

TRANSFORM

FOR ENVIRONMENT AND SUSTAINABILITY PROFESSIONALS

Environment
Economy
Society

Oct/Nov 2021

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HACK

ATTACK

The rising tide of corporate cybercrime

PLUS

Last chance saloon Sir David King on pulling Earth back from the brink

Local heroes Why we should be giving councils more power

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Taking place on a new, easy-to-use digital platform that will allow you to intelligently network with other professionals from around the world, this conference is free and only available to IEMA members. Book your place now at iema.net.



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Gain inspiration from our fantastic lineup of speakers (coming soon!) and listen to practical guidance and discuss, challenge and share ideas on sustainable change, including decisions made at COP26.



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bit.ly/Early_int



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SARAH MUKHERJEE MBE, CEO, IEMA

All eyes on Glasgow

Hello, and welcome to another edition of *Transform*, the magazine for IEMA sustainability professionals. I hope you are staying safe, and managing to have a productive October and November. This time of year is autumn in the Northern Hemisphere; in the UK, the nights are getting shorter and we will soon be into Hallowe'en and Bonfire Night celebrations. This year will also mark a much more significant event, as the eyes of the world will soon be on Glasgow and the 26th Conference of the Parties (COP), attended by countries that have signed the UN Framework Convention on Climate Change. One person who has seen many of these events and who has been at the heart of the negotiations is Professor Sir David King, a former UK government chief scientist. On page 14, he gives us his thoughts on the chances for real change from this set of talks.

This is also the time of year when the academic year is in full swing. Members of the IEMA staff team will be talking to students all over the world, letting them know about the benefits of IEMA membership and the exciting professional development paths they can follow – do let us know if you would like us to visit your institution, either in person or virtually. We are proud to work with many higher education institutions; as Charlotte Bonner explains in her article on page 21, further education organisations have a crucial role to play in upskilling the workforce for a zero-carbon future.

Gene editing could provide new ways of developing crops that could increase productivity and help us adapt to climate change, supporting global agriculture. It could also cause problems for organic farmers, and perhaps divert limited funds for research away from more nature-friendly solutions. Catherine Early considers the arguments for and against on page 25.

I hope you enjoy this edition of the magazine. As always, we welcome your thoughts and comments, and any ideas you may have for features or articles. It's your magazine, and we would love to hear from you!

"Members of the IEMA staff team will be talking to students all over the world, letting them know about the benefits of IEMA membership"



IEMA Transforming the world
to sustainability

IEMA is the professional body for everyone working in environment and sustainability. We provide resources and tools, research and knowledge sharing along with high quality formal training and qualifications to meet the real-world needs of our members. We believe that together we're positively changing attitudes to sustainability as a progressive force for good. Together we're transforming the world to sustainability.

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ROUNDUP

ENVIRONMENT &
SUSTAINABILITY
NEWS AND VIEWS

ENERGY

COVID-19 a 'lost opportunity' for energy transition

COVID-19 recovery packages have largely focused on protecting, rather than transforming, existing industries, and have been a "lost opportunity" for speeding up the global energy transition. That is according to analysis by energy consultancy DNV, which also found that the world will fall "a long way short" of hitting net-zero emissions by 2050 if it relies on green electricity alone.

Although electrification is set to double in size within a generation, and renewables are already the most cost-competitive source of new power, the company said that the energy transition is still "definitely not fast enough". It forecasts global emissions to fall by only 9% by 2030, with the 1.5°C carbon budget agreed by global economies emptied by then, and the planet likely to reach global warming of 2.3°C by the end of the century.

Despite the grim outlook, the analysis suggests that the goals of the Paris Agreement can still be delivered, with energy efficiency remaining the biggest opportunity for tackling climate change.

DNV CEO Remi Eriksen said that, although COVID-19 has been a lost opportunity, "it is not the last we have for transitioning faster to a deeply decarbonised energy system. However, I am deeply concerned about what it

will take for governments to apply the resolution and urgency they have shown in the face of the pandemic to our climate. We must now see the same sense of urgency to avoid a climate catastrophe."

The findings show that greater efficiency could see energy demand level off even as the global population and economy grow. Hydrogen is seen as the energy carrier with the highest potential to tackle hard-to-abate emissions, but this is forecast to scale only from the mid-2030s, and to supply just 5% of the energy mix by 2050.

Oil demand looks set to halve, with coal use reduced to a third by mid-century, although fossil fuels are still expected to still constitute 50% of the global energy mix.

The analysis also suggests that, while 69% of grid-connected power will be generated by wind and solar in 2050, and indirect electrification and biofuels remain critical, none of these sources are scaling rapidly enough. DNV said that this makes it all the more important to scale hydrogen, as well as carbon capture and storage.

"Extraordinary action will be needed to bring the hydrogen economy into full force earlier – but these are extraordinary times," Eriksen said. "The window to avoid catastrophic climate change is closing soon, and the costs of not doing so unimaginable."

Read the full analysis at bit.ly/DNV_EnergyTrans





ENERGY

Local authorities could have saved Green Homes Grant

The Green Homes Grant is set to deliver only a fraction of the jobs and improvements intended, leading to calls for more involvement from local authorities in future schemes.

A National Audit Office report states that the axed Green Homes Grant – offering homeowners £5,000 to make efficiency upgrades – was “delivered to an over-ambitious timetable” and “not executed to an acceptable standard”.

The scheme is expected to support efficiency measures in just 47,500 of the 600,000 homes forecast, and create 5,600 jobs over 12 months – short of the intended 82,500 over six months. Many people had a poor experience; delays in issuing vouchers to homeowners and paying installers led to more than 3,000

complaints. The scheme is expected to cost £314m, of which £50.5m will have been spent on administration.

The report recommends that the government engage properly with the supplier market for decarbonisation schemes, and base planning on a realistic assessment of how long it will take the market to mobilise.

Polly Billington, chief executive of the UK100 network of local leaders, said: “This shows the danger of short-term initiatives that don’t work with local authorities and businesses to give confidence and build supply chains. That should be a lesson to policymakers and ministers when they publish the long-awaited Heat and Buildings Strategy.”

DECARBONISATION

Aviation may account for 20% of global emissions by 2050 without action

Without deep decarbonisation efforts, the aviation industry’s contribution to global emissions could grow from around 2% to 20% by 2050, analysis by Boston Consulting Group (BCG) has found. The forecast is based on the decarbonisation rates of other industries, alongside growth in the aviation sector.

“But unlike other industries, there are so few alternatives to air travel that it’s hard to avoid emissions without doing away with the basic product,” BCG said in a report. “Reducing aircraft emissions in any significant way therefore requires decarbonisation.”

Technical and operating efficiencies, emerging technologies, bio-based sustainable fuels and carbon removal technologies are identified as the key solutions. The analysis suggests that 30%-60% of the shortfall between projected emission levels and net zero could be closed via synthetic fuels, electric aviation, and hydrogen fuel cells and combustion.

Efficiencies that reduce average fuel consumption by at least 1.7% annually could meet 30%-40% of the emissions shortfall, while biofuels could close 10%-30% of the gap. However, the report highlights several challenges, such as hydrogen production and storage, current insufficient advances in battery technology for long-haul electric aircraft, and the cost of biofuels.



