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Why UK food security and sustainability is at stake



PLUS

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IEMA state of the profession 2018 Latest survey results

IEMA

Transforming the world
to sustainability

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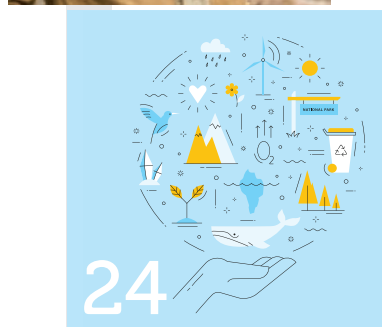
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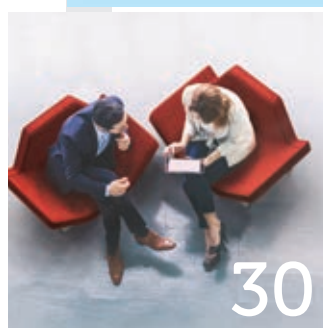
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The latest survey reveals a narrowing of the gender pay gap, more optimism, and a modest rise in salaries



To download the full IEMA survey visit the website: bit.ly/2CvsKYQ

TIM BALCON, CEO OF IEMA

The results are in...

What does a 21st-century profession look like? I don't mean the tech we use, or how we manage global supply chains; but how is a truly modern profession populated, recognised and led? We have learned lessons from the 20th century, where traditional hierarchy ruled, progression paths were rigid and diversity at the top was limited. But could our profession be described as being correctly shaped for the 21st century?

When we published 2017's state of the profession report, I was delighted to see high job satisfaction, career prospects, buoyant optimism and salaries remained strong for IEMA members. But I was troubled to read reports of a stubborn pay gap between men and women in full-time work – a 20th-century problem, but one that clearly persists. Today, as we release the findings of our 2018 state of the profession report (see p30 or the full survey results at bit.ly/2CvsKYQ) I am very pleased to say satisfaction, optimism and earnings all remain high, and we're making progress on closing the pay gap, which has shrunk by 2.6%. That's great news, but there is still a long way to go before we can claim environment and sustainability is a shining example of 21st-century diversity and opportunity.

One reason for the pay gap is the under-representation of women in senior leadership roles, an economy-wide issue. This prompts me to ask what employers are doing to support the long-term career paths of talented, skilled and influential female workers. The same question applies to those from diverse backgrounds; how does our profession ensure workers have every opportunity to make it to leadership regardless of their gender, nationality, ethnicity, age, orientation, or their family circumstances? The levels of talent, knowledge, skill, and ambition in the IEMA membership – all evidenced in the 2018 state of the profession report – is beyond impressive so we have a strong base to build on. So what do we do next to ensure that, year on year, we lead the way on recognising diversity and we leave 20th-century limitations behind? I'd like to hear your views. Get in touch any time at tim.balcon@iema.net.



IEMA Transforming the world to sustainability

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

IEMA

City Office Park, Tritton Road,
Lincoln, Lincolnshire,
LN6 7AS

tel: +44 (0) 1522 540069

fax: +44 (0) 1522 540090

info@iema.net | www.iema.net

Editor

Sharon Maguire

sharon.maguire@redactive.co.uk

IEMA head of PR and communications

Katrina Pierce

k.pierce@iema.net

News reporting

iema@redactive.co.uk

christopher.seekings@redactive.co.uk

Sub-editors

Clare Cronin

Kathryn Manning

Business development manager

Daniel Goodwin

tel: +44 (0) 20 7880 6206

daniel.goodwin@redactive.co.uk

Senior recruitment sales executive

Katy Eggleton

tel: +44 (0) 20 7880 7665

katy.eggleton@redactive.co.uk

Designer

Nicola Skowronek

Picture editor

Claire Echavarry

Publishing director

Joanna Marsh

Subscriptions

Kate Hampshire

tel: +44 (0) 20 7324 2733

subscriptions@iema-transform.net

The 2018 annual subscription rate is £142.

Senior production executive

Aysha Miah-Edwards

Printer

Warners Midlands PLC, Lincolnshire

Published by

Redactive Publishing Ltd

Level 5, 78 Chamber Street, London, E1 8BL

tel: +44 (0) 20 7880 6200

www.redactive.co.uk



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ISSN 14727625



The paper used to print Transform comes from sustainable sources.

ROUNDUP

ENVIRONMENT &
SUSTAINABILITY
NEWS AND VIEWS

FOOD PRODUCTION

Investors urge food companies to shift to plant-based proteins

A coalition of investors has urged global food companies to shift away from animal proteins amid a worldwide spike in demand for alternative plant-based products.

In a report published by the FAIRR (Farm Animal Investment, Risk & Return) initiative, the coalition – which represents \$2.4trn in combined assets – says it expects the alternative protein market to expand by more than 8% a year to reach \$5.2bn by 2020.

The report describes conventional livestock production systems as “increasingly ripe for disruption”, and argues that protein diversification will be key to managing the risks of climate-affected supply chains.

It states that deforestation, unregulated antibiotic use, poor animal welfare, and low scrutiny of air and water pollution on surrounding communities have allowed old systems to thrive.

“These externalities and impacts are incompatible with the [UN’s] Sustainable Development Goals – thus it is increasingly likely governments could use taxation to combat meat’s negative contributions to climate change,” it says.

“Livestock production presents reputational and market risks for companies that are over-reliant on animal proteins to drive revenue growth.”

The coalition has grown from representing \$1.25trn in assets when it

was launched in 2016 to \$2.4trn today – an almost doubling in support for a shift to plant-based proteins.

FAIRR argues that the burgeoning alternative protein market offers a more sustainable food production model, and that a growing trend of millennials adopting meat-free diets signals a significant change in purchasing habits.

Key drivers that will shift global food systems from a dependence on animal proteins, according to the report, are: increasing awareness of environmental, social and governance impacts, regulation, accelerated innovation in food technology, and growing market opportunity.

The best-prepared companies for capitalising on this shift are Tesco and Nestlé, says the coalition.

Nestlé’s assistant vice-president for stakeholder engagement in sustainability, Duncan Pollard, said: “The development of the protein supply chain is an issue with the potential to radically reshape the supermarket shelf of the future.”



SHORTCUTS



UK green economy grows 5%

The UK's low-carbon and renewable energy

(LCRE) economy grew by 5% in 2016, with data from the Office for National Statistics showing the sector is now worth around £42.6bn in turnover.

The growth was significantly higher than the 1.8% GDP increase recorded across the economy that year, with the number of full-time LCRE employees rising by 3.3% to 208,000.

Energy-efficiency products accounted for almost half of the total turnover and more than two-thirds of employment, with low-emission vehicles representing 60% of all UK LCRE exports.



Record year for offshore wind in Europe

There was a 25% increase in new

offshore wind capacity installed in Europe last year – double the amount added in 2016, according to data from WindEurope.

The average size of new turbines and wind farms also increased significantly, with the UK, Germany, Denmark, the Netherlands and Belgium accounting for 98% of the extra capacity.

"A 25% increase in one year is spectacular," said WindEurope CEO Giles Dickson. "It just shows Europe's ready to embrace a much higher renewables target for 2030."



Paris looks to sue fossil fuel companies

The city of Paris is exploring ways to sue the fossil fuel

industry for causing climate damage after experiencing extreme flooding and heat waves last year.

Paris has also decided to lobby other big cities including London to ban fossil fuels from their investments, after New York announced it would divest \$191bn from highly polluting companies.

CLIMATE CHANGE

No silver bullet in NETs

Negative emission technologies (NETs) will not be able to remove carbon dioxide from the atmosphere at the scale needed to beat climate change, scientists have warned.

A report from the European Academies' Science Advisory Council (EASAC) says that even if the NETs could be deployed at scale, they would likely have insignificant ecological impacts.

It argues that governments should not assume future technologies will be able to redress the effects of climate change, and must instead ramp up their "inadequate" mitigation efforts as laid down under the Paris Agreement.

"Relying on NETs to compensate for failures to adequately mitigate emissions may have serious implications for future generations," the EASAC said.

The report finds that there are no NETs with the potential to deliver

carbon removals at the scale and rate envisaged by the Intergovernmental Panel on Climate Change.

NETs include reforestation, afforestation, carbon-friendly agriculture, bioenergy with carbon capture and storage, enhanced weathering, ocean fertilisation, and direct air capture and carbon storage.

Despite the warning, it is thought that NETs could still play an important role, with the report arguing that technical challenges in carbon capture and storage must be solved urgently. It says there must be better control over the loss of forests and soil degradation.

However, University of Oxford professor Myles Allen said: "There is only one institution with the capital, expertise and resources to dispose of CO₂ on the necessary scale, and that is the fossil fuel industry."

SUSTAINABILITY

Report reveals 'limited' sustainability reach throughout global supply chains

Efforts to apply sustainability practices throughout supply chains are having a limited reach, covering only a small section of the materials used.

A paper published in the journal *Proceedings of the National Academy of Sciences* reveals 52% of global companies incorporate sustainable sourcing into their business operations.

However, more than 70% of these practices cover only a subset of input materials for a given product, leaving the remaining upstream impact unaddressed.

The study of 449 publicly listed companies highlights how global

supply chains will be key to achieving UN sustainability goals, touching more than 80% of trade and employing more than one-fifth of workers worldwide.

However, it was found that almost all sustainable sourcing practices address a single tier in the supply chain, such as the textile factories that sew T-shirts, ignoring remaining processes such as dyeing the cloth or growing the cotton.

The findings also show that more than a quarter of these practices apply to only a single product line, and that just 15% focus on health, energy, infrastructure, climate change, education, gender or poverty.



CHARTERSHIP

IEMA moves towards gaining chartered status

During 2013's member consultation which explored the direction IEMA should take up to 2020, members called for IEMA to work towards becoming a chartered body to support global promotion and recognition of the environment & sustainability profession. Following the revision of IEMA's membership levels and professional standards, plans are now in place to formally apply for a Royal Charter this year.

A Royal Charter is signed and issued by the Queen, and grants certain ownerships, rights and powers to an individual or organisation. For professional bodies, those rights cover the regulation of the profession concerned.

Subject to the approval of members and a successful application, the scope of IEMA's charter will define the

profession as corporate sustainability, environmental management and impact assessment.

IEMA has been liaising with the Privy Council to explore the process and timescales of successfully applying for, and being granted, a Royal Charter. Following consultation with its advisors, the Privy Council has confirmed that IEMA can progress to the official application stage.

IEMA's Board, Strategic Advisory Council and Regional Chairs all support the move, which they see as a huge step forward and an opportunity to enhance the status of the profession.

