the 1995 Order, including substituting a new Part 40 of Sch. 2, which relates to permitted development rights for the installation of specified types of microgeneration equipment. lexisurl.com/iema12892
22 June 2012	Energy	The Energy Act 2011 (Commencement No.1) (Scotland) Order 2012 brings ss.10, 14(6)–(8), 15(4), 35(6) and 75 of the Energy Act 2011 into force. lexisurl.com/iema12896
22 June 2012	Environmental protection	The Nitrates Action Programme (Amendment) Regulations (Northern Ireland) 2012 amend the 2010 Regulations in regard to the storage of poultry litter. lexisurl.com/iema12894

LATEST CONSULTATIONS

4 August 2012

Integrated regulation

Plans for an integrated framework for environmental regulation have been put out to consultation by the Scottish government. The proposals include changes to the structure of existing environmental protection legislation to create a new, integrated framework for the permissions (licences, permits, rules etc) that the Scottish Environment Protection Agency (SEPA) uses to control activities that may harm the environment. Changes to the enforcement tools that SEPA uses to deter non-compliance are also planned.
lexisurl.com/iema12629

15 August 2012

Biofuels quality protocol

The European Pathway to Zero Waste project delivered by the Environment Agency and WRAP has developed a quality protocol setting out proposed criteria for the use of biomethane as a fuel, which is supplied through the gas grid and used as fuel for vehicles. The agency is now seeking the views of stakeholders on the proposed protocol. The quality protocol aims to ease the regulatory burden on businesses by defining when the material ceases to be waste and is no longer subject to control.
lexisurl.com/iema12911

20 August 2012

Climate adaptation

The European Commission is seeking views from stakeholders and experts in the field of climate change adaptation to assist its preparation of the planned EU adaptation strategy. The strategy will build on achieving the actions set out in the 2009 white paper on adaptation to climate change by enhancing further the preparedness and capacity to respond to the impacts of climate change in the EU.
lexisurl.com/iema12904

4 September 2012

Emissions permitting rules

The Environment Agency has issued a consultation on some new and revised sets of standard rules and generic risk assessments in relation to activities that will become installations under the Industrial Emissions Directive (2010/75/EC), which comes into force at the start of 2013.
lexisurl.com/iema12910

14 September 2012

Marine energy

The EU integrated maritime policy, introduced in 2007, aims to help Europe realise the potential of its marine and coastal resources. This consultation aims at gathering opinions and ideas from individuals and stakeholders on whether, and how, to help the sector make its contribution to the security of energy supply in Europe and meeting targets for a green future. The consultation does not concern offshore wind energy.
lexisurl.com/iema12905

20 September 2012

Energy infrastructure

The European Commission has issued a consultation on the list of projects to be considered as being of potential common interest (PCI) in energy infrastructure as part of a proposed Regulation on guidelines for trans-European energy infrastructure (COM/2011/658). The draft Regulation identifies 12 priority corridors and areas, and defines a procedure and criteria for projects to become a PCI.
lexisurl.com/iema12906

28 September 2012

Energy-efficient housing

The Scottish government is consulting on its sustainable housing strategy, setting out its vision for low-carbon homes. At the same time, it is also seeking views on the proposed energy-efficiency standard for social housing in Scotland.
lexisurl.com/iema12907
lexisurl.com/iema12908

NEW GUIDANCE

Biodiversity	Natural England has published new guidance note (lexisurl.com/iema12912) on assessing whether created or restored grassland is a biodiversity action plan (BAP) priority habitat. Natural England says the guidance will help advisers and others to systematically judge whether grassland under environmental stewardship is achieving, or progressing towards, scheme objectives. These assessments will also enable relevant sites to be added to the lowland grassland habitat inventories and will help quantify environmental stewardship's contribution to BAP grassland targets, according to the body, which is tasked with protecting and improving England's natural environment.
Planning	The Planning and Climate Change Coalition, a cross-sector group of organisations led by the Town and Country Planning Association and Friends of the Earth, has published a guide (lexisurl.com/iema12633) for local authorities in England on planning and climate change. It updates the 2010 version by responding to the government's localism agenda and aims to support plan-making and development management processes by identifying key principles to underpin policies designed to support the development of a low-carbon future and reduce greenhouse-gas emissions.
Waste	New guidance (lexisurl.com/iema12915) setting out its regulatory position on low-risk waste activities has been published by the Environment Agency. It lists (appendix A) a number of activities – including storing clinical waste, electrical equipment and road sweepings in a secure container, building or place – that are considered low risk and therefore do not require an environmental permit. The agency advises that the guidance must be read alongside its published enforcement and prosecution policy (see lexisurl.com/iema12981). The guidance only applies to England and Wales.

EVENTS CALENDAR

Date	Course	Location and details
6–7 September 2012	Sustainable water 2012	Park Plaza Victoria, London lexisurl.com/iema12639
12 September 2012	Energy efficiency – business breakfast	Glasgow lexisurl.com/iema12997
17–18 September 2012	Energy from waste	Copthorne Tara Hotel, London lexisurl.com/iema12640
25 September 2012	Unconventional gas and the environment	Central London lexisurl.com/iema12984
28 September 2012	Environmental sustainability in the workplace	TCPA, Carlton House Terrace, London lexisurl.com/iema12916
3 October 2012	Water Scotland	Hilton Edinburgh Grosvenor lexisurl.com/iema12918
9–10 October 2012	6th European water and wastewater management conference and exhibition	Lancashire CCC, Manchester lexisurl.com/iema12919
10–11 October 2012	Energy solutions	London Olympia lexisurl.com/iema12641
10–11 October 2012	Microgen 2012	Stoneleigh Park, Warwickshire lexisurl.com/iema12323
7–8 November 2012	Water, wastewater and environmental monitoring 2012	International conference centre, Telford lexisurl.com/iema12917

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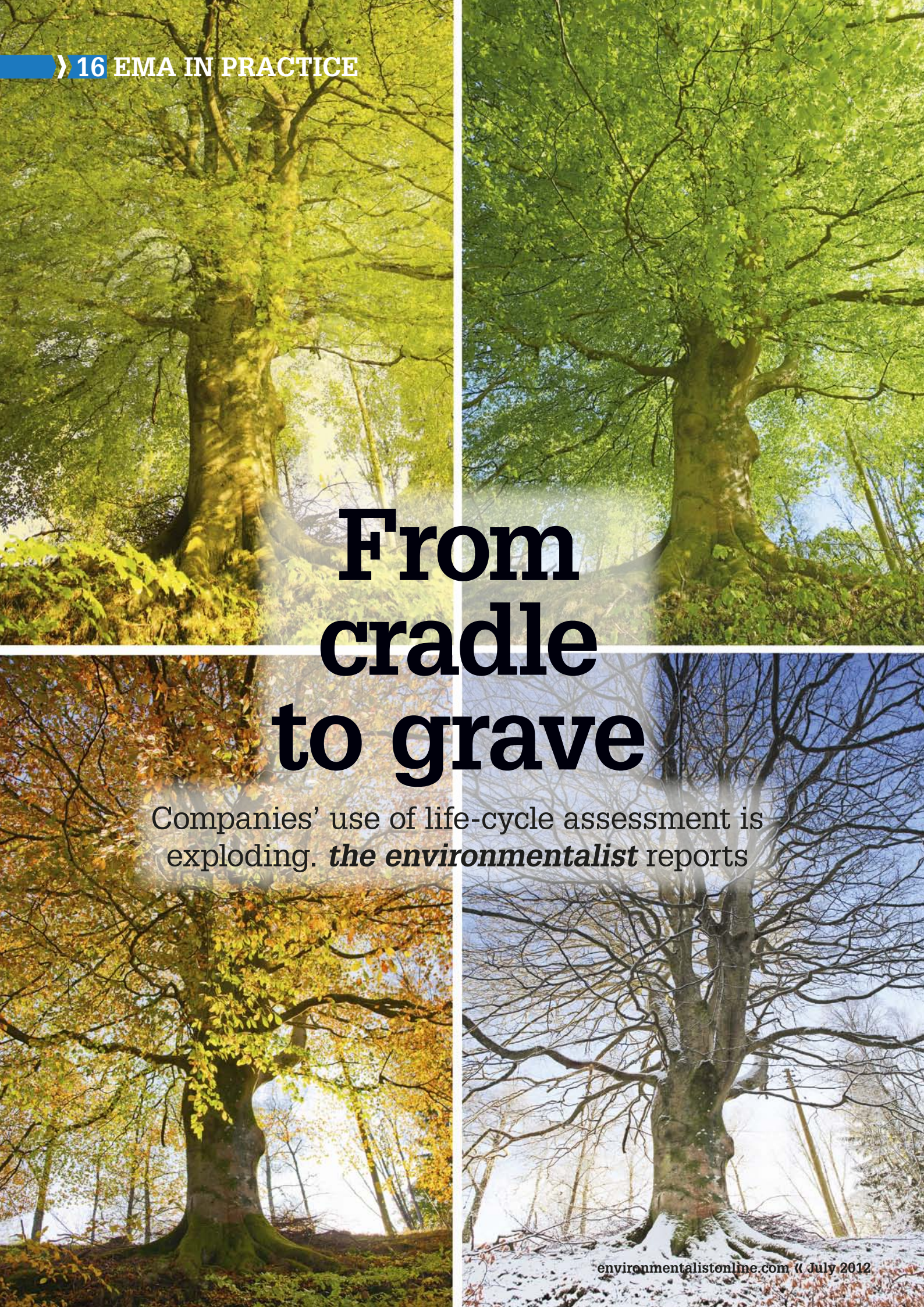


From cradle to grave

Companies' use of life-cycle assessment is exploding. ***the environmentalist*** reports

Powerful business drivers, ranging from increased environmental regulation to greater awareness of resource scarcity, are pushing the once niche tool of life-cycle assessment (LCA) into the mainstream.

LCA is essentially a measurement technique that allows companies to identify ways of lowering the environmental impacts of products across their whole life, from raw material extraction and manufacturing through to consumer use and disposal (see panel, p.19).

Although LCA has been around since the 1980s, only a few companies, such as fast-moving consumer goods companies P&G and Unilever, were undertaking such studies then. Fast-forward 30 years and analysts Verdantix predict that spending on LCA software by businesses will grow from €21 million in 2011 to €78 million in 2015 across the six largest European economies. According to Verdantix, growth in demand in Europe is the result of the following five factors:

- new EU legislation on environmental product labelling, which is expected to take effect in 2015;
- the French government's Grenelle II environmental law, which mandates LCA for environmental product labelling from 2013;
- harmonisation of LCA methodologies, such as the Greenhouse Gas Protocol for product life cycles and ISO 14040 (see panel, p.20);
- "democratisation" of product LCA software with lower price points, more simple models and better user interfaces; and
- attempts to achieve competitive differentiation on sustainability by product suppliers such as Michelin, Unilever and Volkswagen.

Simon Aumônier, partner at consultants ERM, says that carbon footprinting is also a key driver behind a growth in businesses carrying out LCA. "Some people who found out about the approach through carbon footprinting have moved on to other impacts, such as water, or across the full range of impacts including resource depletion."