BUSINESSWATCH



BMW unveils 100% recyclable electric car

German car giant BMW has unveiled a 100%

recyclable, fully electric, zero-emission car prototype based on circular economy principles. The BMW i Vision Circular uses materials that have already completed a product lifecycle, and bio-based raw materials, to show how an all-electric luxury car could look in 2040.

“This vehicle is packed with innovative ideas for combining sustainability with a new, inspirational aesthetic – we call this approach ‘circular design,’” said Adrian van Hooydonk, head of BMW Group Design.

➤ bit.ly/2WUBdFh



Spurs and Sky host #GameZero

Tottenham Hotspur partnered with Sky in September to host the world’s first net-zero carbon elite-level football match, branded #GameZero.

Energy used to power the game, travel from fans and clubs, and dietary choices at the stadium all contributed to reduced emissions at the fixture between Spurs and Chelsea, which was supported by COP26 and the Premier League.

“As the Premier League’s greenest club, our wide range of sustainable measures are encouraging our fans to take simple actions that can make a huge difference,” said Spurs chairman Daniel Levy.

➤ bit.ly/38Kr0gK



Costa Coffee launches vegan Bac'n Bap

Costa Coffee has launched a plant-based bacon-style bap as it aims to offer more sustainable choices. The Bac'n Bap is accompanied by either Heinz tomato ketchup or HP brown sauce – both of which are also vegan – and can be eaten in-store or taken away.

A Costa Coffee spokesperson said: “We always look to challenge our alternative food offerings to provide as much choice for our customers as possible, and this breakfast alternative is very proud to be fake.”

➤ bit.ly/3BNLDFh

SOCIETY

Concern over environment hits 30-year high

The UK public is more concerned about the environment than it has been for the last 30 years. The Ipsos MORI findings show that 32% of adults see the environment and climate change as a big issue, making it the second-biggest concern after COVID-19. The last time concern was greater was in July 1989, when the highest temperature since 1976 was recorded at Heathrow and 35% mentioned the environment as a worry.

Perhaps surprisingly, the poll of 1,000 adults found that older people were more likely to mention the environment as a concern, with 38% of the over-55s saying it is a big issue, compared with 24% of 18-34 year-olds. However, there was little

political split, with supporters of the Conservative and Labour parties – and those who support no party – similarly likely to mention it as a concern, on 30%, 33% and 28%, respectively.

The research was conducted in the week that the latest Intergovernmental Panel on Climate Change report warned that human activity has driven unprecedented changes to the climate, and that global temperatures are set to hit 1.5°C above pre-industrial levels during the next 20 years – a decade earlier than expected.

Public concern about the environment has reached a "historically high level", said Mike Clemence, a researcher at



Ipsos MORI. "But this jump in concern is built on a steady rise in the level of worry on this topic, which has been building since around 2015."

CLIMATE CHANGE

Health journals call for 'emergency action'

In a joint editorial, more than 200 health journals have called on governments to take emergency action to tackle the "catastrophic harm to health" caused by climate change.

The *British Medical Journal* (*BMJ*) and *The Lancet* are among the journals to warn that targets to reduce emissions and conserve biodiversity are "not enough", and need "credible short and longer-term plans".

They urge leaders to transform societies and economies by redesigning transport systems, cities, food systems, financial investment systems and health systems. This will need investment, they say, but benefits will include less air pollution, more physical activity, and better housing and diets. They also argue that wealthier countries must do more to support low and middle-income countries in building cleaner, healthier and more resilient societies.

BMJ editor-in-chief Fiona Godlee said: "Health professionals have been on the front line of the COVID-19 crisis, and are united in warning that going above 1.5°C and allowing the continued destruction of nature will bring the next, far deadlier crisis."



POLICY

Government urged to involve public in climate policy design

The UK's transition to net-zero emissions will only succeed if the government does more to involve the public in designing climate-related policies, the Institute for Government has warned.

In a recent report, the think tank explains that engagement with the public will be critical when shaping policies – such as taxes and subsidies to support the replacement of gas boilers, or encourage changes in diet – as the country undergoes an "economy-wide transformation". Engagement could be carried out via a range of methods, from citizens' assemblies and juries to participatory budgeting and crowdsourcing,

However, the report highlights that there is

limited government capability and expertise on public engagement, and little co-ordination of activities across government, despite the success of the 2020 Climate Assembly UK. It recommends that the Climate Change Committee play a greater role in advising ministers on public engagement, that departments invest in strengthening the public engagement expertise needed, and that the government use its Net Zero Strategy to set out how it intends to use the public to inform policies.

The report adds: "The transition will be successful only if government works with people, rather than imposing solutions from on high."

EVENT

Connect 2021 member conference



We're delighted to announce that this year marks our inaugural IEMA sustainability and environmental professionals' conference, Connect 2021, which will be free and exclusive to IEMA members.

The conference will be hosted virtually and streamed live on 9 December, focusing on a series of key environment and sustainability topics – from climate change, biodiversity and sustainable economies to an in-depth look at, and chance to discuss, COP26. We will also be hosting a series of workshops on the importance of green skills and behavioural changes in organisations.

We have invested in a new software platform that will allow more effective

networking between attendees. Registrants will have access to the attendee website, where they'll be able to watch livestreams or on-demand session videos, join collaborative sessions, visit virtual exhibitor booths, schedule appointments, share feedback, and more.

Ultimately, this will be a more streamlined format – akin to an in-person conference, connecting IEMA members from around the world with one another. We have exciting globally recognised speakers lined up, so keep an eye on our website and member emails for more details, and make sure to register today at iema.net. We look forward to seeing you there.

CONSULTATION

IEMA responds to government plans for increased producer responsibility

In December 2018, the government released its resources and waste strategy for England, announcing its plan to address resource efficiency and the 'market failure' of waste production. As part of this, it set out how it aims to reform the packaging producer responsibility system. Responding to the first consultation in 2019, IEMA welcomed the proposal to extend producer responsibility, cautioning that the scheme's success in helping to maximise resource use and effectiveness would depend on it being designed in accordance with principles such as packaging design and governance arrangements.

The government has now put forward a more detailed consultation that sets out proposals for integrating these principles into the new scheme. IEMA has submitted recommendations, stressing that the minimum recycling targets are not ambitious enough. We have concerns that low and static targets, and a lack of parity between material targets, would create a lack of clarity and comparability, and act as a disincentive. We call for the targets to be higher, to help achieve the net-zero and circular economy targets set by the UK government and devolved administrations.

To find out more about the detailed consultation response, please read the blog post by IEMA policy and engagement lead Marc Jourdan, available at bit.ly/IEMA_ExtendResponsibility

PUBLICATION

Land and Soil in Environmental Impact Assessment

IEMA's Impact Assessment Network has recently been busy finalising a major guidance publication on land and soils in environmental impact assessment.

The aims of *A New Perspective on Land and Soil in Environmental Impact Assessment* are ambitious, necessary and timely. The authors and reviewers have sought to address multiple issues in a complex area of practice, to help practitioners better assess and manage the effects of development on land and soils. The guidance seeks to move practice away from a narrow focus on quantifying and financially compensating impacts on agricultural land, instead advocating a broader approach that involves assessing the natural capital and functional ecosystem services provided by land and soils. The result is a handbook that will be an invaluable resource for environmental impact assessment practitioners seeking to assess and manage the full effects of developments on land and soil.