All members will be sent full details in the coming months about the move towards becoming a chartered body, including the date of an upcoming extraordinary general meeting and member vote.

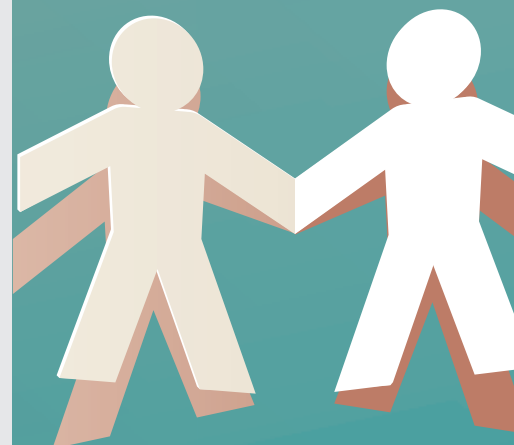
SURVEY

Members help shape more guidance

Last month more than 700 members contributed to a survey on two critical areas of practice, and their views are set to be included in forming new guidance and practical updates due for publication later this year.

Members contributed to the dual-themed survey on the future of environmental auditing and managing environmental and human rights compliance by the time it closed on 16th February. The responses from the survey are now being analysed and IEMA would like to thank all members who got involved. Contributing to our surveys helps us to better understand and address knowledge gaps, and to explain your concerns and achievements to the wider world.

Details about activity on the future of environmental auditing will be sent to members in the coming months, and the next Sustainability in Practice guide on Managing Environmental and Human Rights Compliance – which will use the survey results – will be published in the summer.





EFFICIENCY

Sustainability savings could unlock justice efficiencies

A report on sustainability in the UK's Ministry of Justice makes for "dismal reading" but does show how efficiencies could be achieved, says IEMA.

The report, published in February, addresses sustainability "gaps and weaknesses" in the ministry's departmental plan. With the UK government's second largest estate size, the ministry has a huge opportunity to drive down energy and resource use to make a significant contribution to the UN's Sustainable Development Goals.

Martin Baxter, chief policy advisor at IEMA, says the report is "dismal reading", but does highlight how necessary efficiencies in the court and prison system would help to financially underpin the department's core purpose and functions.

In a blog published on the day the report went live, Baxter said: "The way our prisons and courts are managed offers huge potential to improve energy efficiency, cut down on waste and reduce greenhouse gas emissions; doing so in a cost-effective way allows money to be ploughed back into the ministry's core purpose."

➤ [Read the full blog at bit.ly/2EEKMnr](https://bit.ly/2EEKMnr)



CODE OF CONDUCT

Just days to go before code consultation survey closes

Our consultation on the revised IEMA Code of Conduct closes on 9 March, so be sure to give your view on the draft new code while you still can.

IEMA's Professional Standards Committee is seeking input from members on the name, scope and clarity of the revised code. The consultation opened in early February, and now just days remain before the survey closes.

Go to www.iema.net/reviewing-our-code-of-practice/ to view the draft code and submit your views via a short member survey. You can also watch a webinar, which explains the revised code and the consultation.

Don't miss this opportunity to help shape the new code, which all existing and future members will be held accountable to.

FIEMAS

Eight further fellows appointed in first two months of year

The IEMA Fellows network continues to grow, with the appointment of eight FIEMAs during January and February.

The criteria for becoming a Fellow member include proven, visionary leadership in business, and across the environment and sustainability profession.

The recently appointed Fellows are:

- Christine Willmore, University of Bristol
- Andrew Jordan, University of East Anglia

- Colleen Theron, Ardea International
- Ian Bamford, University of Cambridge
- John Carstensen, Department for International Development
- Richard Powell OBE, History of Advertising Trust
- Martin Farley, Kings College London
- Josh Fothergill, Fothergill Training & Consulting
- **Find out more at**
www.iema.net/membership/fellow-membership/

IEMA GROUPS:

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NETWORKS



**SAVE
THE
DATE**
26 April

SUSSEX AND SURREY

Focus on sustainability

Are you based in the Sussex and Surrey region? If so, join us for our upcoming event, where you'll hear from IEMA's CEO, Tim Balcon, on exciting developments that are planned for your area. We'll explore progress on sustainability challenges in travel, tourism, and transport with speakers from organisations around the region, including Govia Thameslink Railway and Hilton London Gatwick.

Our keynote speaker, professor Dave Cooper from the University of Chichester, will talk about how creativity and innovation are key to transforming the world to sustainability. We will look at skills development in the region and market development for smaller organisations in the green sector. Network with local influencers as we explore how we can work together to cultivate change.

➤ **To book visit:** bit.ly/2EE7pht

FUTURES

Are you transforming the world to sustainability?

Many young IEMA members are doing work that embodies this mission, but that goes unrecognised. Whether it is implementing a new way of working, supporting an organisation in achieving a certification, or influencing decisions makers to deliver more sustainable policies, which young sustainability professional is inspiring you, and how are they transforming the world to sustainability?

➤ **Get in touch:** @IEMAfutures, Facebook, LinkedIn, or www.iema.net/engage/networks/

MEMBER ACTIVITIES

Green growth masterclasses aimed at Sussex SMEs

The University of Brighton's Green Growth Platform is running a programme of sustainability masterclasses, designed for busy SMEs in Sussex.

They will explore leadership skills, building a reputation as a responsible business, social and environmental management, and how to win business, save money, and manage the risks and opportunities of a changing world.

➤ **For more information visit:** bit.ly/2F8UAg8

REGIONS

Looking to make the upgrade?

Are you aiming to achieve Full and Chartered Environmentalist status? Perhaps you are a MIEMA hoping to add CEnv to your CV and gain the gold standard for environment and sustainability professionals who – like you – are setting agendas and leading initiatives in organisations around the globe.

But how do you achieve such an upgrade? Join one of our workshops exploring the upgrade process. Book now on IEMA's website.

Upcoming dates

Cardiff:	Southampton:
● 21 March	● 15 March
● 16 May	● 19 July
● 18 July	Cambridge:
● 19 September	● 6 March

➤ **To help IEMA members progress in your area, see regions@iema.net**

SOUTH EAST

Refresh your CV

Save the date: 5 April

Red Lion, 14 Kingly Street, London

If you want to make the most of your sustainability skills, why not get your CV reviewed by regional chair and director of Green Collar, Sunny Pawar? Learn how to shape your CV so that it best reflects your strengths.

➤ **To book visit:** bit.ly/2ECLTJY

Rewilding: an introduction to law, science and practice

Save the date: 25 March

Durham Wildlife Trust, Rainton Meadows

First in a series of events looking at the merits of rewilding our natural environment. The event will provide an introductory overview.

➤ **To book visit:** iema.net/events

NEW REGULATIONS

THE LATEST

■ GUIDANCE ■ CONSULTATIONS ■ LEGISLATION



1 JANUARY 2018

Hazardous substances

The Control of Mercury (Enforcement) Regulations 2017 designate competent authorities and set offences and penalties under Regulation (EU) 2017/852, which was adopted to fill gaps in existing EU mercury legislation and ratify the Minamata Convention.

cedr.ec/4uu


1 JANUARY 2018

Pollution prevention

New Guidance for Pollution Prevention (GPP 20) on dewatering underground ducts and chambers advises on dealing with build-up water that could be contaminated with chemicals, oils or silt, and quality checks.

cedr.ec/4v2


9 JANUARY 2018

Biodiversity

Defra seeks views on a proposed enforcement regime, required by Regulation (EU) 1143/2014 on preventing and managing the introduction and spread of invasive alien species, including monetary penalties, warnings, advice and enforcement notices.

cedr.ec/4u9


15 JANUARY 2018

Waste

Defra has proposed measures to tackle waste crime and poor performance at waste sites. They aim to raise waste operator competence, change current waste exemptions within the permitting system, and introduce a fixed-penalty notice for household duty-of-care offences for fly-tipping.

cedr.ec/4us


1 JANUARY 2018

Water abstraction

The Water Resources (Exemptions) Regulations 2017 and the Water Resources (Transitional Provisions) Regulations 2017 aim to bring most previously exempt water abstractions (over 20m³/day threshold) under licensing control.

cedr.ec/4uv


30 JANUARY 2018

Hazardous substances

Regulation (EU) 35/2018 amends Annex 17 to REACH to add octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) to the list of restricted substances, along with conditions of restriction.

cedr.ec/4ut


1 FEBRUARY 2018

Waste management

The Draft Waste Enforcement (England and Wales) Regulations 2018 enhances powers to tackle illegal activity at waste sites and to require waste from a site to be removed, including waste that was initially lawfully deposited.

cedr.ec/4v1


6 FEBRUARY 2018

Ionising radiation

The Ionising Radiation (Medical Exposure) Regulations 2017 and the Ionising Radiation (Medical Exposure) Regulations (Northern Ireland) 2018 implement Directive 2013/59/EURATOM to ensure safe use of radiological procedures.

cedr.ec/4uw
cedr.ec/4ux

INCOURT

NON-HAZARDOUS WASTE

Haulage company fined £109,000 for dumping waste



A haulage and site-clearance company in Devon has been fined £109,000 for dumping thousands of tonnes of soil and stone on farmland.

Under current legislation, farms are allowed to accept up to 1,000 tonnes of non-hazardous waste, including soil and stone, which is then commonly used to construct tracks and hard-standings. This practice does not require an environmental permit.

In this case, however, the haulage company, CC Haulage & Sons, had dumped more than 7,800 tonnes at the Beech Down Farm. More waste had been dumped at three other farms in Devon.

The offences were noticed after the Environment Agency examined waste-transfer notes that identified CC Haulage as the source of the excessive amounts of waste material. It was apparent that the company was benefiting financially by paying farmers less to accept the waste than it was charging its clients to take the material away.

The company was fined £14,000, ordered to pay costs of £5,000 and given a £90,000 Proceeds of Crime confiscation order, which it must pay back using the proceeds of its criminal activities.



OTHER NEWS

Illegal landfill site owner gets £100,000 fine

A landowner in Cheshire has been given a suspended 12-month prison sentence and ordered to pay £100,000 in costs to the Environment Agency after being found to be illegally landfilling thousands of tonnes of waste.

Eric Hale was additionally banned from driving and a curfew was imposed on him.

Two other individuals, Stefan Street and Dennis Whiting, were handed conditional discharges after the investigation witnessed all three men driving large waste vehicles to deposit waste on the site in Frodsham.

The illegal deposits included mixed waste, demolition waste such as plasterboard, and other waste including carpets and mattresses.