Sandy Smith, director of consultancy services at PE International, developer of the GaBi LCA software, has been working in LCA since the 1990s. He agrees that the PAS 2050 carbon footprinting standard, which was launched in 2008 and draws heavily on LCA standards, bought life-cycle assessment to a far wider audience. "There was a lot of slow growth and then it grew like topsy when PAS 2050 came out. People seemed to be able to grasp that more easily than LCA," says Smith. "Now I think most manufacturing organisations will have done something around LCA."

Pressured environment

Businesses have undertaken LCA for a number of reasons. In some cases, it has given them the means to contest claims made by stakeholders about their products. For example, Kimberly-Clark was under pressure from environment groups to use more recycled material in its tissue products. Working with ERM, the company conducted an LCA to ISO standards 14040 and 14044 and had the results independently reviewed.

The project found that there was no environmental advantage between the use of recycled or virgin fibre in the manufacture of the company's products, since the paper came from integrated mills in Scandinavia powered by forest residues, rather than the fossil fuels that recycled paper mills in the UK were using.

Aumônier explains: "It's not simply a comparison between virgin and recycled, it's a more complex system and really that's at the heart of the benefit of the life-cycle assessment approach. It requires you to understand all of the system that you look at, not just what might at first sight be apparent."

Similarly, the Environment Agency's LCA work on nappies found that disposable nappies were not necessarily worse for the environment than reusable ones. The difference depended on how the reusable nappies were laundered and dried; if they were washed at a high temperature and dried using a tumble dryer, the environmental impacts were largely equal to the disposable version. And in a small number of cases, reusable ones were found to be worse, as the research discovered that some people ironed their nappies.

"People were doing something that was really counterintuitive, wanting to deliver the better environmental system but not recognising that some of the things that they were doing around using that product were having a counterproductive effect," Aumônier explains.

Vestas, the biggest wind turbine manufacturer in the world, originally started using LCA in the late 1990s after press articles suggested that wind power did not reduce carbon emissions. It found that a single turbine can generate more than 25 times the energy to society than it uses in its entire lifetime.

The Danish company has also carried out comparative studies on other energy sources and found that one Vestas turbine emits only 1% of the CO_2 that a coal power plant emits over its life cycle.

Vestas saw the benefit of its LCA work and now uses life-cycle assessment as a way of providing transparent information about the environmental performance of its products to a wide range of people, including customers who need such information for environmental permitting. It has also found ways of improving turbine performance, reducing material and energy consumption in the supply chain and reducing waste – all crucial steps in lowering the cost of energy and therefore improving the business case of a wind farm.

If companies use LCA wisely, it is possible to identify improvements in products that deliver cost savings at the same time.

Healthcare company GlaxoSmithKline (GSK) has developed a target on "mass efficiency", which is the output of the process versus the input materials. Currently, GSK has a mass efficiency of 1%, but by 2020 it wants to improve this to 20%, so for every kilogramme of output, there is only 20kg of input. "That is one of the most significant things we can do – effectively it means we are going to be five times more efficient," says Matt Wilson, GSK's supply chain sustainability leader.

The company started to apply LCA in its development of new products, but soon realised that if it was to have

a real impact, life-cycle assessment would have to apply to its existing portfolio – which ranges from pharmaceuticals to consumer goods such as Aquafresh toothpaste, Lucozade and Ribena – at the same time. It is in the process of completing a detailed carbon footprint of its top 20 products.

One-third of GSK's total carbon footprint from such products comes from its metred dose inhalers, such as those used to treat asthma. When it discovered this, GSK developed a product with less propellant. It now launches all new versions in a dry powder format, which has a global warming impact that is 29-times lower than a traditional inhaler. GSK is investigating ways to better the product by making the plastic more lightweight and improving the inhalers' post-use recycling.

Over its lifetime, a single wind turbine can generate more than 25 times the energy it uses and emits only 1% of the CO_2 a coal-fired plant does over its life cycle

Data management

One of the biggest challenges that businesses undertaking LCA come up against is that of data. They can either use primary data, which is costly to collect, or secondary data, which might not be quite so accurate but is available from a variety of reliable sources.

Smith and Aumônier agree that whether a company uses primary or secondary data depends on what they are planning to use the results of the LCA for. If a business wants to use the data to improve the environmental performance of a product, their results will not need to be as precise as if they want to use them publicly, for example to market their product as greener than that of a competitor.

"We tend to encourage people to start simple and get more complicated as it becomes necessary – the last thing you want to do is spend years doing some kind of assessment only to find that you could have done it in a couple of months," explains Aumônier.

Some products, particularly technology, develop so fast that keeping on top of changes to specifications and materials is very tricky. A business looking to do an LCA on such products needs to consider very carefully how certain it needs to be of the results. "Don't make it too precise so that you end up with an analysis of apple growing, for example, that is only valid one year and not the next," warns Aumônier. He advises companies to gather information that is valid for a longer period so they do not frequently have to reinvent the analysis.

But there have been a lot of developments in the field of data collection for LCA in the past 12–18 months, as Smith reports. "As much as 70% of the time would be spent on collecting data, so companies were paying a lot of money for consultants to go and collect data. Now, software systems can mine the data. You can save an incredible amount of time by using existing data sets."

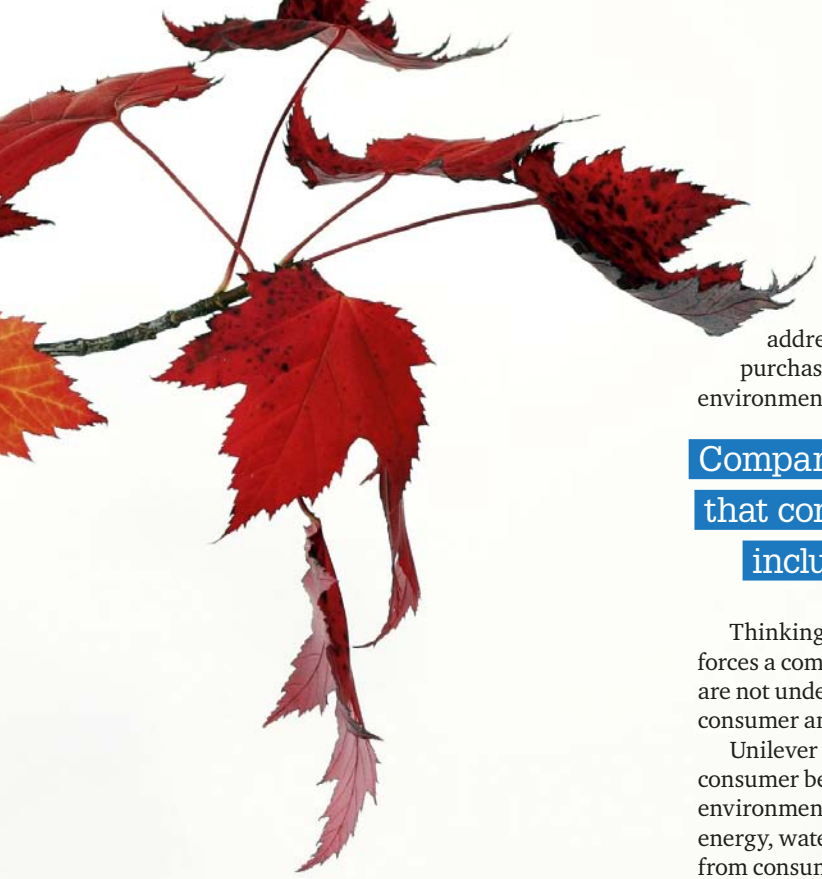
For example, data needed for an LCA could be already in existence in a company's accounting system and the new software can retrieve these and input them directly for LCA purposes. In this way, a business can cover entire portfolios of products.

Car manufacturers such as Daimler and Volkswagen are already doing this. "This is a big change that it's not about single product assessments," Smith says. "We have literally three or four clients globally who understand that."

Customer behaviour

Conducting product analysis in this way inevitably uses a lot of secondary data rather than primary data, which is expensive. But secondary data have got better, Smith says.

Tesco is now looking to use more widely available data. The UK's largest retailer worked with ERM to undertake LCA on 500 products, which have been accredited to the Carbon Trust's carbon footprint



label. It is now looking at a further 600 products, but the assessments will be less detailed because it is not looking to have them accredited by the Carbon Trust, as the aim is to improve the performance over the whole supply chain rather than being driven by trying to connect with the public directly.

A spokesperson for Tesco told *the environmentalist* earlier this year, that the retailer was adapting its product labelling so that it is faster and cheaper to operate, appears on more products and helps customers and suppliers to reduce their CO_2 emissions.

The rationale behind this is the belief that consumers are more likely to buy a product if they feel reassured that the company manufacturing it is addressing the negative impacts, rather than purchase something based on a number given for environmental impacts such as carbon or water.

Companies need to identify the life-cycle stages that contribute most to the impacts of a product, including the supply chain and consumer use

Thinking about products throughout their life cycle forces a company to consider parts of the cycle that are not under its direct control, including use by the consumer and work in the supply chain.

Unilever in particular has attempted to change consumer behaviour. It has a target to halve the environmental footprint of its products in terms of energy, water and waste. But 68% of its impact comes from consumer use, especially from heating and water use in its laundry and personal hygiene products.

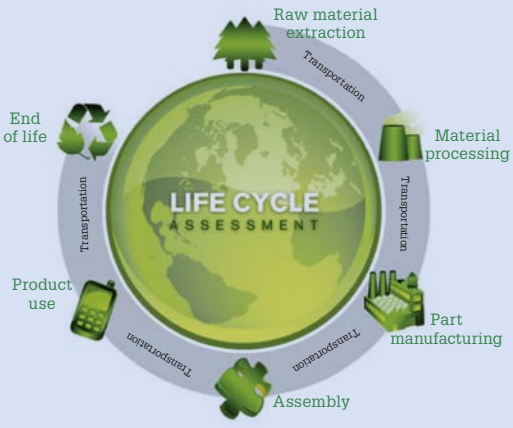
As part of a strategy to tackle this, the company launched concentrated detergents. Its Persil Small & Mighty product uses less water, less packaging (so fewer lorries are needed to transport it) and works at a low temperature. "You need to have a careful strategy – it's one thing to create an innovation, but it's another to persuade people to buy it," says Karen Hamilton, Unilever's vice-president of sustainability.

The first time the company launched the product in the US 15 years ago, it "completely failed", she explains. Consumers saw the smaller packaging and thought it was poor value for money. They were also not convinced the concentrated formulation would work so they used more product than was necessary.

WHAT IS LIFE-CYCLE ASSESSMENT?

Life-cycle assessment (LCA) quantifies the emissions and resources associated with a product over its whole life cycle. All physical exchanges with the environment are assessed: both inputs, such as natural resources, land use and energy, and outputs, including emissions to air, water and soil.

A crucial benefit from looking at a product so broadly is avoiding "burden shifting", where environmental damage is reduced in one area but more damage is created somewhere else.



The inputs and outputs are collated in an inventory and grouped into categories, for instance "climate change" or "human toxicity". They can then be converted into a single indicator, such as a carbon footprint. For example, all greenhouse gases are grouped together and harmonised to an equivalent metric, usually kilogrammes of CO_2 equivalent.

In order to carry out LCA, a business will first need to screen its product portfolio to identify the goods and services that have the highest environmental burden. This will depend on several factors – not only inputs and outputs of a product, but also the number sold.