The guide is scheduled to be published in October 2021.



PUBLICATION

Principles of Cultural Heritage Impact Assessment

July saw the publication of IEMA's *Principles of Cultural Heritage Impact Assessment*, produced in partnership with the Chartered Institute for Archaeologists and the Institute of Historic Building Conservation.

Despite the recent loss of Liverpool's UNESCO World Heritage Site status, the UK is still home to 23 such sites, along with a breathtaking variety of buildings and structures, monuments, parks and gardens, battlefields, townscapes, landscapes, seascapes, archaeological sites, myths, festivals and traditions. Safeguarding these assets through professional impact assessment (IA) is an important aspect of achieving sustainable development. The importance of cultural and natural heritage is explicitly recognised in the UN's Sustainable Development Goal 11 (to 'make cities and human settlements inclusive, safe, resilient and sustainable'): Target 11.4 highlights the need to 'strengthen efforts to protect and safeguard the world's cultural and natural heritage'.

This publication provides a useful set of guiding principles to supplement existing guidance and give a consistent framework for cultural heritage IA in a variety of settings. The application of these principles and good practice will enable practitioners to improve the standard of their assessments, regardless of their specialism within the discipline.

Download the publication at bit.ly/IEMA_HeritageIA

STANDARDS

IEMA input into new biodiversity and natural capital standards

By Tom Pashby, IEMA digital journalist

IEMA has contributed to the creation of two new British Standards on biodiversity and natural capital. IEMA policy and practice lead Nick Blyth and several other IEMA members are on the committees that oversaw the creation of the standards.

Biodiversity net gain (BNG) is set to be a mandatory requirement for new developments in England. *BS 8683 – Process for designing and implementing Biodiversity Net Gain* – builds on IEMA's 2016 BNG principles, produced with the Chartered Institute of Ecology and Environmental Management and the Construction Industry Research and Information Association. Combined with good legislation and practice, the standard can help developments to deliver better outcomes for nature.



Meanwhile, *BS 8632 – Natural Capital Accounting for Organizations* can provide organisations with a deeper understanding of how operations impact and depend on natural capital. The standard is intended to be used by those preparing the accounts.

"IEMA members have a critical role to play in influencing decision-making and helping to build in better outcomes for nature," said Blyth. "These two standards are welcome additions to our toolbox. We look forward also to the forthcoming government consultation on BNG and are continuing to push for legislation that drives positive outcomes for nature."

IEMA has a history of working with the British Standards Institution and the International Organisation for Standardization, helping embed environmental practice into decision-making.

STANDARDS

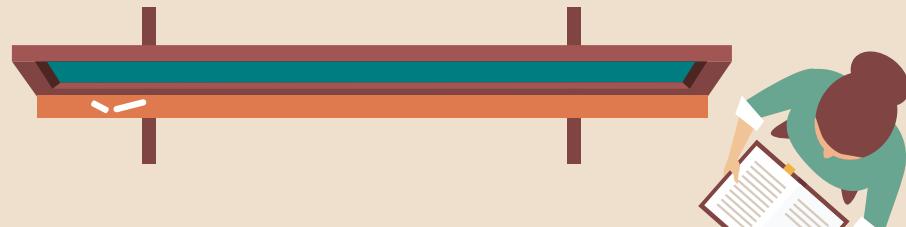
IEMA provides input on draft ISO sustainable finance standard

In February 2019, the International Organization for Standardization (ISO) Technical Committee (TC) 322 on Sustainable Finance was formed. *ISO 32210 Framework for sustainable finance* aims to encourage innovative sustainable financial products and initiatives while providing guidance on sustainability principles, practices and terminology. Through its liaison status to TC322, IEMA continues to engage in the review of this standard. To help inform IEMA comments on its second committee draft, IEMA policy and engagement lead Marc Jourdan led a workshop in June with senior members of the IEMA Global Environmental and Social Assessment Group, the IEMA Fellows Working Group on Sustainable Finance, and other members with relevant expertise.

Member insights on the latest draft included the need for wider definitions of 'sustainability', along with the need to go beyond environmental considerations and include definitions of social issues such as modern slavery. IEMA also highlighted that the principles laid out in the standard need to more succinctly identify how finance can achieve sustainability goals and objectives.

The draft of the standard will be made available to download at its public consultation phase. In the meantime, IEMA will continue to engage with TC322 during its development. Should members with expertise in this area wish to further engage in the review, please email m.jourdan@iema.net





School ties

Abigail Simmons reflects on IEMA's recent school outreach project, and the impact it had on participating students

After joining IEMA in February, one of the first organisations I met with was 'Speakers for Schools', a charity set up by the journalist Robert Peston to give opportunities to students at state schools. IEMA had agreed to host 30 students for a week of virtual work experience, and one of my first tasks was to lead the project.

Fortunately, I had some experience in this area: I'd spent a few years at the BBC on secondment to its outreach programme *BBC School Report*, where journalists and producers mentored students, visited schools, and helped

students produce their own news pieces and make content for BBC platforms.

Securing engagement

I knew my first challenge would be engaging the students, many of whom had experienced a desperate year of coronavirus lockdowns. Memories of a talk I'd given to Year 11 (GCSE-age) students at a school in Hertfordshire came flooding back: heads down, no interaction, no eye contact and no acknowledgement that any of them even watched or listened to the BBC! It was one of the most challenging talks I'd ever given, but I had a secret weapon: a camerawoman with her kit, a flak jacket

and the task of going out and interviewing pupils. The ice melted, the students finally engaged and we came back with some brilliant interviews.

With two children of my own, both of whom had had either no schooling or just online school for six months, I knew that the virtual work experience would need to be engaging. What would we do to encourage the students, and how could we keep them coming back and interacting with each other – especially as they were from all over the country?

Building the programme

IEMA corporate partnership manager Alan Darby stepped up to secure input



from Lego and Siemens Energy for our virtual work week, and my programme timetable began to take shape. We quickly established that Lego would run an interactive session with the students on the circular economy, sustainability and sending messages to the leaders at COP (using virtual Lego, which was great!), while Siemens Energy was devising its own work experience programme and generously agreed to showcase its resources on hydrogen and carbon footprints to the students. The Speakers for Schools team showed us its Google Classroom platform, which is specifically set up to ensure the safeguarding of students, and there were a variety of tools we could use, including Jamboards (collaboration whiteboards), polls, and Q&A and chat functions.

Along with input from IEMA staff, IEMA Graduate member Mohammed Mohammoud and journalist Madeleine Cuff from *The i*, we delivered a varied programme that allowed students of differing capabilities and stages to experience 'virtual working life' at IEMA. I couldn't have run the week without IEMA's digital communications officer Tim Farmer, who hosted the Google Classroom, uploaded the work, polls, Jamboards and worksheets, and made sure everything ran smoothly – even when we went off-script.

A real impact

What struck me most was the fact that, while the students were interested in finding out more about opportunities in the environmental and sustainability professions, there seemed to be a real lack of advice or direction available for them. It was brilliant to be able to offer professional insights from our CEO Sarah Mukherjee and deputy CEO Martin Baxter, as well as our corporate partners, student members, policy team, membership team and marketing team.