The Environment Agency commented on the investigation and subsequent sentencing of the three men, stating that it "worked closely with the police and local authorities to pursue these criminals and bring them to justice".

It added: "Waste crime is a serious issue, diverting as much as £1bn per year from legitimate business and the Treasury."

CASE LAW

Fracking appeal dismissed

The Court of Appeal has dismissed challenges from an anti-fracking group in Lancashire.

In mid-2015, an application by Cuadrilla to begin shale gas exploration was rejected on noise and visual impact grounds.

That decision was overturned by then-communities secretary Sajid Javid in late 2016.

This caused the anti-fracking group (Preston New Road Action Group) and a second challenger

(Gayzer Frackman) to launch an appeal to reverse Javid's decision, stating that he had misinterpreted planning and environmental legislation when he made his decision.

The Court of Appeal explained that its role was not to decide if that decision was "right" but whether the secretary "had committed an error of law". On that basis, it upheld Javid's decision.





CLIMATE CHANGE

Bear minimum

Higher temperatures are having dramatic effects on the Arctic, forcing polar bears to move greater distances and making it harder for them to catch prey, a new study has found. This has resulted in a growing number of bears unable to find enough food to meet their energy needs.

Published in the journal *Science*, the study estimates the polar bear population has declined by 40%, amid thinning Arctic sea ice in the Beaufort Sea area over the past 10 years. Anthony Pagano, study author at the University of California, Santa Cruz, said: "This study identifies the mechanisms that are driving those declines by looking at the actual energy needs of polar bears and how often they are able to catch seals."

The study comes after NASA-supported satellite imagery found that minimum Arctic sea ice has declined by an area around a quarter the size of Europe in the past 30 years.

"The Arctic is in a changed state, but by tackling climate change head-on and reducing our carbon emissions, we can help stabilise it for future generations, said WWF head of polar programmes, Rod Downie. 

PHOTOGRAPHY: ISTOCK

Interview

Wildlife WARRIOR

Chris Packham talks to Chris Seekings about his battles for the environment and animal welfare, and how time is of the essence



Whether he's confronting illegal wildlife hunters, protesting in the streets, facing jail abroad or presenting television programmes, Chris Packham's relentless pursuit of animal rights and environmental protection is unmatched. The crusading naturalist and broadcaster, who has been described as the heir to David Attenborough, is on a mission to preserve the natural world, unafraid to raise his head above the parapet and tackle issues that many might find too controversial.

I travel to a café in Central London to meet Packham, who arrives dressed as though he has just stepped off the red carpet, adorned in a slick black coat, shirt and golden bow tie – a far cry from the customary anoraks I have come to associate with him on BBC's *Springwatch*.

Despite his dapper appearance, he exudes an unassuming vibe, and, as an obvious regular of the café, whisks me off to a quiet area to begin our chat. I start by asking what it is that attracts him to one cause over another. "It is not random, but nor is it entirely led by the heart," he says. "There are lots of people campaigning for lots of different things, so I try to avoid overlap because there is an awful lot to achieve."

This overlap is a cause of much frustration within the environmental conservation movement, with Packham highlighting how many charities and organisations fail to work in sync, implementing policies that do not complement each other. "I don't think that is an optimum way to behave, and I don't have any time for anything that isn't efficient and optimal anymore," he says. "If someone else is working on something and doing a good job, I don't need to tread on their toes, I will find something else to do."

He also concedes that some of the battles he picks are both "calculated and manipulative", with a statement he made in 2009 about too much money being spent on the giant panda designed to provoke a wider discussion. "I wanted to initiate a debate around conservation spending, highlighting that we have a limited amount of money in a pot, and very little time to spend it effectively."

There is a sense of urgency in Packham's voice. He describes a deep personal guilt over the amount of animal species that have declined in recent decades, lamenting a 90 million fall in birds from the British countryside since the 1970s, as well as a 93% decrease in the black rhino population worldwide. "That is on my watch, when I should have been an effective conservationist," he says. "We are losing, and I don't like losing. Things have gone down the pan, so my point about the panda was to think about how we spend our money so we can maximise our efficacy."

I don't have
any time for
anything that
isn't efficient
and optimal
anymore

Battling blood sports

Although Packham is keen to avoid getting involved in areas where others lead, there are times when he simply cannot take a back seat. One cause he gives his passionate support to is the anti-foxhunting movement, voicing his disapproval so vehemently that he has been accused of spreading "blatant political propaganda", with the Countryside Alliance even calling for him to be sacked by the BBC.

Packham says the fox population can be managed humanely, but that attempts to promote drag hunting, where an artificial scent is laid down for dogs to follow, have so far had limited success. Instead, he says, hunters want to continue a "barbaric sport that belongs in the Middle Ages", adding: "It no longer has any place in our society, is outdated, and needs to stop."

He believes this will happen sooner rather than later, pointing to a national poll that suggests 86% of people in the UK are anti-foxhunting, particularly young people. "Tomorrow's voters are not going to support fox hunting – that's the simple fact of it."



Another issue he has spent much of his time attempting to highlight is the persecution of raptors. Illegal shooting has resulted in birds such as the hen harrier seeing their numbers fall to just four breeding pairs in England, when there should be more than 350. He says the biggest perpetrators in the UK are those who organise driven grouse shooting, which comes with a "plethora of ills", such as a

mismanagement of the environment through the burning and poisoning of land. "The whole thing is hideous and needs reform," he adds.



Interview

➤ Last year, while making an independent film about Malta's annual spring hunt, Packham was charged with assault and trespass after confronting a hunter he thought had illegally captured protected wild birds. Detained in a police station for more than three hours before being charged, he was later cleared after providing video evidence in court proving it was the hunter who had manhandled him, rather than the other way round.

Despite the altercation, Packham is glad he placed a spotlight on Malta's spring hunt. "There are generations of people unaware of what's going on in the Mediterranean, which is illegal and leads to the death of about 26 million songbirds a year," he says. As with foxhunting in the UK, he believes most young people in Malta are "horrificed and embarrassed" by the hunt.

He says his intention is not to stop people having fun, but it cannot be at the expense of wildlife. "My opponents have labelled me as anti-shooting, but I am not. I am anti illegal and unsustainable shooting." He illustrates this stance by explaining how a type of deer, with no natural predators, is damaging the environment in UK, reducing bird and butterfly numbers and woodland regeneration. "So at this point we have no choice but to cull those animals – which is valid, as long as it is done humanely and scientifically."

China crisis

Packham also believes western governments must do more to tackle the issue of animal rights in the East, explaining that 80% of the earth's wildlife crime is perpetuated by or trafficked through China, from the ivory and tiger trade to deforestation of tropical hardwoods and overfishing.

He argues that the UK has been doing all it can to "get into bed" with China as it has developed into an economic powerhouse over the past 20 years, but asks: "Is that ultimately ethical? Is it ethical without saying 'we will invest in your country but you have to change your behaviour on certain issues?'" Prince William's work highlighting the illegal ivory trade should be a source of inspiration for the government, according to Packham, who praises the royal for taking a lead when others seem to be too afraid to do the same. "Thankfully he has been able to say to the Chinese in a diplomatic way that this is a problem we need to sort out, which is impressive, and I think our government should be doing the same."



➤ Piling on the pressure: Packham believes governments should use political power to tackle issues such as whaling

Culling animals that are damaging the environment is valid, if it is done humanely and scientifically.

He goes on to talk about the Yulin dog meat festival in China, where tens of thousands of canines are consumed every year. As a vegetarian and dog lover, whose Twitter account is littered with pictures and videos of his beloved poodle Scratchy, Packham is repulsed by the event. However, he says that it is not the eating of dogs where the West can take the moral high ground, but instead animal welfare in general, where the West has a better record. "We don't eat dogs but we eat sheep, and the Chinese would say 'what's the difference?' But you can't just get away with blue murder when it comes to

domestic animal husbandry, and especially their slaughter, so I think there is a secure argument," he says.

Our interview coincides with an announcement by Japan's Fisheries Agency that the country plans to continue whaling, despite a 30-year ban on the practice. The Environmental Investigation Agency says Japan lands thousands of tonnes of whale meat and blubber every year under the guise of scientific research. "We could cripple Japan economically if we wanted to stop whaling. Instead, we have all this posturing by the US, UK and Australia," he says. "Our

government could end that, but there is no will to do it. However, I think that will change, because these things, like foxhunting, are becoming vote-winners."

Although Packham is keen to see more political pressure put on countries in the East, he also says that a growing middle class in places like China has resulted in a burgeoning number of animal rights groups. "So it is no longer only pressure from outside, but also from within."

The greatest threat

Packham admits that he "obsessively" recycles, never leaves the water running and keeps his energy consumption as low as he realistically can. However, he fears that efforts to tackle climate change and biodiversity loss will be in vain without addressing human population control. "That is the single greatest issue we face, but very few people will even talk about it," he says.

He believes this lack of discussion is why so few solutions have been offered to the problem, in stark contrast to most of the other environmental challenges facing the planet. "We know how to preserve habitats and redress the impact of climate change, so why don't we have the solutions for this like we do

other things?" He suggests that many people would rather not think about the potential impact of having lots of offspring because it is too big an inconvenience for some to contemplate.

It is for this reason that he – along with others including David Attenborough – has given his support to the charity Population Matters, in the hope that more people will talk about the issue and own up to their responsibilities. "There is a limited amount of space to produce food, maintain ecosystems, and so on. Ultimately, it is a conversation we all must have, because it is the one no-brainer."

His concern for the environment is what has partly informed Packham's decision not to have any biological children of his own. He says that a rise in the human population is inextricably linked to consumption and energy wastage, arguing that the exponential growth will only exacerbate the "replace-rather-than-repair society that we live in".

"Consumerism is what makes this world spin round unfortunately, causing all sorts of problems. So if you are going to have kids, do you eat meat sparingly, or see they are vegetarian or vegan? These are things that you should think about," he adds. There is also a warning that, as with climate change, some inconsistencies might arise in the modelling for population growth, the potential impact it might have, and when. "But we know that growth is going to be disastrous, so we have to address it. Otherwise, nature will address it for us, and that will be hideous."

Social media
is the most
potent new tool
in our arsenal
for spreading
awareness

Environmental awakening

Packham is deeply agitated by the way humans have affected animals and the environment. His interest in nature came from observing the creatures he found in his garden growing up in suburban Southampton. "I would pick up my ladybirds, tadpoles, frogs and lizards, and all of them were perfect," he says with a childlike enthusiasm. "I was very intolerant of any flaws, and all these were symmetrical, had six legs, and so forth – it was perfection, and I just became fascinated by all of their stories."