Next, the business should identify the life-cycle stages that contribute most to the overall environmental impact of a product. This will involve looking at stages that are not under its direct control, such as the supply chain and consumer use, including whether a product is recycled.

The business can use primary data from its own research or secondary data to conduct an LCA. The International Reference Life Cycle Data System (ILCD Data Network) or the European Reference Life Cycle Database, developed by the European Commission, provide data for the emissions and resource consumption of many products and processes.

The next step is to identify possibilities for improvement. There may be many that are good for both the environment and the business, such as a reduction in energy use, which then lowers bills. Environmental data can be complemented with cost data to find the most beneficial changes.

LCA TOOLS AND STANDARDS

There are several ways of assessing the life-cycle impacts of products; some are more complex than others. Life-cycle assessments (LCAs) that are compliant with ISO standards 14040 and 14044, involve considerable data collection and are generally carried out when no other studies have been completed for a particular type of product. For these types of assessment, dedicated LCA software tools are available, for example GaBi software developed by PE International, SimaPro by PRé Consultants, Quantis SUITE 2.0 by Quantis International, and Umberto by ifu Hamburg GmbH. LCA can be simplified by using generic data from sources such as the International Reference Life Cycle Data System (ILCD). The European Commission has developed guidance consisting of a handbook and online data network through the ILCD to support people working on LCA. The European Platform on Life Cycle Assessment includes a discussion forum and a resource directory with information on tools, services, databases and providers globally.

Developments in standards

Standards in the ISO 14040 series have been at the heart of efforts to achieve consistent and robust use of life-cycle assessment since the 1990s. Chris Foster, of EuGeos, is IEMA's representative on the BSI committee handling these standards in the ISO structure. *the environmentalist* asked him how the standard-setting process is responding to the surge in use of LCA over the past few years. "There's a lot of activity right now. That's a combination of new standards coming forward to deal with different applications of LCA, and the periodic review of existing standards," he says.

Here is a summary of recent and upcoming changes:

- For both of the core LCA standards, ISO 14040 and ISO 14044, periodic review is due. This could be quite challenging, warns Foster. The review needs to reflect development of the LCA method – for example, the increasing use of input–output databases and the evolution of impact assessment methods – as well as recognise that 14044, in particular, is a foundation for many other ISO and non-ISO standards, including eco-labelling standards, carbon-footprinting standards and the rest of the ISO 14040 series. "So the review will need to strike a balance between conservation and development," says Foster. "In my opinion, 14040 could accommodate more change, perhaps becoming a statement of the principles underlying both LCA and its applications – that is, life-cycle thinking."
- ISO 14045 has just been published, and addresses the "eco-efficiency" assessment of product systems. It aims to help organisations conduct combined assessments of the environmental and economic effects of products and services. "I took part in the working group developing 14045, and I still feel some parts of the final standard could have been made tighter," he advises. "It'll be interesting to see how widely it's used."
- The forthcoming ISO 14046 will be a standard for conducting a "water footprint analysis" using LCA principles. Foster warns, however, that although the standard is taking shape, it is still an internal draft in the ISO system, so a final version remains some way off.
- The technical reports ISO 14047 and ISO 14049, which provide examples of how to apply 14044 to impact assessment and scoping and inventory analysis respectively, have been updated to reflect the latest edition of 14044 (2006). The new versions are due for imminent publication, but the technical content has changed very little from the originals.
- Work is about to start on ISO standards for the application of LCA to organisations and for the critical review of LCAs. Foster explains that the first work should eventually help organisations to carry out robust LCAs, focused on their overall activities rather than on their products or services. The second piece of work will aim to build on the existing 14044 content to better specify the requirements for critical reviews of different LCAs.
- ISO 14067, the ISO standard for calculating the carbon footprints of products, will be issued for its second public ballot in the next couple of months.

When Unilever relaunched the product in 2005 in the US, it worked with Walmart, which owns Asda in the UK, to market the product to customers. It also included a cap on the packaging to help consumers measure the right dose. "There's a lot of consumer education that goes beyond advertising," she says.

Supply side

Engaging the supply chain is vital but can be a huge challenge for companies that have thousands of global suppliers. Companies with large and diverse supply chains usually start by identifying a small group of their biggest suppliers and working with them.

GSK, for example, is talking to 30 of the 4,000 businesses in its supply chain. Wilson says that there is a huge trust hurdle to overcome. "We're asking them to share a lot of commercially sensitive information," he explains. One successful tactic has been to check with suppliers whether something GSK is asking them to do is actually making their business unsustainable. GSK might then suggest that they could do things differently, thus switching the relationship from one where one party is being told what to do, to one where both work together.

"It's starting to drive some really interesting collaborations," says Wilson. To illustrate how the business relationship is changing, Wilson uses the example of a carton manufacturer that is now asking GSK if the company would like it to make more lightweight packaging.

The key to engaging the supply chain, says Aumônier, is communication. A business needs to make it crystal clear what information it wants from a supplier, why they want it and then make it easy to provide, such as giving them a template to put the information into and using the same units of measurement that they would use themselves. "The secret is to make the burden as small as possible," says Aumônier.

In the future, as thinking about products' whole life cycle moves further into the mainstream, there will be an even greater emphasis on collaboration and sharing of information, Aumônier believes.

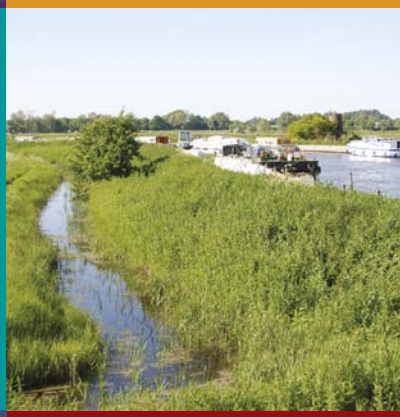
"It's quite astonishing how much data there [are] in the public domain," he says. "I don't think that will stop people doing it by themselves – the more detailed assessments may well be done behind closed doors, but the broader LCAs on more and more products and services will be done in the open."

Planning thoughtfully

Building responsibly

iema EIA

Maximising the value



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It's all in the imagination

Christine Ottery discovers how GE is successfully pursuing superior economic and environmental performance

General Electric (GE) has proven to be a nimble giant when pushing forward its environmental agenda. One of the world's biggest companies, with an annual turnover of $150 billion, GE launched its green strategy, called "ecomagination", in May 2005.

The strategy was designed to increase the growth of the mammoth US corporation, whose operations span energy, aviation, healthcare, finance and technological innovation, while significantly reducing CO_2 emissions and water usage. At the time of its launch, the *Washington Post* described ecomagination as "the most dramatic example yet of a green revolution that is quietly transforming global business".

But don't think that ecomagination is anything less than a savvy business strategy. GE is a commercial beast, and as such its priority is to increase revenue. Tore Land, director of the international arm of ecomagination, which covers Europe, the Middle East and Africa, says: "It's all about resolving this false choice we are often presented with, which is that we have to pick between economic success and environmental performance. We very firmly believe that you can have both, and we demonstrate this each and every day with our ecomagination strategy.

"Key customer groups that GE is serving – like the aviation industry, transport industry and utilities – have to become more and more efficient in using natural resources, be it water, be it fossil fuels, be it other resources. But on the other hand they also have to improve their competitiveness." Land believes that the innovation at the heart of ecomagination is the recipe to make that happen. Essentially, ecomagination is GE's strategy to build innovative solutions to environmental challenges, while at the same time driving economic growth.

Facts and figures

The figures tell a convincing story that the plan is working. At the end of June, GE reported that the ecomagination initiative had achieved more than $105 billion in sales and services since its launch in 2005. And, in 2011, GE generated $21 billion in revenues from ecomagination products and services. It also reports that 34 new products and services were added to the ecomagination portfolio in 2011, bringing the overall total to 142.

Announcing the results, Mark Vachon, vice-president of ecomagination, said: "The results we have generated through ecomagination prove we are delivering to our customers what they need most. Whether they are countries, municipalities, companies or individuals, ecomagination is about resource efficiency and increased productivity – ecomagination offers great economics."

Land explains that the ecomagination portfolio is growing at a rate of 15% a year, twice as fast as the rest of GE. He adds: "As GE is absolutely committed to achieving faster growth, we obviously want to be as big in ecomagination as we can."

To qualify as for the ecomagination portfolio, products and services must significantly and measurably improve customers' operating performance or value proposition, as well as their environmental performance. The latter focuses on lowering reliance on fossil fuels; reducing greenhouse-gas (GHG) emissions; and improving energy and resource efficiency.

According to the 2011 ecomagination annual report, GE exceeded every goal it set six years before. Specifically, it managed to lower GHG emissions by 29% compared with the 2004 baseline – when adjusted for divestments and acquisitions. The company also reduced water usage by 25% between 2006 and 2011, with a 13.5% fall reported for 2011 alone.

The ecomagination investment strategy has included spending heavily on wind energy, which has helped the firm hit its target of a $6 billion outlay on renewable energy by 2010. It also put money to a lesser extent into solar and hydroelectric power generation. These investments, in 14 different countries, created a jump in the proportion of GE's business unit portfolio in renewables from 6% in 2006 to 30% in 2010.

Overall, in 2010 GE's wind turbines were estimated to have reduced GHG emissions equivalent to 45.4 million metric tonnes of CO_2 (tCO_2). Land says that GE has installed more than 17,000 wind turbines to date, making the company one of the market leaders in the industry. Many more projects are in the pipeline, such as the Shepherds Flat wind farm in Oregon using GE's 2.5MW wind turbines, which will be one of the largest land-based wind farms in the world when completed in August 2012. Shepherds Flat is projected to save 1.5 million tCO_2 a year.

Another important focus for GE has been saving energy, both through efficiencies in its own operations and by improving the performance of its products. For instance, the CFM LEAP aviation engine has been designed to improve fuel efficiency by 15% and consequently cuts CO_2 emissions by 15% in comparison with previous CFM models. Obviously, this reduces costs for the airline as well as benefiting the environment.

Another example is GE's gas engines, which are suited to combined heat and power (CHP). In May 2012, the first of two new 2MW Jenbacher engines was installed at a new CHP plant to power and heat the massive King's Cross development in London, which will include housing, council buildings and retail spaces. These engines will supply all of the development's heat and offset almost 80% of its electricity. This is expected to cut CO_2 emissions by one-third compared with a similar development using a conventional power source.

Adopting new technologies has also played an important role in improving GE's own energy usage, alongside retrofitting buildings and employee engagement programmes. Overall, the company has achieved a 19% reduction in energy consumption since 2004, cutting GHG emissions by 5.09 million tCO_2.

$21 billion

The revenue generated from ecomagination products in 2011

Innovation is the name of the game

Of course, innovation has to be funded. Since the start of ecomagination, GE has poured $5 billion into research and development. But innovation is not only about spending money on developing new technologies; it is also about harnessing the resources of one of the world's largest companies, and cross-pollinating ideas throughout its various divisions. GE's latest offering in the realm of electric vehicles (EVs), for example, draws on expertise from its automotive, home and electricity distribution divisions, among others.