We had glowing feedback from the students after the virtual work week, with some saying they had "found their people" or were going to investigate the career opportunities we had talked about, having never considered the area before and having had access to household names such as Lego and Siemens Energy. One student revealed that they normally struggled to concentrate because they had ADHD and often got bored, but had "really enjoyed the week and got lots out of it" – high praise indeed.

I strongly recommend that anyone who is considering outreach in this area considers a Speakers for Schools programme, or join us for next year's IEMA 2022 cohort. ↗

ABIGAIL SIMMONS is head of media at IEMA.

"Students told us they had 'found their people' or were going to investigate career opportunities"



INSPIRING AND GUIDING STUDENTS

Louise Smith

Head of sustainability, Lego

At the Lego Group, we're playing our part in building a sustainable future and creating a better world for our children to inherit. We were excited to join IEMA in inspiring, and being inspired by, young people on sustainability. A collaborative group of our social and environmental team led the session and supported the group in designing a regeneration plan for a space using circular economy principles, which allow businesses, people and nature to flourish together. We were impressed by the creativity and passion of the group, and very much enjoyed working together to support this project!

Sarah Handley, FIEMA CEnv

Head of sustainability, Siemens Energy

The COVID-19 pandemic forced us to change the normal work experience activities we offer to students. A shift to a virtual work experience platform broadened our geographical outreach, enabling a much more inclusive approach. At Siemens Energy we have developed a portfolio of interactive virtual work experience modules, which aim to inspire students with the career opportunities to support decarbonisation solutions. As a corporate partner of IEMA we were delighted to share these free resources with students to help inspire the next generation to pursue a career in environment and sustainability.

Mohammed Mohammoud, GradIEMA

Intern at Fast Futures

When the opportunity presented itself to share how I got to where I am now, I couldn't have said 'yes' any faster.

People don't fulfil their potential for many reasons, but there were two I wanted to focus on when talking to the students: being unable to find your passion and strengths, and lacking the self-belief to push your limits.

My journey was filled with disappointments, but they all served as stepping stones for me to get to where I am now. So, no matter what your path is, be patient with yourself and don't stop believing – and you, too, can find your calling.



CASE LAW

Application to quash Defra policy document dismissed

An application for judicial review was dismissed in the case of *R. (on the application of Langton) v Secretary of State for Environment, Food and Rural Affairs*. The case considered whether the Secretary of State had been required to have regard "to the purpose of conserving biodiversity" under the Natural Environment and Rural Communities Act 2006 before publishing the policy document *Next steps for the strategy for achieving Bovine Tuberculosis Free Status for England: 2018 review – government response*.

The claimant was seeking an order quashing the policy document and further relief to stop badger culling, pending review of the policy. The document stated that intensive culling would start to be phased out, but would remain an option where epidemiological assessment indicated that it was needed. No mention of biodiversity was made.

The claimant highlighted that the Godfray Review of



IN COURT

Agency prosecution brings largest fine for a water company

The Environment Agency has successfully prosecuted Southern Water for thousands of illegal raw sewage discharges that polluted rivers and coastal waters in Kent, resulting in a record £90m fine.

To date, it is the largest fine the Agency has imposed on a water company for an environmental breach, and follows 51 guilty pleas to widespread and long-term breaches of environmental law from 2010-15.

The investigation found that the environmental damage was caused by deliberate failings that brought about major harm (Category 1) to protected areas, conservation sites and oyster bays. It was the largest ever criminal investigation carried out by the Agency, and saw offences from 16 wastewater treatment works and one stormwater overflow brought together in one prosecution at Canterbury Crown Court. The company admitted to 6,971 illegal spills of raw sewage that lasted 61,704 hours and contaminated seas and rivers in the south of England.

The court was told that Southern Water was deliberately misleading regulators in relation to compliance, which hindered proper regulation and disallowed early actions on pollution incidents, leading to greater environmental harm.

The judge initially fined Southern Water £135m, but this was reduced to £90m because of its early guilty plea. In 2019, Ofwat also handed Southern Water a £126m fine for regulatory failings over the same period, which included manipulating the wastewater sampling process, failing to monitor treatment works properly, lack of investment, and misreporting performance – which, as the investigation found, directly led to environmental failings.

The Honourable Mr Justice Johnson said: "Each of the 51 offences seen in isolation shows a shocking and wholesale disregard for the environment, [...] for human health, and for the fisheries and other legitimate businesses that depend on the vitality of the coastal waters."

"Each offence does not stand in isolation. It is necessary to sentence the company for the totality of the offences to which it has pleaded guilty. But even that does not reflect the defendant's criminality. That is because the offences are aggravated by its previous persistent pollution of the environment over very many years."

Environment Agency chair Emma Howard Boyd said: "This sentence shows fines for environmental offences are starting to reach the same level as the highest fines for crimes in financial services and that is good."

NEWREGULATIONS

THE LATEST ■ LEGISLATION ■ GUIDANCE ■ CONSULTATION

the government's Bovine TB Strategy stated: "reducing badger numbers will have consequences for other species in the local area". The judge felt that, even if that was the case, the Godfray Review did not suggest that any options for future control of bovine TB should be avoided because of the possibility of damage to biodiversity.

Section 40 of the Natural Environment and Rural Communities Act 2006 outlines that "the public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". The judge ruled that the document did not engage the defendant's duty under the act, because the duty had been discharged previously, when the implications of the statutory purpose of conserving biodiversity had been expressly examined; and the document did not affect any change as far as badger culling was concerned, except to suggest that it should be ended in the foreseeable future.

The judge argued that if the duty was engaged, then the Secretary of State had failed to discharge it, and it would be reasonable to assume that, had he had regard to the purpose of conserving biodiversity, he would have provided evidence of that. With or without consideration of the section 40 duty, the judge felt it "highly likely that the outcome would not have been substantially different", so relief would have been refused under the Senior Courts Act 1981.

The application to quash the policy failed and the case was dismissed.



LEGISLATION

REACH candidates list

The European Chemicals Agency has added eight new substances of very high concern to the EU REACH Regulation Candidate List. Companies that manufacture or import products in the EU must make sure none of their mixtures, articles or substances contain items included on the list.

cedr.ec/7uf



LEGISLATION

International waste shipments

The International Waste Shipments (Amendment of Regulation (EC) No 1013/2006 and 1418/2007) Regulations 2021 amend retained legislation on the export for recovery of certain waste, in order to set export control procedures for a new category of sorted, non-hazardous plastic waste, B3011. References to plastic waste class B3010, no longer used in the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, have been removed.

cedr.ec/7uj



LEGISLATION

Low-risk waste

The Environment Agency has set out a series of new low-risk waste positions for waste operations it considers suitable for exemption, relating to furniture and household items. If you meet all conditions,

you can carry out the activity in question without a permit.

cedr.ec/7uk



LEGISLATION

UK Emissions Trading

The Greenhouse Gas Emissions Trading Scheme Auctioning (Amendment) (No. 2) Regulations 2021 make several amendments to the mechanism that provides for the auctioning of allowances used in the UK Emissions Trading Scheme established by the Greenhouse Gas Emissions Trading Scheme Order 2020.