He says that for many years he was "unfortunately, blissfully ignorant" of the fact that many of these animals were in peril. However, during the 1970s he went through a political awakening amid rife unemployment, industrial action, "absolutely vile racism" and football violence. "Then, all of a sudden, a light went on that said 'it doesn't have to be this way, but there is no point in thinking anyone else is going to solve this – you have to do it'. That was immensely empowering, and is something that sticks with me."

I put it to him that many of the television programmes he and others have made are facilitating an environmental awakening. He agrees, but says it is social media that is the most "potent new tool in our arsenal" for spreading awareness.

Earlier that morning, he had posted a video on Twitter calling on residents of the Isle of Wight to help save a 100-year-old community tree that the authorities had decided to cut down because of a fungal infection. In the clip, he appealed for people to leave a message on the mayor's telephone, asking them to explore alternatives to removing a tree that locals had sat under for more than a century. Within hours, his video had gone from 11,500 views to 77,899.

"That is [down to] one person in less than a day campaigning for one tree – it is an immensely powerful tool that allows us to form communities, which is a powerful thing," he says. An independent study has since ruled that the tree poses no risk to the public, with the local council calling for an immediate halt to plans for its removal.

It is initiatives such as this that bring hope to Packham, who says the internet and social media have made more people critically observe what is going on around the world. "I am not saying it is going to be easy, and we are going to get our noses bloody, but we are an immensely intelligent, adaptable animal, and will overcome climate change, barring catastrophe."

Despite his optimism, he often lambasts the amount of damage that has been done on his generation's watch. "I am an impatient punk rocker, and we have lost a lot, which I am really distressed about – I know that I am going to my grave guilty, because I won't have done enough, which I suppose also fuels my desire to work harder."

"The only way to redress what I have done in the past is to know that I have done everything I can today." 🍌



Mired in tradition

Madeleine Rojahn argues that the EU's progress towards emissions reduction is being hindered by taboos and political complacency

Bureaucracy, taboos and political complacency – these, rather than intention, are the problems with Europe's Common Agricultural Policy (CAP). Politicians continue to dawdle in precision farming, manure management, and other gobbledegook, but perhaps they're missing a point. Is a strong grip on tradition hindering the achievements of climate change mitigation efforts?

Late last year, the European Commission launched its communication paper on CAP reform, stating a focus on implementing new farming technologies and giving more power to individual member states. It notes that tackling emissions requires diversity in strategies, suitable for the diversity in needs of the EU's 12 million farmers.

Agricultural commissioner Phil Hogan has described the challenges facing farmers today as "immense". In his speech at the EU's research and innovation programme, Horizon 2020, he said: "They are asked to produce more and better food while using fewer inputs; they are tasked with reducing their environmental footprint; they are expected to meet evolving consumer demands; and they are expected to cope with climate change and volatile global markets."

Currently, 40% of the EU's entire budget is spent on the CAP. If the policy is done right, it has the potential to be pivotal in reducing climate change. As achieving the goal of keeping warming below 2°C fades further into the distance, it could be the beacon needed to lead the EU in making decent strides towards emissions reduction.

"The reason why agriculture is important, and why I think it needs to be efficiently addressed by the CAP, is that agriculture contributes 10% to EU greenhouse gas emissions," says Anna Lorant, policy analyst from the Institute for European Environmental Policy (IEEP).

"Considering the climate mitigation processes, agriculture has a dual role, because it emits greenhouse gases, but at the same time plays a role in removing greenhouse gases from the atmosphere." In this latter role, the focus is on increasing

efficiency, from managing animal waste to capturing emissions and storing them underground, she says.

To achieve its goal of an 80 to 90% reduction in emissions by 2050, the EU must simultaneously remove emissions from the atmosphere and significantly reduce output. The new CAP discussions show a strong focus on these technologies, but getting them implemented is proving to be a tortuous process.

Support for adopting sustainable farming practices is available via greening funds, of which €2bn a year are dedicated to this purpose, says policy analyst Silvia Nanni, also of IEEP. These funds are supposedly accessible only when farmers meet specific criteria regarding sustainable practices.

But proper reform is stuck in a bureaucratic, convoluted shell, as many farmers find new sustainable practices costly and unfamiliar,

and the purpose of greening funds can therefore be lost.

"What we have observed in terms of farmers' uptake is that sometimes farmers put in place practices that are well known to them, perhaps traditional practices that need updating from a technological point of view," says Lorant. She adds that it would take several years to map how farmers are adopting sustainable practices.

Tycho Vandermaesen of World Wildlife Fund, an NGO working closely with the EU to reduce climate change, calls greening funds

"incredibly weak" and the premises under which they are awarded to farmers "largely unconditional".

Because of these problems, fundamental coherence with other EU environmental

policies is lacking, he argues. "The CAP risks subsidising farmers to work

Many farmers find new sustainable practices costly and unfamiliar



€60bn

Annual CAP
spending = €60bn –
40% of EU budget



Agriculture = 10% of EU
GHG emissions and 40%
of methane emissions



Rearing 1kg of beef needs
15,500 litres of water
Growing 1kg of wheat
needs 1,300 litres of water



EU target = 80-90%
reduction in GHG
emissions by 2050



EU agriculture emissions
in CO₂ equivalents have
fallen by 20% since 1990

against the objectives of the EU acquis [set of rights and obligations], [such as] the EU Water Framework Directive, Birds and Habitats Directives, and Air Quality Directives,” he says, pinpointing for particular blame the CAP’s Direct Payments pillar, of which greening funds make up 30%.

The bureaucratic shell is sealed tighter by the European Parliament’s Agriculture and Rural Development Committee, which is rife with personally invested politicians. Vandemaesen says this is one of the reasons for the CAP’s lack of convincing reform. “Whereas environmental policies are decided upon by environmental ministers and MPs who are typically more aware of the environmental challenges and solutions, this is not the case for the CAP,” he says.

“Agriculture ministers and MEPs, who often have a history in the farming sector, decide the future of a policy in which they may have vested financial interests – in some cases even personally.”

“Their consistencies are also farming communities, who push hard on their representatives to defend a certain line.”

Looking at the current parliamentary board dedicated to negotiations on agricultural policy, it is notable that many MEPs have a personal affinity with the farming sector.

The large farming lobby in both the EU and within individual member states is “a big problem”, says Reinhard den Toom, environmental policy advisor for the Dutch Greens. “They have a lot of power. The problem in the European Parliament is that it’s the agricultural committee

that has the lead on this and it is always farmers, or people very close to farmers, on this committee,” he says. “These groups shouldn’t put those kinds of members in these positions, but it is happening, unfortunately.”

Political complacency, and a strong hold on tradition, have diverted many from addressing the ‘elephant in the room’ that is farmed animals – cows, chickens, pigs and sheep – which account for more than half of the EU’s agricultural greenhouse gas emissions.

European animal product consumption patterns are devastatingly costly to the earth, with payments in currencies such as land clearing for livestock grazing and crop growing for livestock feed. To rear 1kg of beef, 15,500 litres of water is needed, while growing 1kg of wheat needs just 1,300 litres. On top of having a higher meat and dairy intake than the global average, Europe is also among the biggest exporters of these products. So meat consumption is an aspect that should be considered, says Nanni, adding that this element “should work synergistically with others in working towards climate mitigation”.

However, Hogan has a contrary perspective. Last year, he told Irish radio channel RTE Radio that “there’s no evidence whatsoever that the intake of these [meat and dairy] products are actually contributing enormously to the emissions”. Hogan himself has a background in agriculture. His perspective may be driven by an empathy for farmers or a desire to protect them from revenue loss. Such factors explain the large counter-campaign from the meat lobby, according to Alexandra Clark, campaigner for Humane Society International, who does not wish to see her own line of reasoning misunderstood.

“Campaigning for reduced consumption is often incorrectly seen as anti-farmer. We support farmers who have high animal welfare and environmental standards,” she says. And she warns that today’s political complacency may economically backfire in the future if policies do not protect traditional sectors, in light of the rising popularity of plant-based diets causing a market shift.

“As more alternatives – such as cultured meat and plant-based ‘meats’ – are introduced in coming years, there must be a policy framework that supports the development and marketing of these new products, but also prevents job losses in more traditional sectors and negative impacts on rural communities that are dependent on animal production,” says Clark.

Whether this will happen is uncertain. Vandemaesen calls the CAP “one of the most challenging policies to work on as an environmental organisation”. The policy’s potential to be pivotal in emissions reduction is stuck between a rock and a hard place, and the hand that is so able, yet so unwilling, to help is being held back by anthropocentric concerns. 🌱

MADELEINE ROJAHN is a freelance journalist

Serving up a new future for food

David Burrows weighs up the options for the UK's agricultural sector following Brexit

It's impossible not to think about food when talking about Brexit. "50% of our trade is with the EU. We are bang next to it and it's big and it's very rich. If there's no trade deal, we are really going to be in trouble," says Paul Johnson, director of the Institute for Fiscal Studies.

Some feel that's putting it mildly. "A food system which has an estimated three-to-five days of stocks cannot just walk away from the EU, which provides us with 31% of our food. Anyone who thinks that this will be simple is ill-informed," says Tim Lang, professor of food policy at City University London.

Nevertheless, this is the impression that some government ministers are giving. George Eustice, the farming minister, claims the sector will be fine even if there is no trade deal and the UK is hit with hefty World Trade Organisation tariffs. Chris Grayling, the transport secretary and Brexiteer, suggests: "We will grow more [food] here and buy more from around the world."

Let's consider those two suggestions. Importing more is a long-standing yet quietly muttered Conservative party policy. But all those imports come with a lot of baggage in relation to food standards, safety and sustainability – think chlorine-washed chicken, and beef raised on deforested land. Importers working to a lower standard could also freely undercut British producers on price.



Growing more food might seem a good idea, too, if only there were enough people to do all the extra work. The farming sector relies heavily on migrant labour, but following the Brexit vote, numbers are already dwindling. A survey by the National Farmers Union showed labour shortfalls reached 29% in September.

Growing more food also means either finding more land, or further intensifying production. The latter brings with it a host of environmental and ethical headaches – from genetic modification to animal welfare – while vast, US-style mega-farms housing thousands of cows, pigs and chickens don't appear to chime with Defra secretary Michael

Gove's vision for "a truly sustainable future for the countryside".

It's certainly a lot for ministers to consider as they untangle the UK from European systems. "It's critical, as we think of food production and the role of farming in the future, that we develop policy that looks at the food chain as a whole, from farm to fork, and we also recognise the economic, health and environmental forces shaping the future of food," said Gove at the Oxford farming conference in January.

Those environmental forces include climate change. In the UK, 10% of total emissions came from agriculture in 2015.