Since the start of ecomagination in 2005, $5 billion has been spent on research and development. By 2015, GE will have doubled this R&D budget

The offering encompasses EV cars, charging points, and smart grid technologies – a whole infrastructure. This is includes the WattStation and DuraStation EV charging points. Both types of charger are designed to help accelerate the adoption of plug-in electric vehicles by significantly decreasing the time required for vehicle charging. There are now iPhone and Android applications to help WattStation customers find their nearest charging point, and to book it in advance and pay through their smartphone. WattStation owners can then track energy use history, the amount of CO_2 emissions saved and which stations are used most often, to inform future placement strategy.

This EV infrastructure is intended to go global: "Ecomagination has been tremendously helpful with getting us to be able to reach out to stakeholders in different regions around the world so that we can work together to make it a reality for people who want to own and drive EVs," says Michael Mahan, product general manager for GE energy's industrial solutions business.

The DuraStation charging point has already been rolled out in the US, Europe, China and Australia, and was selected by the organising committee of the London 2012 Olympic and Paralympic games to charge the fleet of 200 BMW and Mini electric vehicles that will be used to transport athletes and officials between the various venues.

GE has also launched a wall-mounted version of its WattStation charging point in the US to supplement the original pedestal version, and both are due to be introduced to the UK market in the near future.

Giving start-ups a step-up

Since 2010, it has not only been GE product managers who can benefit from the advantages of GE's vast size, diversity and technological expertise. Start-ups and individual entrepreneurs can take part in an annual innovation challenge to join the ecomagination portfolio.

The first round of the challenge was themed "powering the grid", and the second, launched in 2011, is called "powering your home". Applicants had to send in proposals to get a chance of receiving part of a $200 million fund, co-funded by GE and four venture capital firms – Emerald Technology Ventures; Foundation Capital; Kleiner, Perkins, Caulfield & Byers; and Rockport Capital – as well as securing a possible working partnership with GE.

"So far we have looked at in excess of 5,000 business plans," says Land. "We have built a world-class portfolio of more than 25 companies. We have invested, together with our venture capital partners, more than $130 million and we keep investing.

"The most common way we operate with companies is that we make an initial investment [minority investment or equity investment] and we build the relationship with the company. When the company is mature enough we invite it to become a commercial partner or some other relationship," Land explains.

But one company is being acquired outright. Irish-based FMC-Tech, which developed a smart grid technology called an "intelligent line monitoring system", was acquired by GE last year.

Mike McCormack, formerly of FMC-Tech and now a product manager for GE Digital Energy, explains that it took eight engineers nine years to develop the product, which is a system of sensors that sit on the power line and measure current and conductor temperature. The data are then sent to a central source, which can help locate faults in the network, increase capacity and make networks more flexible – which is useful for networks fed by renewable-energy sources. He calls it "a nervous system for the distribution network".

"The product was pretty much developed, almost ready for market, so the marriage was ideal because GE gives this technology global scope and us additional resources in terms of technological development," McCormack says. The system will be ready for launch by the end of 2012.

Another interesting partnership is one that GE has developed with Oblong Industries, a company working to develop visualisation technology. Imagine dynamic screens similar to those used in the sci-fi film *Minority report* being used by utility companies to manage huge amounts of data, such as from smart meters. "The vision is that you basically don't click on a mouse any more," explains Land, "You are able to stand in front of a screen and with one gesture you are able to trigger 20 different responses."

Oblong's chief executive, Kwin Kramer, says: "Digital systems are only as effective as the people using them. We always say that the smartest computers in a room are between the ears of the people inside. The more that people can see, process and understand their data, the better their decisions are." Oblong's innovation is now being sold as part of Grid IQ – a smart grid solution from GE's Digital Energy division that utilises software and hardware technologies.

Green leadership

Leading environmentalists have touted GE's ecomagination strategy as an example of bold, green leadership. "We need to move past the policy disputes of today and take bold action to build a clean energy economy for tomorrow," writes Eileen Claussen, the president of the Center for Climate and Energy Solutions, formerly the Pew Center on Global Climate Change. "Fortunately, a handful of leading companies such as GE have committed themselves to doing their part to achieve this goal."

Land says that even though ecomagination is focused on growing the business, it is not "greenwashing". "Nothing could be further away from greenwashing, or just being a PR strategy," he says. "By having the right criteria we can accomplish both improving environmental footprints and the competitiveness of our customers."

GE has set tough goals for pushing the ecomagination strategy, despite a global recession, serving to underline the company's commitment to growth via the green economy. It has pledged to continue to grow ecomagination at a rate that is double that of the rest of its business.

In 2010, GE announced a commitment to reduce energy intensity by 50% and water consumption by 25% by 2015. It has also promised to double investment in research and development to $10 billion over the same five-year period.

GE electric charging points will be used at London 2012

Christine Ottery is an environment journalist

Down on the farm

A unique anaerobic digestion system in Wales is producing a surfeit of renewable energy and a rich fertiliser. ***the environmentalist*** investigates

Richard Tomlinson and his extended family run two farms near Wrexham in North Wales. Combined, the two farms cover 1,100 acres, have 650 milking cows and sell four million litres of organic milk annually. When Tomlinson wanted to grow his family's organic farm business a few years ago, introducing an anaerobic digestion (AD) system that would strengthen the existing farming operation, by providing a source of energy and fertiliser, was the obvious solution.

It is not easy in today's economy to run a lucrative dairy business, which is why many farmers choose to diversify. One option is developing an AD process to optimise productivity of the existing farm business and provide an alternative, non-food income stream, independent of supermarkets.

A key advantage of AD is that it does not require re-skilling. As Tomlinson points out: "If you understand cow nutrition you can already feed a digester."

The formation of Fre-Energy by Tomlinson and his two co-founders – brother Jonathan and engineer Chris Morris – follows several years spent developing and improving the AD process. Fre-Energy is the only company in the world to offer patented de-gritting and foam alleviation technology as part of the AD process. The company is about to undergo considerable expansion as commercial interest grows in its unique product, from farms and businesses both at home and overseas.

Conventional AD falls short

AD is a process whereby microorganisms break down biodegradable materials such as animal slurry and food waste in the absence of oxygen, producing a biogas that can be used to generate electricity and heat. Instead of sending waste to landfill where it breaks down, releasing methane, a potent greenhouse gas, AD helps to tackle climate change by trapping the methane and using it as biogas. As an added bonus, the leftover digestate is a rich bio-fertiliser that can be put back on the land.

Identifying the right kind of AD process for the farm proved far from easy, however, as Tomlinson soon discovered that an appropriate model was not yet in existence. After a trip to Germany to look at the systems used there, Tomlinson decided that he wanted a waste digester capable of processing farm waste, to complement the core business of milk production, rather than growing plants to feed a large crop digester – essentially turning the farm into a rural power station.

One major problem with conventional anaerobic digesters is that they struggle to remove grit such as sand, ash and soil from the AD process. In an ideal world these materials would not be allowed to enter the AD process but in reality they inevitably do, as waste is not clean. It also makes it impossible to load the AD with certain types of waste, such as chicken litter. Chicken litter is an excellent feed for AD because it has a high nutrition content – but it also has a high grit content. Furthermore, as the cows on Tomlinson's farm bed down on ash, another gritty substance, any type of conventional AD system would not be able to cope with the cow slurry from his farm.

Another serious difficulty Tomlinson quickly identified is the build-up of heavy foam in most waste digesters. This can happen if the diet of the AD is changed significantly over a short period of time, not allowing the bacteria time to adjust, a common occurrence in digesters that process a high percentage of unpredictable food wastes. Foaming is extremely problematic for several reasons. If the foam reaches the methane offtake pipe in the digester roof it will shut down the generator – if it reaches the generator, it will destroy it. Furthermore, digesters with gas storage above that also have inflatable fabric roofs can be seriously damaged by excessive foaming.

The Fre-Energy way

Tomlinson and his team set out to develop a new AD process that could overcome the grit and foaming problems and therefore cope with the on-farm materials that needed to be loaded into the system. "Fortuitously, we discovered that some very old, local digesters had been built or designed by James Murcott – who already had ideas about designing a process that would deal with these issues," says Tomlinson. Fre-Energy employed Murcott's services as technical director to oversee the development of a prototype AD on Tomlinson's farm.

Helped by a £45,000 innovation grant from the Welsh Assembly government, a digester was designed and built on Lodge Farm, with 1,000m³ capacity.

One of its unique design elements is the inclusion of a de-gritting arm that very slowly rotates and removes any grit from the waste material by depositing it in a grit trap. Environmental scientist Denise Nicholls, a new member of the Fre-Energy team, explains why this design factor is crucial: "Most conventional digesters comprise a fully mixed system which involves using a lot of energy to continuously agitate the material inside the tank, to try and keep any grit from entering the system.

"In a Fre-Energy digester, reducing the agitation means a reduced parasitic load, allowing stratification to occur in the tank. This permits predominantly digested material to be selectively extracted.

"Reduced mixing encourages bacterial growth, improving digestion, resulting in more throughput and more gas, hence more output and profit."

The Fre-Energy AD system is also designed to combat the foaming problem inherent in other AD processes. It has a solid, thermally insulated fibreglass roof and the system automatically shuts down the generator if foaming occurs, preventing any foam entering the methane gas offtake pipe. It then allows the foam to be removed from the gas space without the need to reduce the digestate level in the tank.

"The system is a waste disgester that can process crops and handle real-world organic wastes that contain ash, soil, grit, plastics and metal, whereas a conventional digester is a crop digester that can't process waste," explains Tomlinson. "This means that our AD can operate 24/7 as there is no more silting up and expensive down-time needed to empty the grit and sludge."

A balanced diet

The de-gritting capability of Fre-Energy's AD system means that it can function effectively on animal slurry alone, as part of a slurry management regime. When *the environmentalist* visited Fre-Energy, representatives from an American environmental regulatory body and the chicken farm industry in Maryland were also visiting Lodge Farm. The Fre-Energy AD's capacity to process chicken litter represents a major breakthrough for the chicken farmers, who collectively have signed an agreement with Fre-Energy to buy a minimum of 11 of its anaerobic digesters and up to 100 over the next three years.

Tomlinson recommends that the Fre-Energy AD be fed a diverse diet. As he says: "You don't want to give the digester indigestion and so a stable, balanced diet is the best approach."

The farm's own digester is fed 100 tonnes of chicken litter over a seven-week period, as well as around five times that amount of cow slurry. There are also plans, following protracted negotiations with the local council, to import food waste from a Wrexham industrial estate, diverting it from landfill.

The big advantage of adding organic wastes such as crops, spoiled silage, grass or food processing waste is that, unlike animal slurry, they still have most of their energy available. Tomlinson explains that, tonne for tonne, organic wastes typically deliver between four and 10 times as much energy, depending on the material. And by bringing in other wastes, it is possible to create another revenue stream.

There is also the significant environmental benefit of the nutrients of these wastes being used instead of wasted in composting or landfill. "Potentially, farms

The Fre-Energy anaerobic digester delivers 160kW of electricity an hour

using brought-in wastes through AD will negate the need to purchase expensive, unsustainable chemical fertilisers," adds Tomlinson.