cedr.ec/7ui



GUIDANCE

Wood waste guidance

Industry guidance on how to handle and process wood waste has been published. The guidance should be used to help operators follow procedures set out in two new Regulatory Position Statements, and will help waste producers and operators follow procedures to ensure waste wood ends up in the right end market.

cedr.ec/7ul



CONSULTATION

Hydrogen Strategy

The UK government has published its plan for a hydrogen economy, setting out its approach for developing a low-carbon hydrogen sector to meet its ambition to achieve 5GW of low-carbon hydrogen production

capacity by 2030. The strategy outlines how the UK will scale up production and lay the foundations for a low-carbon hydrogen economy by 2030, as well as supporting innovation and stimulating investment.

cedr.ec/7ug



CONSULTATION

Jet zero

The Department for Transport is proposing policies to support the aviation industry in reducing and eliminating carbon emissions. The proposed policies cover aviation system efficiency, development and deployment of sustainable aviation fuels, development of zero-emission flight, using markets to drive down emissions in a cost-effective way, and influencing consumer behaviour.

cedr.ec/7uh



CONSULTATION

Energy Savings Opportunity Scheme

The government has consulted on its proposal to improve the Energy Savings Opportunity Scheme and increase participating businesses' uptake of energy efficiency measures. Views were sought on improving audits through standardisation of reporting requirements, the inclusion of a net-zero element, and requiring public disclosure of high-level recommendations by participants. There are proposals to extend the scope to include medium-sized businesses, and to mandate action on recommendations.

cedr.ec/7um

A refugee who fled South African apartheid and rose to become the UK's chief scientific adviser, Sir David King's ascent has been marked by decades of warning against the political and economic choices that have led to the climate crisis.

The Intergovernmental Panel on Climate Change (IPCC) confirmed earlier this year that human activity's impact on the climate is "unequivocal", setting in motion "unprecedented" damage that may be "irreversible" for thousands of years. Despite this "code red for humanity", scientists say a total catastrophe can be avoided if the world acts fast to deliver the emissions cuts required to stabilise rising temperatures.

In his latest role as chair of the recently formed Climate Crisis Advisory Group (CCAG), King hopes to guide the public, governments and financial institutions through the steps needed to protect and repair the planet.

The awakening

King worked with the African National Congress in the early 1960s, during apartheid in South Africa. "Mandela was leading the movement, but he had gone underground, and I was writing open letters to newspapers setting out the reasons why this system could not

"I'm not saying it's the end of humanity, but it's certainly the end of humanity as we know it"

continue," he says. "My upbringing exposed me to massive disparities in wellbeing – if you were black, you were unable to rise in society at all. It was a big political awakening for me."

After obtaining his PhD from the University of the Witwatersrand, Johannesburg, in 1963, he was kicked out of South Africa for his affiliation with the anti-apartheid movement. "I arrived in Britain as a refugee, but I was happily employed at Imperial College London as a postdoctoral fellow with funding from Shell, which set my scientific career off."

His interest in climate change came after he was made head of physical chemistry at Cambridge University in 1988. The university had undertaken groundbreaking research into the depletion of the ozone layer – research that played a key role in the creation of the 1987 Montreal Protocol. "I had admiration for the work, and for the

science behind changing atmospheric conditions due to increased emissions of carbon dioxide (CO₂). That was my introduction to climate change."

In 2000, King was headhunted for the position of chief scientific adviser to then prime minister Tony Blair, and stayed on in the role during Gordon Brown's premiership. "We started what I call real action on climate change," he says. "We appointed 165 climate experts to our embassies around the world, and got all our ambassadors to understand that this issue was absolutely critical going forward."

King would go on to lead international climate negotiations for the Foreign Office under David Cameron, who, to his surprise, gave the negotiators a budget of £4.5bn over 10 years – an amount that was increased to £9bn in 2015. "We were playing the leadership role globally."

The state of play

Despite these efforts, the IPCC confirmed in August what scientists had feared all along: that climate change tipping points are being reached, and that the damage may be irreversible. Some believe this could lead people to feel disengaged from the issue, and to believe that total catastrophe is now inevitable. For King, this is only a minor concern.

A final warning

The UK government's former chief scientific adviser **Sir David King** talks to Chris Seekings about his career, the latest IPCC report, COVID-19 and COP26





"The main message is that, unless we make the transitions necessary, we are going to lose what we understand by our civilisation over the coming decades," he says. "If sea levels continue to rise, the map of the world will be dramatically changed, because 80% of our cities sit on coastlines – so we're going to see a massive transformation. I'm not saying it's the end of humanity, but it's certainly the end of humanity as we know it."

The signs are already here, with severe heatwaves, storms, fires, droughts and floods no longer unusual across the entire Northern Hemisphere – and the situation could get much worse. "We have just experienced a period of methane explosions in the Northern Arctic region that could lead to a rapid rise in global temperatures, because methane is a much more serious greenhouse gas per molecule than CO₂," King explains. "The severity of the storms we've seen in Europe this year is surely a wake-up call to all of us. There are actions we can take, and the very last thing we should do is give up. I don't believe that is an option at all."

King is also keen to point out that the IPCC's latest findings are expressed in a cautionary way, because they have had to be approved by 195 nations; he believes sea levels could rise by many metres, rather than just centimetres. "At the CCAG, we are much more expressive and clearer about what we think the future looks like, and what actions need to be taken."

Climate repair

CCAG is a group of world-renowned climate experts, launched by King in June to provide governments, financial institutions and the public with the most comprehensive climate science and solutions to the crisis. It recently published a report warning that net-zero emissions by 2050 is now "too little, too late", and that net-negative strategies are the "only viable option". This will involve rapid emissions reductions, the removal of carbon from the atmosphere and, perhaps most importantly, climate repair.

"We need to remove greenhouse gases at scale – there is too much up there, and the danger is that tipping points could set off

"The very last thing we should do is give up. I don't believe that is an option at all"



others," says King. "However, by repairing broken climate systems, we may be able to buy some time and avoid some tipping points."

One of CCAG's most eye-catching proposed climate repair solutions would involve refreezing the Arctic through marine cloud brightening. In a nutshell, this would involve imitating a natural process wherein sea salt is collected in clouds, creating a white cover that reflects sunlight back away from Earth.

"What is happening in the Arctic Circle region is the origin of many, if not all, extreme weather events," King says.

"We may have to learn how to recreate ice cover over the Arctic Ocean during the Arctic summer. We're using a natural process, but if there was a negative feedback, we could always stop it. It's not as if the cloud brightening is going to continue if we stop putting these salt particles up in the atmosphere."

Although King believes that carbon removal will be a critical solution to the climate crisis, he is "very worried" about many of the offset programmes used by large companies in their net-zero strategies.

"You could fly

to Australia and offset your journey by paying no more than 10%, which is ridiculous in terms of the amount of CO₂ you are emitting," he says. "You'd have to probably pay three or four times that ticket price to cover the emissions. I'm afraid



offsetting is a very, very misleading part of the whole process."

He would also like to see a new approach to cap-and-trade schemes for emissions. "There is a much smarter way to do this, which is to deal with the mining of coal, oil and gas and to place a carbon price on that," he explains. "Fossil fuel companies would then face a heavy carbon price on mining, which should be a progressively-increasing price, and eventually be so high that it brings an end to the practice."