However, the sector isn't helping itself; it's expected to miss its 2022 targets under the UK carbon budget system, according to the Committee on Climate Change (CCC), and there has been little improvement in the past couple of years. "The pressure to reduce emissions from agriculture will not go away," says David Baldock, senior fellow at the Institute for European Environmental Policy (IEEP).

And neither will the need for farmers to adapt as the climate changes and extreme weather events increase.

The current heavy reliance on imports will leave the UK exposed to shortages and price volatility, but this doesn't seem to worry the government. In 2016, the CCC warned: "There is no national approach to ensure the resilience of the UK food system." As yet, nothing's been published. The Food Ethics Council suggests this is tantamount to "playing Russian roulette with climate change".

Indeed, we know very little about the government's detailed plans for post-Brexit food policy. Gove has made some interesting suggestions – including a unified certification scheme for

sustainable food; and future farm subsidies directed exclusively towards the provision of public goods such as soil fertility, new wildlife habitats, biodiversity, and water quality. But

any action has been kicked into the long grass, with no change to the current system until after 2024.

Based on the high turnover in recent years at Nobel House, where Defra is based, there could be half a dozen secretaries of state between now and then. Many other ministers and politicians have other views and priorities, especially as they try to woo non-EU countries into new trade deals. It's all a bit of a mess.

"It's difficult to discern what the UK government's policy is at the moment [for food]," Professor Erik Millstone, food policy expert at the University of Sussex, told the magazine *Poultry Business* recently. "There are conflicting views between departments, and even between ministers within the same department."

Millstone believes the UK could be sleepwalking towards a chaotic Brexit and food crisis. But let's put the headless chickens running around Whitehall to one side and consider how the Brexit shake-up could be a blessing disguised as a curse.

The UK hasn't had a food policy for 44 years. Instead, since it joined the European Economic Community in 1973, its policy in this area – along with environmental regulation – has been led by the EU. "We have come to depend on EU laws and money but they haven't been working well enough, and they are set for the biggest shake-up in a generation," says Sir Ian Cheshire, chair of Barclays UK and Debenhams. "[Brexit provides a] once-in-a-generation opportunity to transform the way we eat and farm, and to regenerate our environment and countryside communities."

"In the UK, 10% of total emissions in 2015 came from agriculture"



Impact of Brexit

Cheshire is chairing a new commission on the future of food and farming, organised by the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA). The commission is asking: what kind of country do we want to be, and what do we want from our food and farming systems?

The current system, underpinned by Europe's Common Agricultural Policy (CAP), is hardly a gold standard for sustainable food production: the number of farmers is in serious decline; the trend is towards large-scale, industrial production methods; and millions of tonnes of food are wasted throughout the supply chain.

There's also a problem with the type of food we eat. In 1973, 45 years ago, McDonald's hadn't yet arrived in the UK; now, fast food outlets and coffee shops are on every high street, and twice as much food is consumed outside the home.

As convenience has become king, obesity has become almost the norm. Research published in the journal *Public Health Nutrition* in February shows British families buy more ultra-processed food than in any other country in Europe – amounting to 50.7% of the diet.

Many people do not realise that agricultural subsidies have long been weighted towards foods that fuel obesity and poor health. But the facts – and the crippling health service bills – are becoming harder to ignore.

In October, the International Panel of Experts on Sustainable Food Systems (IPES-Food, a think-tank based in Brussels) published research showing many of the most severe health impacts – from respiratory diseases to cancers and systemic livelihood stresses – are linked to industrial food and farming practices.

From farming's heavy reliance on chemicals to boost yields, to the mass

marketing of ultra-processed foods high in fat, salt and sugar – often targeted at children – to boost profits, food systems are “making us sick”, IPES-Food noted. And when health impacts are placed alongside social and environmental impacts, the case for action becomes “overwhelming”.

An overhaul is daunting, but the idea has attracted some unlikely supporters. In August, the World Bank published a report suggesting that price support mechanisms for unhealthy ingredients – such as cereals, palm oil and sugar –

should be replaced with support for healthy ones. “CAP supports arable and livestock production more than fruit and veg,” says IEEP's Baldock, “so whether we want to eat less meat and more plants is what we need to ask if we introduce a new regime of agricultural support.”

Divorce from the EU is a chance to redress the balance – and even weigh up some more controversial policies. “The idea of sustainable diets [based on more plants and fewer livestock products] is a big change and it's here to stay,” says Baldock. It would be a “big mistake to sail off into the post-Brexit world and not think about that”, he adds.

A push to encourage eating more vegetables is one thing, but the evidence suggests the ‘carrot’ approach won't be enough to curb obesity and emissions. The ‘stick’ of a meat tax, for example, is hard for politicians to swallow, but the sugar levy on drinks starting in April might be a taste of things to come.



“Divorce from the EU is a chance to redress the balance and weigh up some more controversial policies”

“If policymakers are to cover the true cost of livestock epidemics such as avian flu, and human epidemics such as obesity, diabetes and cancer, while also tackling the twin challenges of climate change and antibiotic resistance, then a shift from subsidisation to taxation of the meat industry looks inevitable,” says Jeremy Collier, chief information officer of Collier Capital and founder of the Farm Animal Investment Risk & Return Initiative (FAIRR).

Livestock production represents 14.5% of all human-induced emissions, according to the Food and Agriculture Organization, and there is growing awareness that to meet the targets within the Paris Agreement, diets need to change. That some of world's biggest meat companies are falling over themselves to invest in alternatives – including meat created in laboratories and plant-based ‘meats’ – suggests they can see what's coming.

Some 45 years from now, the food we grow, process, cook and eat will be very different from that of today. Whether this food is low-impact, healthy and affordable could depend on the policies put in place after the UK leaves the EU. Brexit will be chaotic, but it is also a chance – for the first time in 45 years – to design a new system that is fit for the future. As City University's Lang says: “UK food security and sustainability are now at stake.” 🇬🇧

DAVID BURROWS is a freelance journalist

Smart energy takes centre stage

Paul Reeve looks at the role of clean energy in the UK's recently published industrial strategy

The UK government recently published a white paper that aims to tackle the productivity problem and boost growth. *Industrial Strategy: Building A Britain Fit For The Future* highlights four 'grand challenges' for government and industry:

● Maximising the advantages to UK industry of a global shift to clean growth

● Being a world leader in shaping the future of mobility

● Putting the UK at the forefront of the artificial intelligence and data revolution

● Harnessing innovation to help meet the needs of an ageing society.

These challenges have clear implications for low-carbon energy. The strategy shows the UK's 'clean economy', supported by the Paris carbon-reduction commitments, could grow at four times the rate of its GDP. This potential has put low-carbon energy innovation, and smart energy in particular, centre stage.

Low-carbon puzzle

The route to clean growth is outlined as "developing, manufacturing and using low-carbon technologies, systems and services that cost less than high-carbon alternatives". Yet, while the cost of energy from nuclear and tidal barrage technology is high compared with wind, solar or gas, none of the latter three can be described as 'high-carbon'. As such, it's perplexing that nuclear and offshore wind get an airing in the strategy, while tidal barrages and onshore wind don't.

Having highlighted its favourite technologies, the white paper pulls

together an array of energy strategies and innovation funding. For example, last year's long-awaited UK *Clean Growth Strategy* policy paper already sets out ambitious proposals for low-carbon energy growth into the 2020s.

Meanwhile, the 2017 policy paper *Upgrading Our Energy System: Smart Systems and Flexibility Plan* will be joined by a 'Prospering from the Energy Revolution' programme that will help businesses to provide technologies that will "remodel the national grid" to handle:

● A growing array of clean energy sources

● Storing electrical energy

● Providing real-time usage data to buyers and users

● Managing demand

● Supporting vehicle/grid charging.

In addition to optimistic plans for aligning policies, markets, regulations, taxes and investment to underpin new, commercial energy technologies, the strategy says "clean growth innovation"

will be a priority for funding. The government will also join initiatives such as Mission Innovation – a global partnership for clean energy research and development.

Elsewhere, the strategy assumes significant growth in zero-emission vehicles, with a road transport plan supporting this trend expected this year, plus funding to improve battery technology. There are also undertakings to invest in clean technologies for rail, aviation and marine transport. Further low-carbon progress in power, transport, heating and cooling will, we are told, require the "reallocation of trillions of pounds of public and private finance".

The paper then looks to the Internet of Things and artificial intelligence to deliver desired economic, environmental and social outcomes, working with six priority sectors: energy, cybersecurity, life sciences, manufacturing, agricultural technology and construction.

Construction is cited specifically as a recipient of future government support to boost use of cleaner energy and less environmentally damaging materials. A 'Transforming Construction' programme will look to provide "places to live and work that use dramatically less energy to build and run". More widely, the government will also be seeking measures to encourage private investment in domestic and commercial energy efficiency. These measures will need to align with the 'Each Home Counts' initiative.

UK carbon emissions have been reduced by more than 40% since 1990, while the economy has grown by two-thirds, successfully 'decoupling' carbon emissions from economic growth. Only a decade ago, this was something of a sustainability dream. Having accepted that a clean, low-carbon future will be good for productivity and growth, the government is now looking to those who can deliver the necessary commercial and sustainability solutions to step up. 

PAUL REEVE CEnv FIEMA is director of business at the Electrical Contractors' Association (ECA)



Putting stakeholders in the picture

Professor Richard Tiffin

explains how data visualisation can help non-specialists understand the complex links between natural habitats and the services they provide

A core principle of the UK government's 25-year environment plan is recognising natural habitats have a value, and that by conserving or managing these assets effectively it is possible to enhance the services this land delivers.

The theory suggests that if it were possible to link good management with an uplift in services, then the steward could be rewarded for providing a public good.

Valuing natural assets

Providing a reward for a public good is already happening in Dorset. Wessex Water Authority is concerned about build-up of nutrients in Poole Harbour. As an alternative to investing in a nutrient-stripping plant, at a cost of £6.5m, the authority is working closely with farmers in the water catchment area to tackle the





cause of the problem and reduce runoff into the rivers. The farmers are incentivised to grow cover crops that protect the soil and lock in fertility. Everyone benefits, and the reduction in nutrients in the water can be easily measured.

In this scenario, it is possible to put a financial value on land management that is related to a benefit provided to a clearly defined stakeholder group. However this is rarely the case. 'Natural environment services' provided by habitats are complex to measure and have different values for different stakeholders.

Even when habitats have a strong economic case, the location of these habitats can affect the value. Woodland near a centre of population has a higher amenity value, while woodland within a watershed can reduce the flood risk downstream.