The digester itself requires no more than two hours of human labour a day spent loading the feedstock and simple maintenance of the various pumps and mixers. On the Fre-Energy digester, all serviceable parts are external, eliminating the need to enter the gas space to maintain any of the digester parts, making this system much safer than conventional digesters.

Energy security

Once the feedstock is agitated and heated to around 38°C in the huge sealed tank, the bacteria present break down the organic parts, releasing biogas comprising around 60% methane and 40% carbon dioxide. This gas is then used to generate renewable energy. The outputs from the Lodge Farm plant are typically 160kW of electricity and 200kW of heat per hour. The electricity needed to power the engineering business, the Fre-Energy office and a large farmhouse is less than one-fifth of this. Around 60kW of the heat generated is used to heat the cow slurry and chicken litter in the digester, while the remainder heats the offices and farmhouse.

As well as ensuring energy security for the farmhouse and business, the renewable energy produced by Fre-Energy's AD generates an additional income stream for the farm. The surplus electricity is exported to the National Grid (with sufficient excess to supply around 80 houses) and is eligible for renewables obligation certificates and feed-in tariffs. In future, the heat energy generated and used on the farm will also be eligible for income under the renewable heat incentive, which will pay a fixed fee for every kilowatt of heat the AD system produces. Additional payments will be received for exporting any surplus heat. When Lodge Farm starts adding the food processing waste from the industrial estate to the feed mix, the potential for generating renewable energy will increase significantly.

Back to the land

The digestate produced by Fre-Energy's AD caters for the 1,000 acres of farmland without the need to import other nutrients or soil conditioners. The farm's business plans are consistently demonstrating a 20% return on investment without taking into account the uplift from the fertiliser value of the digestate over and above undigested slurries. Aside from the financial saving this "closed loop" process represents, the rich quality of this natural fertiliser brings with it a range of other benefits to the farm and the environment.

The digestate that comes out of the digester goes through a separator, and the liquid is stored in a lagoon from where it is spread onto the grassland. The solid digestate, which contains a higher proportion of phosphate and potash, is transported by road to land that is used for growing winter crops to feed the dairy herd. Trial work carried out by Bangor University has demonstrated that the BOD (biological oxygen demand) of both the solid and liquid products is reduced by up to 90%. Another benefit is that any weed seeds that enter the digester are no longer viable when returned back to the land. And the digestate has around 80% less odour than straight cow slurry, thus making the spreading of manures a far more socially acceptable activity.

"The digestate also supports nitrogen-fixation in plants and so crop yield is increased," adds Nicholls. "It is of such high grade that the fertility of the land has improved to the extent that the farmers have reduced the quantity of cereal imported to supplement the cattle's diet. And nitrate run-off is virtually non-existent. All of these claims are supported by the data from the comparative university-led trials."

Future plans

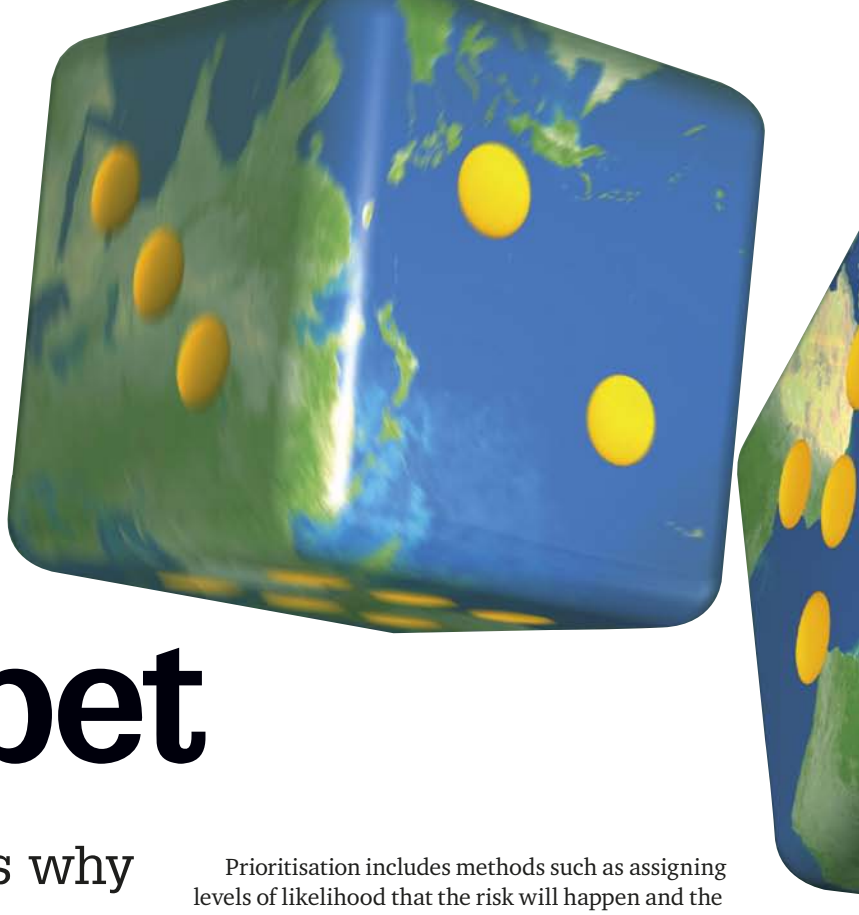
There is no shortage of interest in Fre-Energy's AD system from a diverse range of businesses. In addition to the contract with the American chicken farmers, the company has also received several UK orders. The only reason it is not being taken up more rapidly is the lack of easily accessible funding from financial institutions, says Tomlinson.

Fre-Energy's ground-breaking AD system not only brings with it extensive environmental benefits and additional income for the farm, the new business is also generating much-needed employment opportunities in the region.

"Future plans for Fre-Energy are to team up with one or several strategic civil engineering partners that banks and venture capitalists would be comfortable lending their money to," says Tomlinson. "This would see the roll-out of this technology for on-farm or municipal waste AD expanding rapidly in the UK."

"The potential for this AD system is phenomenal: carbon reduction, employment opportunity, investment, food security, the list is endless," says Nicholls.

"Our land is a finite resource and we cannot afford to sacrifice food production for energy production. Organic wastes contain valuable energy and fertiliser that must be recycled. Anaerobic digestion is the most efficient way of recovering this valuable resource, and it's a win-win solution."



Making a safer bet

Helen Woolston explains why environmentalists need to understand risk management

Organisations that effectively manage risk can demonstrate they are protecting their strategic objectives from a range of potential threats, including the changing climate. With many organisations now completing adaptation risk assessments, environmentalists increasingly have to demonstrate that they understand the art of risk management.

Demystifying risk

A number of terms are commonly used in the world of risk management. A risk is anything uncertain that may affect an organisation's current and future performance. This can mean something that prevents objectives being met, or that opens up new business opportunities. Meanwhile, anything that is 100% certain can be viewed as an issue rather than a risk.

In certain environmental risk assessments, such as one focused on contaminated land, a risk is only deemed to be present when there is a source and receptor of risk, and an identifiable pathway between them.

A full description of a risk must include its cause and effect. Probability is how likely it is a risk may happen. Impact or harm is the effect if it should happen: the undesirable consequence or damage that results from the hazard, whether that is a substance or activity.

Risk management is a formal and continual process of anticipating and managing uncertainty, while ensuring that threats are minimised and opportunities are maximised. A full risk management process is one where risks are identified, assessed, recorded, mitigated and communicated.

Risk assessment is carried out when there is concern about a hazard. It involves identifying and prioritising risks based on evidence or data with a view to determining how they are best managed.

Prioritisation includes methods such as assigning levels of likelihood that the risk will happen and the consequences if it does. Organisations will then use the information and apply a set of rules or thresholds, or an approach to the level of tolerance or risk appetite, that determines what they will do to manage such risks.

Risk management is useful to environment professionals in the following ways:

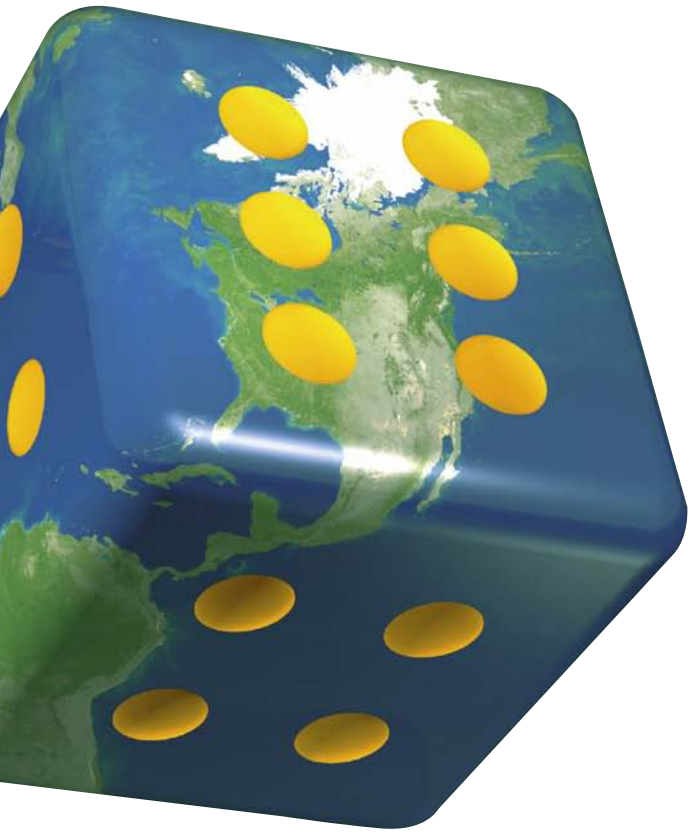
- for planning, preparation and prioritisation;
- as a management tool for organising and analysing environmental information;
- for identifying significant environmental aspects;
- to assess likely impacts – for example, the possible consequences from climate change;
- for managing environmental incidents and helping to deliver legal compliance – for example, environmental permitting; and
- assisting with making the business case for resources to reduce risks with a potentially high impact on the organisation.

Environmental risk assessment is used commonly in pollution control, because bodies such as the Environment Agency are taking a risk-based approach to regulating industry. They carry out risk assessments to help prioritise the sectors and sites they are going to target their resources at, and when.

According to Simon Pollard, professor of environmental risk management at Cranfield University and contributor to the IEMA handbook, "the management of risk, from or to the environment, has developed into a systematic process for making better and more accountable environmental decisions."

The systems

Some environmentalists get very fixated with the mathematics and methodology of risk assessment and quantification. However, risk assessment is just one stage to a wider risk management process, albeit an important one. Risk management is most effective when it is an integrated programme that covers everything from risk identification, assessment of priority and record keeping, to mapping out and communicating mitigation plans and responsibilities.



EXAMPLES OF RISK ASSESSMENT

UK climate projections 2009 (UKCP2009) This series of tools and reports presents scientists' best understanding of how the climate operates, how it might change in the future, and allows a measure of the uncertainty of future climate projections to be included. UKCP2009 also includes probabilistic climate-change projections from modelling done by the Met Office's Hadley Centre. Users who want to incorporate these into their own risk assessments can generate a range of outputs. Organisations can choose the degree of certainty they require from the projections according to their own risk appetite.