The CCAG was inspired by the Independent SAGE group, founded by King to provide scientific advice to the UK government and public at the height of the COVID-19 pandemic.

During his time as the country's chief scientific adviser, he ran a foresight programme looking at the potential for zoonotic infectious diseases, believing that a new virus transitioning from animals to humans was most likely to occur in China or Africa. The spread of COVID-19 is believed to have begun in a Wuhan wet market.

"It's not as if this was a surprise," King says. "It was certainly not a surprise to



see the Chinese government respond exactly as we outlined they should, which was to isolate parts of the country from those that had been in contact with the disease. The UK government did virtually nothing until 23 March 2020, and I don't think we know what scientific advice was going in at that point in time."

He believes we are going to have to live with booster jabs, and potentially further lockdowns, for the foreseeable future, and that the government should have been more transparent with the advice it was receiving at the start of the pandemic. "Tony Blair and Gordon Brown fully understood that if I gave them advice on actions, they would, within a month, have to put that advice into the public domain."

Time for leadership

Although King speaks fondly of the leadership he encountered working in government, he says the UK's efforts were never going to be enough to combat the global challenge of climate change: larger countries such as the US must take a more prominent



role, and this may require radical political change.

"The strength of the lobby system in the US political system is simply amazing. It's undemocratic and, quite frankly, the fossil fuel companies – led by the coal industry in particular – have been feeding the propaganda against climate change, and they've been doing it very effectively, with billions of dollars," he says. "Biden is showing us a way forward, and I know John Kerry well and admire his position on climate change, but they are still constrained by their Senate and Congress. They've got a tiny majority, and because some Democrats are likely to vote against real

climate action, I'm not sure that leadership is there in place yet."

He draws comparisons with China. "Even though its emissions are rising due to its growing economy, its use of fossil fuels as a percentage of total electricity production has dropped from 75% just 15 years ago to around 56% today. The US can't claim anything like the effort that China has put in."

Despite the UK's small size, King is keen for it to reaffirm its leadership role at COP26 in November. However, he is concerned for the scale of the challenge that COP26 president Alok Sharma is facing in the lead-up to the climate summit.

"I am in close contact with Alok, whom I got to know at the Foreign Office when he was a junior minister there, and he is very committed to real action on climate change.

"But I made 96 official country visits in the run-up to COP21 in Paris, as all the hard work had to be in advance so I

knew the nature of the agreement that would be reached. That is what Alok is trying to do now, and it's very challenging for him as he is not an internationally known figure. It is quite possible that Boris Johnson will step in on the last day and take over the presidency."

If this were to transpire, Sir David hopes that the summit does not end in empty promises. "The prime minister has stated that we will reduce our emissions by 78% by 2035, a wonderful statement to make on the international stage, but we need a much clearer idea on how we get there." He adds: "I believe the right words will be said, and it's crucial the right actions follow."

Devolving power from central government to local authorities will be critical for the UK as it looks to deliver on its environmental targets. **Chris Seekings** reports

The power struggle

A stylized illustration showing a small, dark blue silhouette of a person pulling on a large, red, three-dimensional fist. The fist is clenched and positioned diagonally across the frame. The background is a light blue gradient.

From decarbonising transport to retrofitting homes, local authorities are on the frontline of tackling climate change as the UK aims to achieve net-zero emissions by 2050. They possess an intimate understanding of the specific challenges facing their areas, as well as the jobs, training and infrastructure that will be required at a local level.

"Fundamentally, the transition to net zero is a place-based transition," says Rupert George, director of communications and campaigns at the UK100 network of local leaders. "A huge amount of what needs to take place needs to happen in people's homes, on the roads, and in other areas where local authorities have some agency, so they have a critical role to play in what is going to be a massive transition."

Indeed, the National Audit Office, which scrutinises public spending for parliament, said last December that the most efficient and cost-effective way to meet the UK's climate change targets would be to give local governments a bigger role. However, despite being uniquely placed to develop tailored strategies and policies, local leaders remain frustrated by central government as it continues to hoard power.

"What we need is long-term sustained funding – not money that needs to be spent by next year"



Fundamentally flawed

Some are concerned that the UK will miss its environmental targets unless government develops a credible delivery framework. "The government has a number of levers under its control, but when it comes to implementing them, it really isn't in a position to change anything," says Richard Clewer, leader of Wiltshire Council. "Its job is to legislate, so it's reliant on industries like the

IMAGES: ISTOCK / SHUTTERSTOCK

energy generation sector, or local governments, to deliver that legislation on the ground."

National environmental policies can be largely irrelevant for areas such as his, he adds. "A lot of government policy is geared around solutions for urban areas, particularly transport. Buses and public transport are great, but 50% of people in Wiltshire live in rural areas where bus services on main routes are at best occasional, and there is no commercial way for them to work."

Equally, when Wiltshire Council was given government money to spend on cycling schemes, the public was up in arms, arguing that it could have been spent better elsewhere and that the schemes were only beneficial for a small number of people. "The government likes simple, single policies, but when you translate that into local authorities, you end up with complexity based on the nature of the authorities – and that happens in urban areas as well."

The recently-axed Green Homes Grant – which offered homeowners £5,000 to install insulation or double glazing – is another example of how environmental policies can be flawed in their delivery. "It was well intentioned, but the delivery mechanism and administration just didn't work because it was organised by central government," Clewer says.

"Retrofitting of housing is complex. Skills need to be built up on the ground in each area through local government and further education providers, and you also need to let people know about trusted traders to kickstart the scheme and get them to understand what they can do to their properties. Central government just isn't in a position to do that."

Relinquishing power

Councils in both rural and urban areas are struggling to make the changes needed. "We understand our home in a way that someone whose only knowledge of our city comes from looking at stats on a screen never will," explains Helen Hayden, executive member for infrastructure and climate at Leeds City



Council. "That's why we've lobbied for additional devolved powers so we can make some of the changes that people have been desperate to see for years."

UK100 published a report earlier this year outlining the powers that councils need to deliver on their net-zero targets. They include powers to set local standards on energy and carbon dioxide emissions, to refuse consent for fossil fuel extraction, to charge for residual waste, and to require developers to submit carbon data from buildings, among other things. "There are a huge number of powers that local authorities find are barriers to net zero," George says. "That includes everything from not being able to stop the building of new homes that will need to be retrofitted, to limitations on how they feed sustainable energy into the grid."

The Future Homes Standard will ensure all new homes produce 75%-80% less carbon emissions than current regulations require, but it does not come into force until 2025, and local leaders know action must go further and faster. "I would love all of our new housing to be zero-carbon, but government policy says that building regulation must set the standards, so there are areas where we are waiting for government to catch up," Clewer explains.

UK100 has called for the government to engage with local authorities to ensure that a 'Net Zero Delivery Framework' is included in its upcoming Net Zero Strategy, and that the UK Infrastructure Bank has a net-zero mandate.