As an economist, I have some unease about how good a reflection of the true value the existing methodologies provide. A monetary value is a market value, and a market is just a means of creating a consensus over the value of a good. Ultimately, it is the consensus, not the value, that is important.

There are alternatives to creating an artificial market to achieve consensus, and Agrimetrics has been working with Natural England to create a tool for establishing consensus on land use. The idea was to develop a way that big data – all the information relating to a particular place – could be captured and presented so that it is meaningful to non-specialists, such as members of a parish council faced with planning applications.

The tool, Natural Capital Explorer, would put the facts into the hands of the stakeholders so they could see the bigger picture and achieve a consensus over value.

Relating assets to services

The Department for Environment, Food & Rural Affairs (Defra) has been working to create logic chains that relate natural capital assets to the services they provide.

Logic chains are processes that show how biodiversity contributes to economic activity and human wellbeing. For example, pollination can be linked to food provision; carbon capture by vegetation or soil can be linked to climate regulation; there is a link between woodland and clean air; and riverine vegetation provides flood and drought mitigation.

However, these logic chains have proved difficult to communicate effectively, and Defra group advisors have struggled to apply them in practice to help the communities that they work with.

A different way of presenting this information was needed to show, simply, an asset and the services it can provide. The discussion and decision could then be around how best to manage that asset to deliver a portfolio of services.

Natural Capital Explorer uses the logic chain and presents the outcomes in a way that allows the adviser to assemble a visual report that they can present to multiple stakeholders as a communication tool to achieve consensus.

Together, we have created a demonstrator that is based on the water quality logic chain. It allows a parish council to compare its natural assets with those of neighbouring parishes and other

parts of the country. This comparison would allow the council to see how different management plans affect the services provided. For example, as water meadows provide natural water catchment to reduce flooding, it might be possible to see how flooding had risen in parishes where building had been allowed.

The value of metrics

There is much discussion about the need for metrics in natural capital management.

According to research conducted at the University of Reading, insects are pollinators of more than 80% of crop species in Europe, and the economic value of this pollination to the UK alone is in the region of £690m each year.

If it were possible to say "xm² of field margin is required for ym² of crop and this would create an uplift in yield of 10% through insect pollination", then this would provide a simple rule of thumb that could be used to incentivise the management of marginal land.

However, there are so many variables that this approach is always going to be controversial.

In our discussions with a range of players in the agri-food value chain, we have not perceived a great appetite in having these types of sustainability metrics imposed by regulators.

Our approach is to make it easier for people to do their own analysis. We have focused on creating a data model that describes the world as several concepts. It is then possible to search for data that relates to that concept. For example, if you wanted to know how beef production was related to weather, you could follow a beef animal through its entire lifecycle, connecting it to all the places it has been and the weather for those locations at that time.

The user isn't interested in a narrow silo of data – they want to understand it in context.

The data in Natural Capital Explorer is already published on a range of different Defra websites, but you can't contextualise that data. To see how weather, land use and water quality have changed for a particular field over the past 10 years, you would need to refer to multiple data sets, each collected for a specific purpose.

Agrimetrics' mission is to flip the data-consumption model so it is not directed by the providers of data but instead becomes driven by the users and consumers of data.

Making the vision a reality

Defra and the various stakeholders already hold a significant amount of data; the issue is how to make it accessible so it can be analysed in a meaningful way. Our role is not to be the 'gold standard' metric provider, but to ensure that decisions made by others are based on the best information that is available. 📊

PROFESSOR RICHARD TIFFIN is chief scientific officer for Agrimetrics, a big-data centre for the agri-food value chain



THIS MONTH WE ASK...

Would a meat
tax bring
consumption
down to the
levels needed to
limit emissions
and climate
change?



Let us know at iema-editor@redactive.co.uk if you have any questions you want answering in a future issue.

The big question



DR MARCO SPRINGMANN

Senior researcher, Oxford Martin Programme on the Future of Food

"Yes: but the tax needs to be at least 20%"

We needed to know how meat demand might change in response to a change in price, and how high the change in price, i.e. the tax, should be. Estimates of the former are established by relating differences in demand to differences in prices as found in national food surveys, household expenditure surveys, or even supermarket data.

An analysis of such estimates from around the world suggested that for a 10% increase in the price of meat, the demand for meat would go down by 5-8%. From those estimates, one can see that a tax on meat should at least be 20%. But can we be more precise? If we approach the taxation of meat from a climate perspective, then there is an agreed method for estimating a science-based level of taxation: assess the amount of greenhouse gases emitted during meat production and multiply that amount by the so-called 'social cost of carbon', a monetary estimate of the expected climate damages caused by a unit increase in emissions.

Both those values can vary and have uncertainties attached to them. But given all the uncertainties, we estimated that beef should be 40% more expensive on average, milk 20% more and pork and poultry 7-10% more. We estimated that if all countries integrated the food-related costs of climate damages into the price of the associated foods, that would reduce global greenhouse-gas emissions by about one billion tonnes.



MOLLY SCOTT CATO

Green MEP for the South West and member of the European Parliament's Agriculture Committee

"No: we need political and structural answers"

Taxing processed and factory-farmed meat won't on its own bring down consumption to levels required to keep our greenhouse gas emissions in check. But the idea has generated much-needed discussion about the quantity and quality of meat we eat.

A report from the Institute for Agriculture and Trade Policy (IATP) reveals that the top 20 meat and dairy companies have higher greenhouse gas emissions than Germany, while the top five have higher emissions than oil giant Exxon.

One way to encourage a shift away from regular meat eating is taxing the lowest-quality meat. Money raised from such a tax could be ringfenced to support poorer communities in moving towards healthier diets. It could also support training in schools and communities on preparing low-cost, healthy meals.

But we also have to go after the big boys in the business. For example, a new free-trade agreement between South American countries and the EU would allow Brazilian meat producers – which produce massive quantities of cheap meat on cleared rainforest lands – to flood European markets. This would undercut the higher agricultural and animal welfare standards we expect of our farmers in Europe.

Ultimately, we cannot just tax our way out of this problem; the answers are political and structural.



THOMAS RANDALL

PhD candidate in political science, Western University, Ontario, Canada

"No: but it can be one element in the fight"

By itself, no. The meat tax can certainly form part of a much broader coalition of policies for mitigating climate change. However, should policymakers choose to implement a meat tax, there are at least two issues to consider.

First, the meat tax must deal with price elasticity of demand. While ruminant meat may be an 'elastic good', non-ruminant meat is not. If consumers substitute ruminant meat for non-ruminant meat, the burden of emissions may only shift. The production of non-ruminant meat still emits significant greenhouse gases because non-ruminants are usually fed with oilseed – the production of which is linked to high carbon emissions from deforestation. A differentiated meat tax would have to be responsive to this change in demand to counter this shift, with the tax being higher on non-ruminant meat than currently postulated.

Second, if a high meat tax were implemented, there would be socioeconomic ramifications. It would be a regressive tax, which would hit poor, working-class people the hardest. Given meat products form a 'necessary good' in most poor, working-class diets, it could cause a consumer backlash. If we want to influence consumer behaviour toward environmental care and animal welfare, an accompanying educational campaign is necessary. The meat tax by itself would risk being politically toxic rather than beneficial.

More to a forest than money

Angus Middleton argues that putting a price on natural capital is not the pinnacle of achievement but simply a step in the right direction

The financial valuation of nature seems to have been become a holy grail. This process is helping to shape good policy. But the time has come to move on.

Putting a financial value on ecosystem services involves many approximations, assumptions and omissions. Take recreation. There are many ways to value how people use a forest, for instance, including assessing the cost of getting there or simply asking the users. Such methods do not capture the alternative recreational options the people have, the potential of the forest to reduce deprivation outcomes, how the forest affects other local green areas, and myriad other concerns. In addition, they do not allow recreation to be compared with other ecosystem services that have no financial valuation, such as the forest's biodiversity offering.

There is a solution. The first step is to realise that financial valuation is simply a step in the right direction. Every ecosystem service should be valued financially, where sensible, but effort should also be expended in creating a range of biophysical quantification and qualification metrics. This will allow a more nuanced approach to non-financial considerations, and permit comparison between all ecosystem services.

Let's illustrate this with the forest again. Certain ecosystem services can

be quantified financially, such as recreation, timber supply and carbon sequestration. These should be accounted for financially, but these figures should be enhanced through additional biophysical quantification. For recreation, this process could include distance to surrounding communities and their deprivation statistics, or the number and size of other accessible land units within certain distances from the forest. This information is expressed as a number, which is then blended with the financial valuation to give a unitless but quantified output, adding context and meaning.

In our forest example, there are no useful, equivalent biophysical quantifications for timber production and carbon sequestration, so there is no comparison across these metrics. But all these ecosystem services can be qualified in a detailed way. Looking at recreation, such qualifications could include the number and importance of rights of way extending beyond the forest, or the happiness ratings of people using the forest. Every occurrence or reply at this stage is ranked from highest to lowest, using criteria based on expert opinion or experience. In the same way, the financial and biophysical values are 'translated' into the highest to lowest rankings, and added into the mix.

The aspects are then weighted for their relative importance: if happiness is more important than financial gain, the happiness value would be more dominant in the overall, qualitative valuation of recreation.

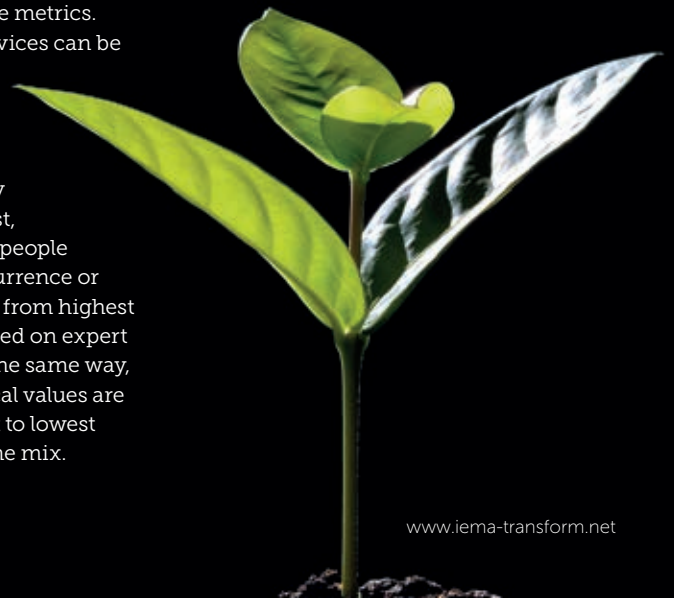
The qualification allows a direct comparison between services that use differing modelling outputs, expert opinion or local knowledge. The results also incorporate the qualitative and financial evaluations for those services where these exist, but 'levelled-down' into the same qualitative mode. This ability to blend sources gives an inclusive and rounded quality to the rankings.