UK national climate change risk assessment (CCRA) At the start of 2012, the government published its first national risk assessment examining climate change (lexisurl.com/iema12857). It analyses the key risks and opportunities that changes to the climate bring to the UK and provides a baseline that sets out how climate risks may manifest themselves in the absence of current and planned actions. The CCRA has reviewed the evidence for more than 700 potential impacts of climate change. Analysis was undertaken for more than 100 of these impacts across 11 key sectors, on the basis of their likelihood, the scale of their potential consequences and the urgency with which action may be needed to address them. It forms the basis of the UK's first national plan on adaptation and the cycle is due to be repeated every five years.

The key element is to remember what the risk management system is aiming to achieve. It should be designed with the objective of delivering options for reducing the priority risks. Good-practice organisations will have a strategy for managing risk that determines their overall approach and plans. One example of such a strategy is as follows:

1. Terminate the risk or stop it occurring – through re-engineering a project, for example.
2. Transfer the risk – for example, through insurance – to change the financial impact.
3. Mitigate the risk to an acceptable level and manage the residual risks.
4. "Actively" tolerate – via a plan to manage the risk.

Risk management is best when embedded as a main organisational process. It is useful to have a structured approach to risk management, covering, for example, the top-level strategic risks, business-level risks and detailed operational risks. An organisation with a mature risk management process should ensure that this considers environmental as well as financial, operational and strategic risks.

Assessing environmental risks should not be done in isolation or as a bolt-on. Some organisations find it is effective to have a "top down" tier of risks agreed by, and assigned to, senior management. Others adopt a "bottom up" approach, identifying risks by the operational or delivery areas. It is acceptable to have a system that includes both elements. The risk management system should identify a structured set of roles and responsibilities for owning and reducing the priority risks. It is good practice for there to be senior risk owners at the same time as making it clear that risk management is the responsibility of all staff, and the organisation should support this with communication, training and competency building.

A good total risk management programme should also include a "feedback loop" – a system for tracking whether actions to lower priority risks are being carried out, and reporting the process and results to key stakeholders. A number of organisations do this with a regular and formal presentation to their board.

The assessment process

For the actual risk assessment, risks are best identified and assessed when a cross-functional team of professional specialists is brought together. Processes that are useful include a combination of brainstorming, checklists, document reviews, analysis of historical data and interviews. It is important to start with good problem definition upfront.

There are many risk scoring schemes, each with their own benefits. A common one is the five-by-five matrix, which uses numerical scores assigned to levels of hazard and probability. It is worth remembering that there is no single correct method and the scoring scheme used should reflect the complexity of an organisation's activities. A largely office-based enterprise, for example, would have a simpler scheme than one that has a lot of operations and supply chain activity. What is important is organisational consistency, a detailed explanation of how the scoring works, and the responsibilities and resources assigned to reducing high-scoring risks.

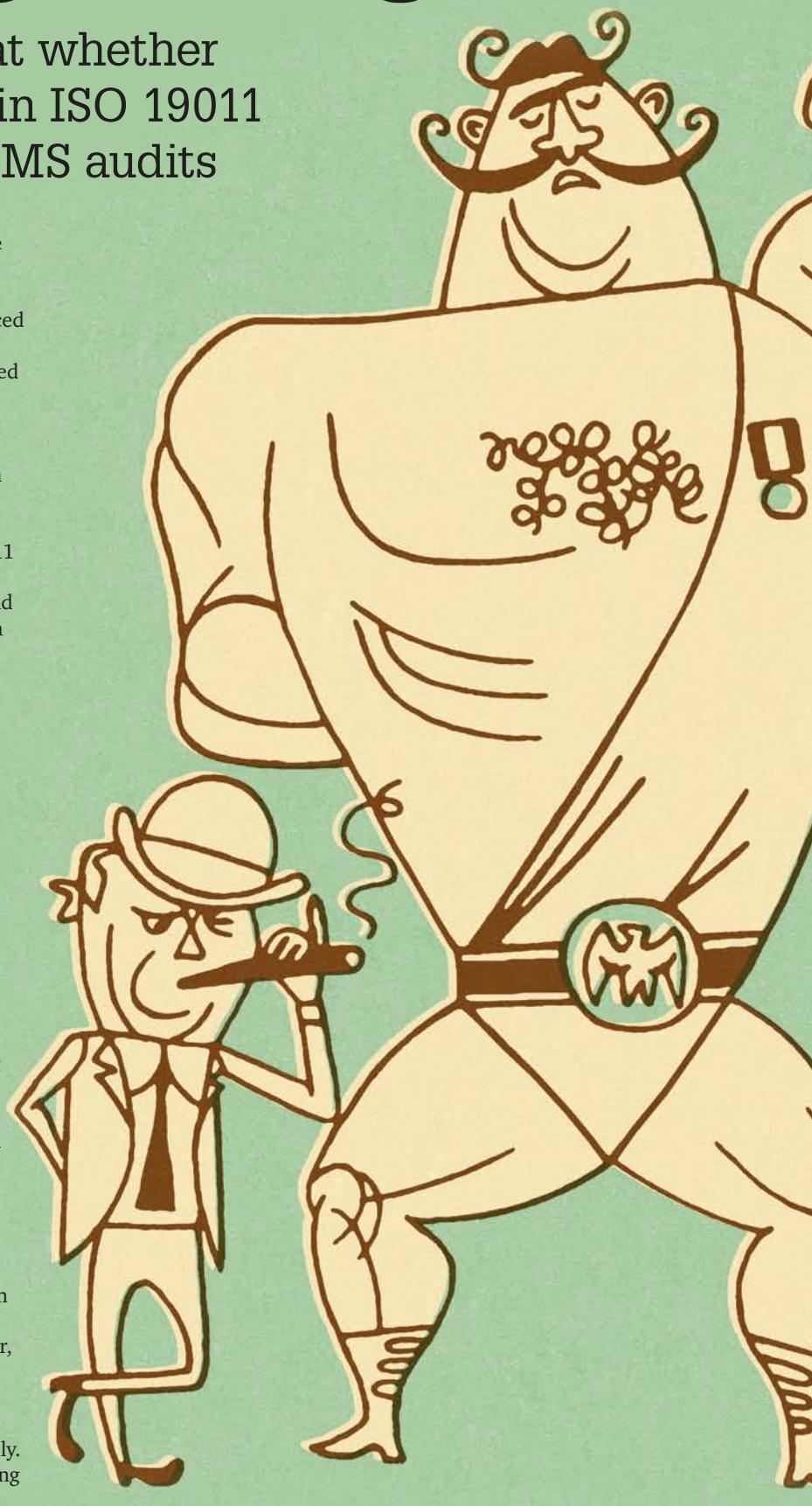
Risk assessment should also consider positive benefits and opportunities, and not solely focus on negative issues. Focusing on the potential for lack of legal compliance, for example, will miss opportunities to minimise waste or other potential benefits, unless they actively include financial benefits as well. Many good-practice risk-assessment methodologies consider issues such as media or political interest.

There are still some challenges, such as what is to be done with risks that have very high consequence but very low likelihood. For example, a one-in-1,000-years flood. The low level of likelihood could potentially leave an organisation unprepared, as it has instead focused on risks with a higher priority or probability.

Helen Woolston is group environment and climate change coordinator at Transport for London

Auditing strength

Nigel Leehane looks at whether the revised guidance in ISO 19011 will help to improve EMS audits



The publication at the end of last year of the revised ISO 19011 guidance standard on auditing management systems modified existing auditing approaches and introduced new ones. An article in the January issue of *the environmentalist* (lexisurl.com/iema12870) examined the revised standard's treatment of risk-based auditing and auditor competence. Other significant developments include the greater emphasis given to audit programme management and the introduction of guidance for selecting audit methods, including remote auditing.

This second part of our review of the updated 19011 considers the practical implications of the revisions, specifically for environment auditors, although it could equally apply to the auditing of a management system for health and safety or quality, for example.

Improvements to audit programmes

External auditors often raise the issue of nonconformity or make other criticisms of internal audit programmes, on the basis that they:

- simply do not exist;
- have not been implemented;
- are only partially completed;
- are under-resourced; or
- fail to focus on significant aspects.

These failings are often indicative of weaknesses in the organisation's procedures for planning and implementing the audit programme. However, they may also result from ineffective allocation of responsibility for managing all elements of the audit programme. The revised 19011 attempts to improve these potential deficiencies.

Although the original version provided substantial guidance for audit programme management, much of it retained in the revision, it placed more emphasis on the role of the auditor, potentially to the detriment of effective programme management. There was only one reference, for example, to the allocation of responsibility for audit programme management to an individual. In large part this was due to the desire not to create an explicit post of audit programme manager, and an additional cost burden to organisations.

The 2011 revision also avoids creating a new post, with the clumsy phrase "the person responsible for managing the audit programme" being used repeatedly. However, this is an important development, emphasising

the need for an individual to take responsibility for all aspects of audit programme development, delivery and improvement. This is a positive step, and should be helpful to users of 19011.

The revised standard also defines more clearly some of the responsibilities for audit programme management, which in the 2002 version were set out in the "audit activities" rather than the "managing an audit programme" section.

The 2011 version establishes a far clearer distinction between the responsibilities for "managing an audit programme" and "performing an audit", which is the remit of the auditor. Managing the programme now includes responsibility for determining the feasibility of individual audits, selecting the audit team and distributing the audit report. It also contains responsibility for:

- defining the objectives, scope and criteria for individual audits;
- selecting the audit methods;
- assigning responsibility for individual audits, and briefing the audit team leader; and
- ensuring audit reports are reviewed and approved, and that corrective and preventive actions and reports are communicated to senior management.

This clear allocation of responsibility to a single point should ensure that the audit programme reflects organisational objectives and risks, and is better planned, and that individual audits are more effective, with auditors understanding their objectives and having adequate resources.

Selecting audit methods

The revised standard advises that appropriate audit methods should be selected, taking account of the audit objectives, scope and criteria.

A new Annex B of additional guidance includes a classification of four categories of audit method, based on location and degree of interactivity between the auditor and auditee. These are:

- **on-site, interactive** – involves the traditional face-to-face interaction of the auditor and auditee;
- **on-site, non-interactive** – could involve document review or observation of activities;
- **remote, interactive** – comprises telephone or video conference; and
- **remote, non-interactive** – involves viewing video or inspecting web-based records.

The appropriate audit type should be selected for a given situation. In many cases, the traditional on-site approach will be favoured, as this method is applicable for a broad range of audit objectives, scopes and criteria. Both interactive and non-interactive methods may be included in a single site-based audit.

Remote methods (see panel above) have limitations and may impose constraints. Increasingly reliable and sophisticated information and communication systems provide a range of tools that can be applied in remote audit situations, including web-hosting of data, real-time transmission and reception of video footage, and telephone and video conferencing. However, basic technological limitations, such as low bandwidth, may restrict the transmission of data, making access to documentation slow and preventing the use of video streaming. Even where there are no technological failures, the mere use of the technology can restrict the ability of the auditor to develop reliable findings.

Difficulties posed for auditors include the following:

- Establishing a relationship with auditees in interviews by telephone or video conferencing. It may be harder to gain the trust of auditees and therefore elicit useful and reliable audit evidence.
- Ensuring that the auditee clearly understands the auditor's aims and questions, and equally that the auditor understands the responses. Nuances can be lost in remote situations.
- Finding documents and records in remote systems when there is no auditee to provide direction.
- Ensuring that remote video footage captures all relevant activities and views.
- Being unable to deviate from the remote audit plan, making it hard to follow up new trails and find corroborative evidence.