Fighting for funding

In 2018/19, local authorities in England received 31% of their funding from government grants, 52% from council tax and 17% from retained business rates. However, central government grants were cut by 38% in real terms between 2009/10 and 2018/19, reducing overall spending power by around 18%. The situation has been made worse by rising inflation during the COVID-19 pandemic – and local authorities were already

Policy

struggling to deliver key services. "We have been under the cosh for more than 10 years," says Sally Longford, deputy leader of Nottingham City Council. "We face huge funding challenges because of grant cuts, which does not help long-term planning for environmental improvements. The situation is not sustainable, as a greater and greater proportion of our funding has to be channelled into safeguarding children and adult social care."

Local authorities are waiting for the outcome of the government's Fair Funding Review, delayed due to the pandemic. Many hope it will spell the end of the Revenue Support Grant (RSG) – responsible for a large chunk of council funding, but seen as outdated.

"The current funding formula means that local authorities like Leeds can receive additional RSG funding if we build more roads – likely increasing the number of car journeys – but would not receive additional funding for schemes that help incentivise walking, cycling and public transport," explains Hayden. "It is determined using a nearly decade-old formula that should be reviewed to ensure it is aligned with the UK's net-zero strategies and legally binding carbon reduction targets."

Although councils are in urgent need of adequate funding now, they also need reassurance that money will be available in the coming decades as they look to decarbonise. "What we desperately need from government is long-term sustained funding – not money that needs to be spent by next year, but money to be spent over the next 15 years to provide the subsidies for adapting housing, for example," Clewer says. "There are areas of the housing sector that are going to find it very hard to switch to zero carbon, particularly when you are looking at the 'fabric first' approach. Colleges and companies need to know there is a constant stream of work coming, so apprentices can be trained up to deliver."

Leading the charge

Despite the challenges facing councils, they are still managing to implement a



range of successful environmental initiatives – even during COVID-19.

Traffic calming and road closure schemes are in place across Nottingham to encourage more walking and cycling, 130 public EV charging points have been installed, and 30% of the council's fleet are now ultra-low EVs. Nottingham City Council, meanwhile, has bought two of the world's first original equipment manufacturer fully electric refuse collection vehicles to support its aim of being carbon neutral by 2028.

"The pandemic has seen communities work and develop closer together and appreciate the environment and the people close to them," says Longford. "We have seen huge increases in the use of our green spaces, and more volunteering, cycling and walking, and this has led to a wide support for our ambition to make the city carbon neutral 22 years ahead of the government's UK target."

Leeds City Council has delivered a £40m district heating network that

provides affordable, waste-powered heat and hot water to nearly 2,000 properties, enabling the development of a low-carbon city centre for decades to come. Retrofitting of housing is also set to reduce the city's carbon footprint by 5,000 tonnes and support more than 1,800 jobs. "In every region, local authorities have made serious commitments to net zero and signified intent to go even further," says Hayden. "Responding to the pandemic has proved the vital importance of local and national governments working together, and highlighted how complex challenges cannot be effectively solved with a 'one-size-fits-all' approach."

Wiltshire Council has cut emissions by 80% during the past four years and is on track to reach carbon neutrality by 2030. However, Clewer says he "cannot map a route under the current policy frameworks" for decarbonising the whole county in that time. "We will not hit zero carbon in the UK without every council, and we won't do that without government coming up with policies that work for rural areas." He believes devolution could ease the political unrest seen in recent years. "The more people can trust local elected authorities to come up with solutions that work for them, the more involved they'll feel. People love complaining about their councils, but for the most part they do trust them. That can't be said for central government."

The COVID-19 pandemic has showed local authorities' capacity to deliver in difficult circumstances, with many setting up testing stations and vaccination centres almost overnight. It is now time for central government to place more trust in councils as they tackle another emergency. "Local authorities are uniquely positioned at the heart of the community, and have the power to influence awareness and involvement from their residents, businesses and visitors, and develop on-the-ground actions to make a real and lasting difference," says Longford. "They have the pulse of their communities in a way that the national government does not." ①

Further adventures

Given the proper investment and resources, the UK's further education system can play a significant role in improving sustainability, argues **Charlotte Bonner**

The Education and Training Foundation recently surveyed more than 800 teachers, trainers and leaders from the further education (FE) sector about their experiences of Education for Sustainable Development (ESD). Our findings (bit.ly/FE_SustDevelop) starkly highlighted what the sector needs in order to progress in this area, and provided insights that could help many to plan their own ESD approaches.

The FE sector's influence

Each year, the FE and training sector provides vocational, technical, academic and recreational courses to millions of learners from all walks of life. Some learn with a college, others an independent training organisation, a local

authority adult and community learning service or another provider type.

FE is well placed to help bring about the transition and transformation our society needs: its 100,000-plus staff work in every town and city in the UK. Within these communities, FE has a critical role to play in improving the appeal, accessibility and relevance of careers in the climate change and sustainability field.

FE helps provide the workforce for many of the industries, employers and sectors that will play a critical role in the achievement of sustainable development, such as construction, manufacture, agriculture, catering and motoring. And we're not just talking about young learners: reskilling and upskilling the existing workforce will be required if we're to meet our national and global sustainability goals, and the FE sector is well placed to assist.

Large-scale systemic changes will be needed to combat the climate crisis, and individual engagement with the climate change agenda is going to make those systemic changes more likely. The vast FE sector could enable greater reach and buy-in to pro-sustainable behaviour change, community action and consumer choice.

Improving ESD provision

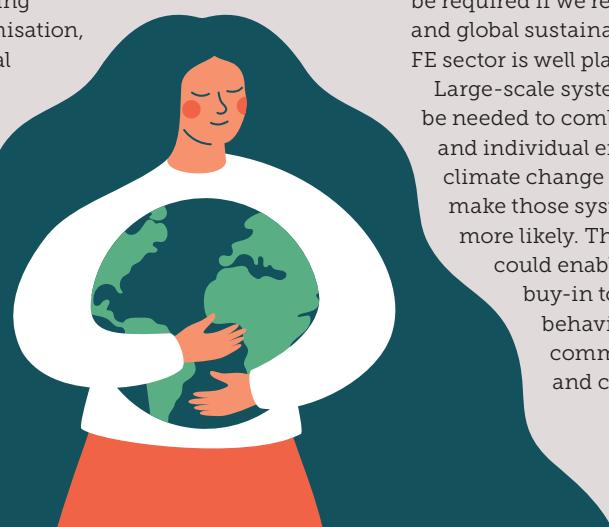
The FE and training sector certainly doesn't lack ambition. Most respondents (85%) agreed that it has a valuable role to play in the achievement of sustainability goals, and nearly all (94%) believed all UK learners should be taught about sustainability issues. As with many sectors, there's lots to celebrate, and I could list multiple examples of good practice from practitioners, providers and leaders across the sector.

However, we also found that more than 70% of survey participants felt there should be more teaching about a range of subjects relating to ESD, while 68% felt the system does not adequately educate learners on sustainability issues. Our results also highlighted the significant investment, training and resources needed for FE to realise its potential in this area: 74% of teaching staff felt they hadn't had adequate training to embed sustainability in their work, while only 35% felt that the curriculum they teach supported ESD delivery, and 24% didn't know what their organisation's approach to sustainability was.

The way forward is clear. We need top-down changes in educators' continuing professional development, initial teacher education, funding, regulation and curriculum standards, alongside middle-out changes wherein FE and training providers develop organisational and regional sustainability practice. Bottom-up enthusiasm is already there: our research shows that the FE workforce is eager to embrace ESD, and there is significant demand from learners, too.