The next level down is a simpler, high-medium-low (RAG) rating. This allows for services where there is little information or where value is extremely objective. Again, the more precise qualitative and quantitative evaluations are blended with any new aspects to rate those services as high, medium or low, so as much of the richness of higher layers as possible is captured.

Blending natural capital accounting with more inclusive methods based on judgement and priorities will enfranchise stakeholder opinion and allow direct comparison between all ecosystem services. 

For an expanded version of this article, go to transform.iema.net

ANGUS MIDDLETON is commercial director at Viridian Logic



Is cybercrime really the biggest threat to business resilience?

We live in an era of increased business risk. News headlines focus on threats of cybercrime, but there's a more immediate issue – energy supply

The energy landscape is changing. Global energy consumption is increasing fast – it's expected to rise 25% by 2040. The demand

for electricity will be even higher, up 65% in the same period. Add increasing grid instability, rising fuel costs and strict emissions targets into the mix and the future of traditional energy supplies looks anything but secure. Businesses need to place less reliance on the national grid and start to focus on generating their own energy, and making the energy they use go further. However, there is a disparity between the threat posed by energy-related failures and the degree to which businesses are preparing for them.

The cost of failure

Businesses estimate that, when both direct and indirect costs are taken into consideration, an energy-related failure can total as much as 17% of their annual revenues. But with the right solutions, UK businesses can protect their bottom line against failures, cut costs and improve their business resilience across the board.

One solution for business resilience

Combined Heat and Power (CHP) from Centrica Business Solutions is a versatile, easy to implement solution that provides an extra layer of energy resilience for businesses. Just as importantly, it can help to drive down operational costs by reducing your power usage and cut energy costs significantly, as gas is far cheaper than electricity. Overall, CHP can reduce energy costs by as much as 25%.

Increased resilience

CHP gives you a stable and resilient energy source - it can be used to provide electricity if the grid supply fails and also offers a cost-efficient heating method.

Reduced running costs

By cutting your site's energy costs by up to 25%, CHP enables you to divert your energy budget to other areas of your business.



Lower CO₂ emissions

CHP can help reduce your energy consumption and emissions significantly – supporting compliance efforts and unlocking access to certain government incentives.

Finding the right CHP partner

Centrica Business Solutions has plenty of experience in the sector and will work with you to find the CHP solution that offers maximum

savings and efficiencies. But it's also an all-round energy partner which can not only help you implement resilience solutions, but can also provide you with insights into where the problem areas of your energy usage lie.

The cost of resilience

Centrica Business Solutions is one of the very few companies that can offer large-scale financing to help reduce risk from purchasing an energy solution. A variety of finance options, including zero capital outlay, mean you control the cost of installation. And with payback in 3–5 years and an equipment lifespan of up to 15 years, the savings keep coming long after the technology has paid for itself.

With so many affordable options available, coupled with the potential cost of an energy failure, the real question is not the cost of an energy resilience solution, but can you afford not to have one?

Read the resilience report

Centrica Business Solutions surveyed energy decision-makers across multiple industries to understand the true scale of the challenges posed by a lack of energy continuity, and the steps businesses are taking to address them. The resulting research report could set your business on the road to resilience.

One thing is for certain – it's never too soon to start. 

 **Visit: www.centricabusinesssolutions.com/resilience to find out more and download the report**

A narrowing of the gender pay gap, an increase in optimism and a modest rise in salaries are three headline findings of the latest annual IEMA member survey on the state of the profession.

The survey – which captures the views and workplace experiences of 1,053 members across a wide range of sectors – finds that the median gender pay gap for full-time environment and sustainability professionals has narrowed to 14.1% from 16.7% a year ago. This remains higher

than the gender pay gap across the whole economy, however. Women are under-represented in senior roles – an area where change is needed to narrow the pay gap further.

Environment and sustainability professionals can expect to earn a median £40,000 a year, up from £39,000 a year ago, ranging from £44,000 in business and industry to a median of £31,250 in the third sector. Around two-thirds of respondents reported getting a pay rise in 2017, although fewer than one in three self-employed members reported a pay increase.

Most members are finding their jobs challenging, sometimes stressful, but hugely rewarding, the findings suggest. One respondent says of their role: “We undertake a wide range of projects, which are often complex and challenging, meaning that we can constantly learn and apply our skills in new ways. Our work is certainly not boring.” When respondents were asked to describe their feelings about the profession, “challenging”, “rewarding” and

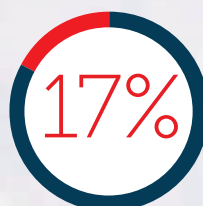
“full of opportunity” came up the most. Strikingly, only 8% felt that the profession was “understood” by others, suggesting that IEMA members face a huge communications challenge in working with colleagues to transform their organisations to sustainability.

Many members reported having achieved academic or professional qualifications in 2017 or an upgrade of their IEMA membership. Our analysis of pay rates shows that taking such steps has significant benefits in pay terms as well as in professional development, with the median rate for members at Practitioner grade (£40,000 a year) rising to £47,500 for Full members and £86,500 for those who have reached the leadership status of Fellow.

One source of opportunities to learn and develop is the sheer diversity of the environment and sustainability professional's role. Respondents cited achievements ranging from employee-engagement programmes to shaping big infrastructure projects or securing significant cost or energy savings for their organisations. There is a healthy level of job mobility in the profession, with 17% gaining promotion to a more senior role and 14% making a horizontal move either internally or externally.

Job satisfaction in the profession remains high, with 68% satisfied or very satisfied with their current role, and just 6% dissatisfied. Those who have changed career to work as environment and sustainability professionals find their roles particularly rewarding, with satisfaction rising to 78% among this group.

Given the scale of environmental and political challenges and uncertainty, environment and sustainability professionals might be forgiven some apprehension and pessimism as we enter 2018. However, IEMA members are raring to go, with a higher proportion of respondents (56%) optimistic about tackling the challenges ahead than was the case this time last year (43%). 



of members
were promoted
to a more senior
role in 2017



of respondents
made a
horizontal move

Gender pay gap narrows, latest survey findings reveal



IEMA SURVEY: To read and download the full IEMA survey 2018, visit: bit.ly/2CvsKYQ

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SOCIAL AND COMMUNITY NEWS FROM IEMA



WEBINARS



7 MARCH

Exploring your IEMA training courses

Do you want to expand your learning and broaden your horizons? IEMA training courses are a great way to enhance your professional development and ensure your knowledge and skills are up-to-date. Join IEMA's Head of training and development, Emma Bellingham, to explore what you can expect from IEMA courses and how they can support your workforce, from Transitioning to ISO14001:2015 to our Foundation Certificate in Environmental Management. Tune in and you'll get an outline of all the options and training partners on offer.

➤ To book: bit.ly/2o1bcPG

28 MARCH

What's the impact of our work? The Environment Agency's approach

Are you a sustainability manager or do you work with internal and commercial teams to deliver sustainable improvements? The Environment Agency's supply chain contributes an astonishing 70% of the organisation's environmental impact. Join us to discover how it goes about working out where it can reduce this impact by influencing its suppliers. You'll also explore its approach to valuing the natural assets that it owns and the environmental benefits they bring.

➤ To book: bit.ly/2EqFdij

15 MARCH

Joining IEMA as a student or graduate member

We believe there's a practical way to a sustainable future for everyone, and that our profession has a critical role to play. If you share our ambition for change and are thinking of joining the environment and sustainability profession, then IEMA membership can help you to kickstart your career. This webinar is an ideal opportunity to engage with and explore what we do and how we are supporting people and organisations that share our goals.

➤ To book: bit.ly/2F3peHM

18 APRIL

The future of environmental auditing

Are you involved in environmental auditing? Join our upcoming webinar to explore the increasingly complex environmental and sustainability challenges involved. It will highlight the key findings from a recent IEMA study investigating our future strategy for the provision of auditors. You'll be led by Nigel Leehane, an IEMA Fellow, principal environmental auditor and chair of the ISO environmental auditing committee, to explore these issues.

➤ To book: bit.ly/2nZJGCI

"Super proud to now be a full member of @iemanet and chartered environmentalist! Ready to save the world! #letmegrabmycape @Kimberley Lasi



"If you can imagine it then it can happen!! #Cities @Catalicity @martingetttings. People are the cities!!"

@ IEMAfutures

"Great to be part of this month's #TransformMagazine talking about innovation and digitization of domestic waste management"

@IEMA_TRANSFORM

QUOTE
UNQUOTE

LinkedIn

"I was delighted to find out I've achieved my IEMA Practitioner membership today. It's a real pleasure to be part of such a great organisation, full of inspirational people working towards a more sustainable future.

Thank you IEMA."
Matt Barnett – PIEMA Project lead at Onsite





Why did you become an environment and sustainability professional?

The marine and coastal environment has always been an important part of my life. I grew up travelling around the world while my father set up a shipping business, and also **yachting** with my parents, who are avid sailors. This passion for the sea, sailing and marine life spurred me on to gain a BSc in zoology with a specialism in marine ecology, and subsequently an MSc in applied marine science.

What was your first job in this field?

My first paid role was as a research coordinator for an NGO in South-East Asia. This included managing monitoring programmes for coral reef biodiversity, working with local communities on schemes for alternative livelihoods, and training fishermen to carry out marine surveys and become marine reserve wardens.

How did you get this? While studying, I spent every summer volunteering on marine conservation and research programmes. The experience, life skills and contacts I gained stood me in good stead.

What does your role involve? No two days are the same. My time is divided between developing our corporate environmental sustainability strategy and environmental management system in accordance with ISO14001:2015, and leading on the consent and permissions for a 90MW, 54km offshore interconnector cable project between Guernsey and Normandy, France.

How has your role progressed? Early on, I was mainly involved in environmental and social impact assessments for

international marine infrastructure projects in the oil and gas and renewables sectors. Now my role focuses on assurance and managing environmental sustainability risks and continual improvement. I also act as a mentor and sit on environmental sustainability committees.

What's the best part of your work?

Working on projects that reduce environmental impact or help the island meet our low-carbon targets and commitments to reduce climate change.

And the hardest?

Balancing environmental sustainability against corporate risks and challenges for energy-generating companies – affordability, security of supply and environmental impact, or the 'energy trilemma'. Achieving this requires innovation in the way environmental sustainability is built into investment strategies.

What was the last development event you attended?