Many of these difficulties can be overcome or minimised by developing remote audit protocols, training auditors in the application and pitfalls of remote audit methods, and providing guidance and support to auditees.

Although remote audits can be effective in reducing auditor time on-site, time spent travelling and the associated CO_2 emissions and costs, the potential risks must not be overlooked. Before selecting remote methods, consideration should be given to the resultant risks to achieving the objectives of both individual audits and the audit programme itself. This is the responsibility of the person managing the audit programme.

Effective audits?

The improved and practical guidance in the revised 19011 standard should help organisations develop audit programmes better focused on risk, and with greater emphasis on planning the delivery of audits.

In combination with the use of new audit methods, organisations should enjoy the benefits of a more efficient and effective audit programme that genuinely adds value.

USING REMOTE AUDITS

Remote methods can be applied in the context of risk-based auditing, where a particular activity with significant aspects warrants additional audit effort. An example is fuel storage at sites across a multinational organisation. Rather than incur the cost of a substantial number of audit visits, it may be feasible to undertake more frequent remote audits by using video footage of the storage facilities; interviewing fuel-storage staff by telephone or video conferencing; and reviewing facility fuel-handling procedures, staff training records, and inspection and maintenance records via the internet. The findings of these remote audits could be confirmed by less frequent comprehensive site audits.

Nigel Leehane is managing director at CRA Europe. He is an IEMA-registered principal environment auditor and was the UK technical expert for the revision of ISO 19011

IEMA in the news for GHG reporting

Reporting Following Nick Clegg's Rio+20 announcement that all 1,100 FTSE-listed companies will have to report their greenhouse-gas (GHG) emissions from April 2013 (see p.5), the world's environment media and major news agencies sought IEMA's view on the topic.

IEMA has been working to influence the government's decision on this issue for more than three years. So when the decision to introduce mandatory reporting was made – and government policy finally reflected the view of 90% of IEMA members surveyed in 2010 that reporting should be introduced for all large companies – IEMA declared the move a "step forward".

Media as diverse as Bloomberg, Edie and the *Chicago Tribune* featured IEMA's view on the introduction of mandatory reporting, alongside the following environment, business and news channels:

- Greenwise Business;
- BusinessGreen;
- *The ENDS report*;
- *Energy and Environmental Management*;
- Reuters;
- eGov Monitor; and
- *Business Week*.

IEMA's executive director of policy, Martin Baxter, was widely quoted.

"This is a welcome decision for UK plc and demonstrates international leadership as part of the Rio discussions," he said. "Mandatory reporting will deliver benefits for both the UK economy and the environment, and turn the environment into a mainstream business opportunity."

However, the key message was to "strongly urge" the government to speed up the introduction of mandatory reporting to all large firms; business and the environment will not fully benefit until all 24,000 large companies are required to disclose their GHG emissions.

Ahead of the publication of draft regulations, due by end of July, IEMA has issued an interim briefing outlining key elements of the policy to help environment professionals prepare for its introduction (lexisurl.com/iema13026).

IEMA would like to thank all of its members who contributed to the Institute's research on this issue, which enabled us to form such a strong and recognisably authoritative position. We will keep members updated with this new policy as further details are released.

For more information on IEMA's work on GHG reporting, contact Nick Blyth at n.blyth@iema.net

Revision of 14001 making 'good progress'

14001 A new edition of ISO 14001 capable of helping environment professionals to better embed environmental considerations into the heart of their organisation is a step closer, according to IEMA's executive director of policy, Martin Baxter.

The International Organisation for Standardisation's (ISO) working group responsible for revising the environment management systems (EMS) standard, met for the second time between 24 and 27 June in Bangkok.

Commenting after the meeting, Baxter, who is also the UK's national representative on the working group, said: "The revision is in its early stages and we're making good progress.

"Although no decisions have been made on any of the specific recommendations, the group is starting to develop a much better understanding of how they might be addressed."

14001 is currently being revised in line with a new high-level structure for all management system standards, which was adopted by ISO at the end of 2011, and the update will also consider a series of wide-ranging recommendations from ISO's report *Future challenges of EMS*.

Work during the meeting in Thailand focused on developing text relating to organisations' strategic context and on understanding the needs and expectations of interested parties.

These are two new elements for 14001, which have been taken from ISO's new high-level structure, and, it is hoped, will help to ensure that environment management systems are more closely aligned to an organisation's overall corporate strategy.

Such a high-level evaluation will then help to set the framework within which organisations consider in more detail their environmental aspects and impacts, as well as their legal obligations and any other requirements.

Organisations using the standard will also need to consider how these relate to more generic business risks and opportunities in developing their EMS.

"Taking the existing 14001 requirements and incorporating them into the new structure has exposed some issues that will need to be addressed," reported Baxter. "Overall though, it should mean organisations are more focused about building environment management into their core business processes, which has to be a good thing."

The results from IEMA's recent survey of members, which revealed more than 90% were in favour of revisions that brought 14001 more in line with corporate strategy, were circulated to all meeting participants, ensuring that 14001 users are able to input into the process from the beginning.

Magazine discount

Benefits IEMA members are entitled to claim a special 20% discounted rate on subscriptions to *New Scientist* magazine.

Read by a worldwide readership of close to 900,000, the weekly science periodical aims to "explore and interpret the results of human endeavour set in the context of society and culture".

The *New Scientist* may prove to be of interest to IEMA members with a specific science background and a subscription to the magazine may complement the environmental, professional and policy offering of *the environmentalist*.

In recent weeks the *New Scientist*'s environmental coverage has included reports on the human errors that led to the Fukushima accident, insights into the importance of adapting to extreme weather, and analysis of the impacts of climate change on global food resources.

The magazine covers a wide range of science-based topics, including the latest developments in new technology, health and astronomy, as well as breakthroughs in physics and maths, and what they mean for society and our everyday lives.

IEMA members can subscribe for £143 a year (or two six-monthly instalments of £71.50). The offer includes a free *New Scientist* book, *Farmer Buckley's exploding trousers,* more details of which may be found at lexisurl.com/iema12956.

To claim your discounted *New Scientist* subscription, call +44 (0)8456 731731 quoting code 5617, or subscribe online at newscientist.com/s/5617.

Welcome to new council members

Council As we reported last month, the current term of office for those voted onto the IEMA council in 2008 has now come to an end and Institute members have elected 13 new representatives. The elected positions on the council are based on members' sectors – business, consultancy, education and public – and the new individual representatives are:

Business
John Leader
Toby Robins
Susan Smitherson

Consultancy
Simon Cordingley
Fiona Draper
Rufus Howard

Public
George Ablett
Richard Holdsworth
Jo Murphy

Education (uncontested)
Martin Bigg
Miklas Scholz
Maarten van der Kamp

In the corporate membership section, Louise Ellis from the University of Leeds was uncontested.

The outgoing chair of the council, Allen Norris, welcomed the new representatives. "You join us at a very propitious time. The council has been reviewing both its role and governance to ensure that it continues to meet the needs of our Institute in what are challenging times for the environment," he said. "Your contribution will be warmly welcomed and I hope that the council will continue to play a formative role in the development of our Institute and all its members."

The new representatives will take their place on the council at its next meeting in September, together with appointed members from IEMA's regional steering groups. The council is a key advisory body to the IEMA board on the Institute's strategic direction and on issues relating to the organisation, and the environment management and sustainable development profession as a whole. It is also responsible for the appointment of the Institute's non-executive directors and advising on the extent to which IEMA's strategy is being met.

To find out more about the role of the IEMA council, visit lexisurl.com/iema12747.

Annual general meeting

AGM Notice is hereby given that the 12th annual general meeting of the Institute of Environmental Management and Assessment will be held at 4pm on Thursday 13 September, at 76 Portland Street, London.

Ordinary business:

1. To receive and accept the directors' report and accounts of the Institute for the financial year ending 31 December 2011.
2. To reappoint Duncan & Toplis as auditors of the Institute until the conclusion of the next general meeting at which accounts are laid.
3. To authorise the board to fix the remuneration of the auditors.
4. To confirm the appointment of an executive director.

By order of the board
Mr M Baxter,
Executive policy director and company secretary

Any member will be entitled to speak on any matters arising out of the report and accounts but no business other than that given in the notice will be transacted at the meeting.

Every member entitled to attend and vote at the meeting is entitled to appoint a proxy or proxies to attend and, on a poll, vote on his/her behalf. A proxy need not be a member of the Institute. Completion and return of a form of proxy will not prevent a member from attending and voting at the meeting in person should he/she wish to do so. All proxies so appointed should be identified in writing, by no later than midday on Friday 7 September, to the following name and address:

Mr M Baxter
Company secretary
Institute of Environmental Management and Assessment
St Nicholas House
70 Newport
Lincoln, LN1 3DP

Member preference survey

Opinion During August all members will have the opportunity to tell IEMA about what they want from their membership of the Institute.

Via an online survey, everyone from Student to Fellow can help IEMA achieve a consensus on what elements of your membership you find most valuable, what other services you would ideally like to see introduced, how often you'd like to be updated, and what devices – PC, tablet, smartphone – you use. By finding out the needs and wants of the membership, the Institute can ensure that it delivers an appropriate, useful and valuable service that helps all members be the best that they can. The Institute is also interested in establishing where our members are positioned on the IEMA environmental skills map (lexisurl.com/iema11446) and their ambitions about moving up or across the map as they gain knowledge and experience and their skills base develops.

Those who take part in the survey can then inform IEMA what support they will need in order to progress.

This is a crucial piece of research, one that is relevant to every single member of IEMA, as the outcome will direct our future provision of updates, services, publications and events.

The survey will run throughout August. Members will be asked to contribute their views via an email invitation at the start of the month, so do keep an eye out for the invite in your inbox.

The results of the survey will be published in *the environmentalis*t before the end of the year.

Associate webinar

AIEMA A webinar for anyone aiming to achieve Associate IEMA membership via the new online entry exam has been hosted by the Institute's chief examiner, Helen Manns (pictured).

Originally broadcast on 29 June, the webinar attracted more than 100 Student, Graduate and Affiliate members who wanted to find out about the Associate standard and the logistics of the exam.

Manns took viewers through the recent additions to the Associate standard; offered useful guidance on preparation and registration; and demonstrated the style of suitable answers to sample exam questions. Feedback from the 50-minute webinar indicates that those attending found it an invaluable aid to their ambitions to achieve Associate status.

The webinar was recorded for the benefit of those who could not participate on the day and is now available online in the Associate entry exam resources hub at lexisurl.com/iema12957. This section of the IEMA website holds a wealth of information about Associate membership so be sure to head there if you are planning to become an AIEMA.

Changes coming to CEnv

Chartership The registration authority of the Society for the Environment (SocEnv) has undertaken a review of its Chartered Environmentalist (CEnv) application and competency criteria to ensure continued legal compliance on age discrimination issues.

SocEnv has re-examined the CEnv eligibility criteria and competencies as a result of new age-discrimination rules brought into effect on 1 April.