The 2017 Inter Island Environment Meeting in Sark. This two-day annual event was a great opportunity to connect with like-minded environmental professionals from the other Channel Islands and the UK.



CAREER PROFILE

Alex Herschel PIEMA



Environmental specialist at Guernsey Electricity

What did you bring back from this event?

I learned about a geographic information system (GIS) study to map the distribution of marine invasive species. This is a significant concern for Guernsey, so the potential to expand this study to include the wider Channel Islands was of great interest.

What is the most important skill for your job?

The ability to analyse complex technical data and communicate it simply to the target audience, be that senior executives, an engineering team or members of the community.

Where do you see the profession going?

Environmental sustainability and risk management are no longer a



LATEST MEMBER UPGRADES

ASSOCIATE (AIEMA)

Michael Deakin, SSE
 Brett Clark, Skanska
 June Tyson, Richardson Roofing
 Sarah Williams, Segro
 Robert Thomson, Spyder/Sonix
 Laura Griffiths, Freudenberg Non Wovens
 Stewart McCollam, Sterling Thermal Technology
 Gemma Moon, Multisol
 Simon Gadd
 Chukwuemeka Chukwuyenum
 Lee Donlan, Pladis
 Andrew Haigh-Turner, Quorn Foods
 Susan Chamberlain
 Richie Bevan
 Gary Fleming, Mitie Engineering Services & IFM
 Cecile Lartigue Petit
 Paul North, Runtech
 Matthew Downen, Airbus Group
 Katie Baj
 Bolarinwa Adewuyi
 Joanne Goodall
 Matthew Thorpe, HMP Forest Bank
 Kirsty Castle, Batcheller Monkhouse
 Hana Mainwaring
 Paul Clem, Ocado
 Michael Simpson, John Lewis
 Emma Clutterback, Celesio
 Teresa Fernandes, Golder Associates
 Tim Evans, Avis Group
 Oluwaseun Samson-Olawale, Shell
 Craig Singleton, Etex Building Performance
 Mark Murphy, James Donaldson & Sons
 Davide Vincis, Siemens C/O Hemsley Fraser
 Oluwafemi Oyetunji
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 Laura Shamsuzzaman, Jones Lang LaSalle
 David McLoughlin, MITIE Group
 Katherine Gareau, Associate Member
 Chloe Legg, Ferroviaria Agroman UK
 Jemma Cosentino
 Ryan Adia, Syngenta
 Boluwatimi Omidiji, The Nigerian Stock Exchange
 Clarissa Naicker
 Adam Jones
 Emily Pearce, Haymarket Media
 Samuel Cook
 Robert Milton, Alun Griffiths Contractors
 Joanna Drane, Hoare Lea
 Sarah Morgan
 Karyn Herdman, Kier Group
 Sean Gilmour, POS Construction Services
 Chris Conaboy, W.J & W. Lang
 Paul Skyme, Volac International
 Jayne Oswald, Barton Willmore Partnership
 Paul Kiff, NOV Downhole Eurasia
 Adrian Sherman, Green Frog Connect
 Priscilla Teo, Syngenta
 Barney Goodey, Motability
 Kyle Peers, BAE Systems Maritime Submarines
 Dave Stevenson, Pearson
 Glenn Davies
 David Evans, Ocado
 David Manners, Alun Griffiths (Contractors)
 Allan Brinkley

Adam Thompson, Barrett Steel
 Aidan Cuttall, Barrett Steel
 Aoife Doherty, Johnson Matthey
 Shaun Hoddy, TTI (Europe)
 Charlotte Ross, McAleer & Rushe Contracts
 Laurence Hanley, SKF (UK)
 Will Aicken, AMEC
 James Tate, Meadow Foods
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 Jason Wakefield, Barrett Steel
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 Mark Smith, C & C Training
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 Edward Reynolds
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 Charles Rigby, Boots UK
 Natalie Gourlay, Boots UK
 Susan Brown, Kent PHK
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 Elisabeth Hammett, Groundwork
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 Roy Garwood, Hutchison Ports UK
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 Thomas Mainwaring-Evans, Cormac Solutions
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 Thomas Brown, British Sugar
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 Philip Branford, Marley Eternit
 Brian Holcroft, McCarthy & Stone
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 Sarah Brennan
 Kevin Trotter, Barrett Steel Ltd
 Duncan Cowper, Skills Development Scotland
 Robin Craig, AstraZeneca
 Adam Chambers, McCarthy & Stone
 Michael Knott
 Dave Sidebottom, Barrett Steel
 Brendan Flood
 Nicky Miles, Calders & Grandidge
 Yvonne Bruce
 Karina Williams, British Land Company
 Lewis Dimmock, Barratt Developments

'nice to have'; they now have a priority place in the corporate strategy and boardroom. An increase in commercially focused environmental professionals will help close the knowledge and priority gap.

What advice would you give to someone entering the profession? Internships or work placements are brilliant opportunities to get experience and your foot in the door. Do your research; identify the organisations you'd like to work for. Avoid generic applications, and tailor your communication before sending it directly to the manager of the discipline you are interested in. Follow up with an email or call, showing keenness.



How do you use the IEMA Skills Map? The IEMA competency framework is a great tool to inform mentoring, recruitment and benchmarking of environmental roles. I have particularly found it useful in planning my own CPD goals.

How would you describe yourself in three words? Professional, motivated, optimistic.

What motivates you? My self-proclaimed 'eco-warrior' daughters, aged six and seven.

What would be your personal motto? "It's never too late to be what you might have been".

Greatest risk taken? Jumping into the water at night to help resuscitate a **3.5-metre-long tiger shark** caught in a fishing long-line.

If you could go back in history, whom would you like to meet? **Isabella Lucy Bird**, the 19th-century English explorer and naturalist. 🐟



Visit www.iema-transform.net for the full member profile

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Syed Shoaib Ali, Tristar Engineering & Construction
Rachel Johnston, Argent Group
Alison Ewins, HRS Services
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Matthew Newbury, Integrated Doorsets
Craig Spademan, Integrated Doorsets
Helen Webb, DSTL
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Shóna Brown, Provident Financial Group
Kate Pimlott, First Ark

David Coppin, Briggs Equipment (UK)
Virginia Cheung, University of Westminster
Alexandra Airey, BAM Construction
Deborah McCall, Environment Agency
Kaidi Kuusk, Galliford Try
Edward Walker, Marine Management Organisation
Noor Salman, Arcadis
Lyndsey Vipond, BioRegional
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Olly Bain, Canary Wharf Contractors
Pui Wing Vera Lai

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Martin Gibson
Kimberley Lasi, CIRIA
Hollie Wilson, Diageo
Thomas Coulter, DP World
Edwina White, Fehily Timoney and Company
Stephen Brindle, Waterman Infrastructure and Environment
John Palmer, North West London Hospital NHS Trust
Justine Oakes
Kim Yates, Mott MacDonald
Mark Jones, Schneider Electric
Andrew Clifton, Rolls Royce
Kirsten Rottcher

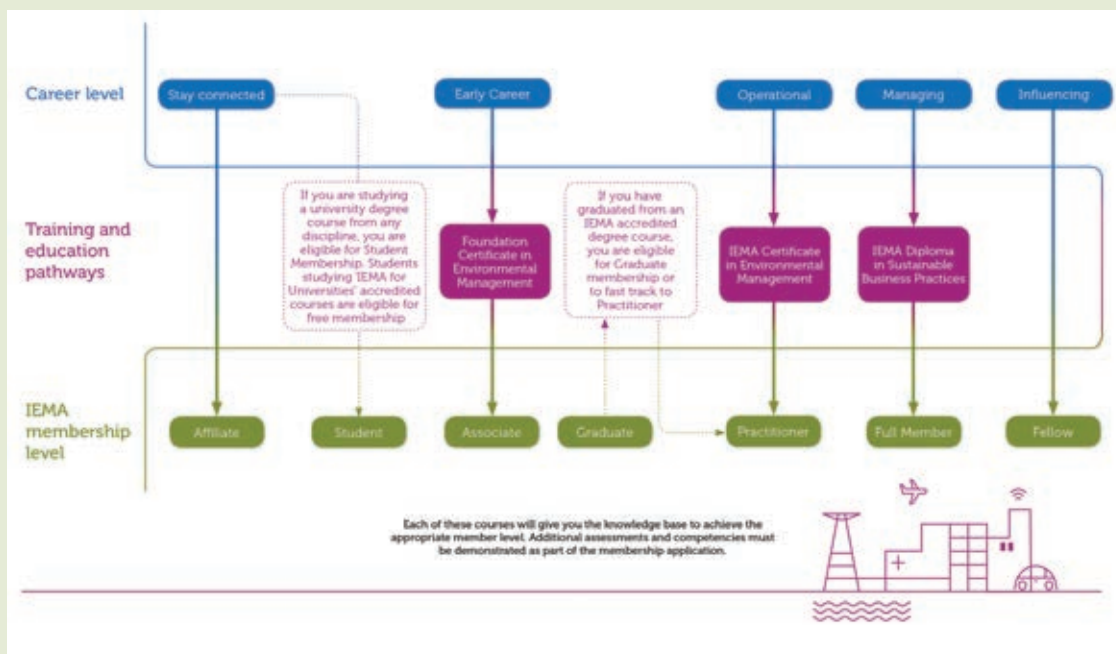
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Ian Bamford, University of Cambridge
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Martin Farley, Kings College London
Josh Fothergill, Fothergill Training & Consulting

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As the largest environment and sustainability body in the world, with 14,500 members in over 100 countries, we are powering up to optimise our influence and capability in creating a sustainable economy.

We are looking for two Non-Executive Directors who can bring their influence and experience to our Board, and help us achieve our ambition.

We are specifically seeking individuals who have expertise in at least one of the following areas:

- Finance
- Legal and governance
- Large membership organisations

It is essential that all applicants have experience at Board level, and preferably as a Non-Executive.

To find out more about what we do, our goals, the role of the IEMA Board and to apply for the vacancies, visit www.iema.net/jobs-iema.

Alternatively, for a conversation with CEO Tim Balcon about the vacancies, please contact Ann Guest on +44 (0)1522 559700

The closing date for applications is Monday 2nd April 2018.

Nominate your peers for FIEMA

The nature of leadership is changing: leaders increasingly need a strong sustainability record, while sustainability professionals are being called to step up and lead.

Fellow membership of IEMA is the ultimate indicator of significant professional contribution, experience and expertise. It demonstrates to peers, colleagues, clients and collaborators that you've made your mark on your profession. It's about being an innovator as well as an influencer.



Do you know someone who should be a Fellow member of IEMA?

Visit www.iema.net/membership/fellow-membership to nominate them today!