The review recommends that the current points-based eligibility system should be abolished so as to remove any potential age-discrimination problem under the requirements of the Equality Act 2010. In the course of the review, the authority decided that rigid time-based criteria were not necessary for the professional qualification.

The registration authority also concluded that, in order to reinforce the comparability of CEnv with other chartered titles, such as Chartered Engineer and Chartered Scientist, 12 CEnv competencies across four categories should be introduced.

Under this new regime, future CEnv applicants will be required to provide written evidence that their achievements in all 12 competencies are in line with the requirements of the bodies licensed to award CEnv status, such as IEMA.

SocEnv will be working with IEMA and the 22 other CEnv licensed bodies during the rest of 2012 on these recommendations, and it is anticipated that the revised CEnv specification will be launched on 1 March 2013. The review will not impact on any IEMA members who already hold CEnv status, but the new framework will be relevant for any continuing professional development (CPD) activities. From 1 March 2013 any CPD assessments and all CEnv applications made to the Institute will be subject to the new specification.

IEMA will ensure that its members are kept informed on the review as it develops into a finalised framework. If you have any questions or concerns about how these changes may affect any future CEnv application, please contact IEMA's professional standards manager, Claire Kirk, on c.kirk@iema.net.

IEMA EVENTS

Date	Region	Topic
Regional events		
25 July	South West	Green drinks (Bristol)
2 August	South East	Social (London)
9 August	South East	Green drinks (Southampton)
29 August	South West	Green drinks (Bristol)

SUCCESSFUL IEMA MEMBERS

IEMA would like to congratulate the following individuals on moving onwards and upwards by successfully achieving Associate and Full membership status.

Associate

Olanike Abiola
Adebisi Adenuga
Yemi Akinpelumi
Paul Aldridge
Thomas Allard
Kathryn Barker
Philip Barlow
Simon Bell
Andy Belton
Fiona Borthwick
John Breach
Margaret Briggs
Samuel Briggs
Edward Britton
Caroline Brooks
Hannah Brown
David Bryson
Michael Burgass
Rachel Carless
Eve Carnall
Ruiari Cavanagh
Vivian Chambo
Stephanie Chapman
Tak Yan Ching
Philip Churchill
Rachel Clarke
Philip Cockerton
Claire Collett
Paula Collins
Stephen Collins
Brian Constantine
Amy Cook
Sam Coote
Hayley Coristine
Selina Dagless
Jason Dassyne
Tom Dearing
Robert Devas
Sarah Docherty
Adrianna Dominik
Annalisa Dorigo
Amy Douglas
Elspeth Duncan
Andrew Edgar
Angus Elder
David Eve
Andy Farquhar
Adrian Farrell
Laura Feekins
Alexis Fennell
Matthew Fitch
Elizabeth Fitzsimmons
Joe Flanagan
Debbie Fletcher
Jenny Ford
Sally Fordham
Marie Fuller
Sarah Galsworthy
Mary Garwood
Millie Gillatt
Eva Gkenakou
Katherine Glen
Sophie Goddard
Dan Goodhind
Sophie Grace
Adrian Graham
Rachel Greenhoff
Warren Gregory
Colin Grenville
Rebecca Guest
Linn Ida Gustavsson
Emily Haddock
Sarah Hall
Jeremy Halls
Jessica Hambling
Gordon Hamilton
Alice Hands
Rebecca Harrison
Emily Hastings
Stephen Hawkins
Jonathan Hawley
Hanna Hayward
Fiona Henderson
John Hickinbottom
Matthew Higginson
Richard Hillyard
Alison Holmes
David Howells
Gavin Hull
Lorna Hurst
Siobhan Hyde
Janine Hyland
Lisa Ithurralde
Peter Ives
Ewan Jelly
Bradley Johnson
John Johnson
Kay Johnstone
Ben Jones
Deborah Jones
Thomas Jones
Ankit Joshi
Peter Joyce
Stephanie Jukes
Margaret Kamau
Natalie Kay
Matthew Keehn
Hui Kelvin
Freddie Kennedy
Diana Khayal
Charmaine Knower
Heather Lammas
Doug Lavill
Tamunosaki Lawson
Peter Lee
Stephen Lee
Anthony Leney
Karl Letten
Huishi Li
Noel Lin
Alison Love
Richard Lupo
Jen Maddison
Philip Maher
Harry Manley
Phillip Marillat
Michael Martin
Philip Mather
Phil Mathews
Christopher McCartney
Pauric McCloskey
Garth McGimpsey
Christopher Middleton
David Misstear
James Morgan
Lara Mottee
Tess Murray
Elizabeth Napoda
Octavia Neeves
Thi Huong Tra Nguyen
Matthew Nicholls
Anthony Nickson
Chloe Nielsen
Mark Novelle
Michal Nowak
Ahad Nujurally
Robert O'Brien
Uchechukwu Okere
Eva Olai
Fiona Oldroyd
Richard Oxley
David Paginton
Andrew Paisley
Vasiliki Panagiotopoulou
Cullum Parker
William Parkhill
David Payne
Adam Peirce
Guido Pellizzaro
Lorna Pilbin
Christopher Pilling

Rory Prendergast
Michael Price
Ross Primmer
Andrea Quek
Breffni Quinlivan
Saleema Quraishi
Jayme Radford
Laura Raggatt
Kay Ramchurn
Tara Richards
Lachlan Rider
Sylvia Ripley
Cara Roberts
Mathew Roberts
Katharine Robinson
Mark Sanderson
Efstatheo Savvas
Michael Scanlon
Peter Schofield
Brenda Scott
Emma Scott
Zankhana Shah
Peter Shephard
Elliot Shiers
Maggie Simmons
Samantha Simmons
Rohan Sinha
Robyn Skerratt
Thomas Slater
Alexander Smiles
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Claire Sorrin
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Bernard Sricker
Eleanor Stewart
Peter Sutch
Alex Sutton
Graham Taylor
Nick Taylor
Sam Taylor
Juliet Terhemba Iordye
Sophie Thomas
Colette Thompson
Carolyn Thraves
Dominik Tichar
Astrid Tishler
Lucinda Tolhurst
Joseph Towns
Dominic Tubb
Ruth Tunwell
Anna Turner
Stuart Turner
Thomas Vergunst
Saritha Visvalingam
Glenn Vowles
Fiona Waldron
Alistair Walker
Manna Wan
John Ward
Paul Ward-Jones
Toby Wastling
Paul Watts
Helen Wheeler-Osman
Jonathan Wibberley
Paul William
Sophie Williams
Timothy Williams
Jamie Wilkins
Paul Wood
Chris Young

Full

Joanne Crawshaw

If this has inspired you to progress your membership, then go to lexisurl.com/iema12955. Alternatively, call IEMA on +44 (0)1522 540069 to discuss your options with one of our team.

David Partridge

Sustainable development specialist for the built environment

Why did you become an environment professional? I had an active interest in environmental issues at school. Through my early building services engineering training I was able to see how science could develop sustainable solutions in buildings. Working for a firm which pioneered solar energy really opened my eyes to the possibilities.

What was your first environment job? It wasn't until I became an independent consultant 10 years ago that my day job became specifically focused on the environment, but all my previous roles in building engineering had major sustainability elements.

How did you get your first environment role? I had an epiphany in my kitchen one evening while hosting a dinner party. At the time I was working as a senior manager, but after moving the conversation on to environmental issues for the umpteenth time, a friend suggested that I follow my passion and specialise in sustainable development, so I did. Giving up a good job was daunting, but I didn't look back and within three months I was working on my first project.

How did you progress your environment career? Having already qualified in both mechanical and electrical engineering, I went on to study behavioural sciences and then sustainable development through distance-learning courses. I later became a Chartered environmentalist.

What does your current role involve? Mainly surveying buildings and analysing their impact on the environment through waste, water, pollution and energy. I then apply scientific calculations to provide ways to lower these impacts. My solutions range from high-level master planning to detailed engineering design and include addressing the psychology of occupiers – ensuring positive human behaviour with regard to recycling and energy management, for example.

How has your role changed over the past few years? Many new legislative drivers have been introduced to encourage organisations to manage their environmental impacts, but I've also seen a significant increase in the number of clients voluntarily opting to use my services.

What's the best part of your work? Designing bespoke, integrated sustainable solutions and then seeing them finally constructed on-site. There is an enormous satisfaction in being able to measure the amount of water, energy or carbon emissions that will be saved over the life cycle of a completed design.

What's the hardest part of your job? Fighting the constant battle with "eco-bling" and greenwashing. There is so much rhetoric about renewables and eco-gadgets that provides little value in terms of real sustainable development. It's sometimes very difficult to influence clients in the right way and still keep your commercial footing.

What was the last development/training course/event you attended? A seminar on variable flow systems and an IEMA social event.

What did you bring back to your job? That it's important to keep up to speed on technical areas that I may incorporate in my designs. With the IEMA social events I always really enjoy talking to the professionals working in diverse environmental fields who attend.

What is/are the most important skill(s) for your role, and why? I live and die by my ability to communicate and influence decision-makers. It can be really tough knowing how to address issues of sustainable development with some audiences.

Where do you see the environment profession going? I've seen big changes in society, with environmental issues now conventional topics, but with the sad demise of the Sustainable Development Commission there is a real need for environment professionals to speak out, particularly in the current economic climate.

Where would you like to be in five years' time? I'd really like to have travelled and seen first-hand the issues of climate change and sustainable development in other countries.

What advice would you give to someone considering entering the profession? This can be a really rewarding profession, so make good use of events. Stay open-minded, but be outspoken in your views and, most importantly, never stop learning!

CAREER FILE

Qualifications

MIEMA, CEnv, Chartered Scientist, Fellow of the Chartered Institute of Plumbing and Heating Engineering

Career history

2002 – to now Independent consultant in sustainable development

2001–2002 Head of projects, buildings, Deutsche Bank

1998–2001 Project manager in building services engineering, Citinet Services

1992–1998 Designer for building services engineering, self-employed

1989–1992 Infantryman, Parachute Regiment, HM Armed Forces

1985–1989 Trainee in building services engineering, VF Lewis Engineers

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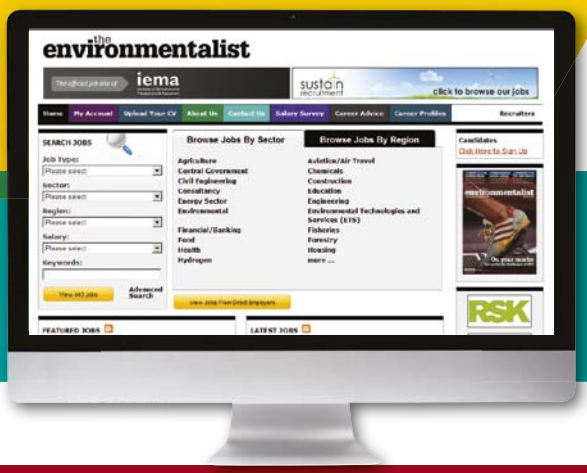

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FEATURED JOBS

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Environmental Specialist Assessor **Up to £40,000** London/South East Ref: ENV072012	**Senior Sustainability Engineer** **£30,000–£40,000 + Benefits** Northern Ireland Ref: HA 2708

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