IEMA members can also contribute. Join an apprenticeship standard trailblazer group to ensure those training to be part of your sector develop sustainability attributes as part of their learning; provide industrial placements for FE educators so they retain up-to-date knowledge; and invite FE providers into your local sustainability networks. 

CHARLOTTE BONNER is national head of ESD at the Education and Training Foundation.



A PARALLEL PANDEMIC

David Burrows
reports on the
rising tide of
cybercrime, and
explains why an
increased focus on
business's social
role could help
solve the problem

Start looking at the statistics around cybersecurity and it's hard not to be anxious the next time you switch on your laptop. Four in 10 businesses (39%) and a quarter of charities (26%) have reported breaches or attacks during the past 12 months, according to the UK government's 2021 survey on the topic. Of those, one in five lost money, data or other assets.

The attacks are not just consistently high – they are also constant: 49% of businesses are attacked once a month or more, while for 27% it's once a week. And the pandemic has only made things worse: COVID-19 has sparked a "massive drive" in attacks, according to Lynsay Shepherd from Abertay University in Dundee.

A paper co-authored by Shepherd and published in March edition of the journal *Computers and Society* showed how cybercriminals very quickly used the pandemic to their advantage. They seized on government announcements to "carefully craft and execute cyber-crime campaigns", the experts wrote. With people communicating online more than ever – not to mention being forced to work from dining tables, rather than their office desks – the increasing threat surprised few of those involved in cybersecurity.

Indeed, PwC has started referring to a 'cyber pandemic'. Its 2021 global CEO survey placed cyberthreats second on the list of threats that leaders are most worried about (with pandemics and health crises coming out on top). Some

47% said they were 'extremely concerned', compared to 33% in the 2020 survey. Hardly a week goes by without another headline attack.

A hideous crime

Terry A'Hearn is one of those to have found themselves at the centre of this storm. On Christmas Eve 2020, just as he was "winding down", the chief executive of the Scottish Environment Protection Agency (SEPA) received an unwelcome gift – a call to say that there had been an attack. At the time, he admitted he didn't really know what this meant. Around 4,000 files were stolen and access to almost all SEPA's data and systems was lost – including everything from flood alerts to emails. A ransom demand was, however, rebuffed. "If we had paid, then we would have increased the risk for everyone else," A'Hearn told the BBC in June.

The data and systems are still there, reportedly, but how much was backed up isn't yet clear. A'Hearn told me earlier this year that experts were trying to retrieve as much as possible, but at that stage he couldn't say whether they would restore some, most or all of it. An update is due any time now. SEPA has, to its credit, been as transparent as possible (a live criminal investigation is ongoing at the time of writing), with A'Hearn eager for others to learn from the agency's experience. "Unfortunately, it's a hideous crime that is becoming more and more common," he says.

Stay vigilant

Are businesses prepared for the onslaught from increasingly sophisticated attackers? Not nearly enough, according to cybersecurity experts. "Unless the roof is burning, they never do much," says Hani Banayoti, founding director of CyberSolace, which provides cybersecurity advisory services. The approach is generally "very

"At home, traditional security signals such as entry passes and formal work settings disappear"

reactive", he says. Writing for Reuters last year, he explained that remote working had exposed a "softer underbelly" in security defences.

Indeed, the comfortable and familiar environment of the home office may lead to complacency. Mark Brown is founder of Psybersafe, which uses psychology and behaviour science to train people in cybersecurity. "At home, traditional security signals such as entry passes and formal work settings disappear," he explains. "Behaviour is less monitored, and we miss the social norm signals we get in the office, like shredding paper or locking a laptop when you walk away."

It only takes one wrong click for malware or ransomware to get onto a device or into a network. You can picture the scene: a parent who is working from home, juggling deadlines with their children's teatime, receives an email that appears to be from the managing director – but is, in fact, from a hacker. And these days it's harder than ever to separate the bogus from the bona fide.

These are not the emails of 10 or 15 years ago – the ones from Nigeria telling you that you've received a windfall from a relative you've never heard of. Consider this one received by a British art collector, detailed in the *Financial Times*: "Simon! I'm so thrilled we've agreed a deal for such an iconic work of art. New banks details attached, just to be on the safe side. My regards to Amanda – and hope the kids' colds clear up!"

One of the consistent lessons across the government's series of cybersecurity surveys has been the importance of staff vigilance: most breaches and attacks identified come via staff members' user accounts. Some 83% of attacks on businesses were phishing attacks, for example. However, it's often only those

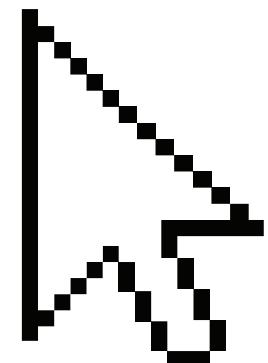
who are caught out who learn their lesson, according to Banayoti. "And even for those, the memory can fade very quickly," he adds.

Regulation and trust

There is hope. Interest in businesses' role in society has swelled on the back of the pandemic, and according to RBC Global Asset Management's 2020 Responsible Investment Survey, 25% of institutional investors in Europe see cybersecurity, which falls under the 'S' of environmental, social and governance (ESG), as a "make or break" investment decision. This is higher than anywhere else in the world. "Ultimately, companies are social actors," says Brown at Psybersafe. "They play an important role in society, and society is increasingly pushing them to focus on ESG and corporate social responsibility."

Trust in companies' ability to protect data and combat attacks is not high, though. Some 28% of the 5,000 consumers quizzed in a global survey by PwC last year said their trust in the technology used by companies has been falling, and 60% expect them to suffer a data breach. That's likely because 34% say that one or more companies holding their data have already suffered a breach.

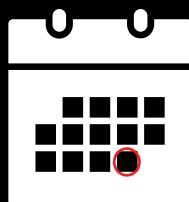
Regulation, including GDPR, is offering better protection, but experts suggest there is some way to go – and all the while, hackers advance. Renewable energy providers are currently seen as a juicy target.





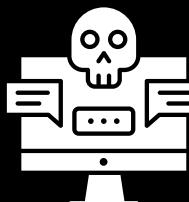
39%

of businesses have reported cyber breaches/attacks in the past 12 months



49%

of businesses are subjected to a cyberattack at least once a month



47%

of business leaders are 'extremely concerned' about cyberthreats



60%

of consumers expect companies to suffer a data breach

Italy's biggest wind operator, ERG, suffered "minor disruption" following a ransomware attack in August, according to reports. Technology has a role to play in energy efficiency, through connected devices and the Internet of Things, but this could bring more threats.

"Everyone is relying on online for everything and that's what has heightened the attention on this," says Ann LaFrance, senior partner at law firm Squire Patton Boggs. "Increased reliance on the internet, for everything from commerce to healthcare to systems operation, is likely to require an effective regulatory approach that incentivises corporate boards and senior management to invest in both technical and organisational measures, in order to avoid or mitigate the impact of cyberattacks," she adds.

Regardless of regulation, it is expected that companies will increasingly disclose their cybersecurity risks and preparedness as investors apply pressure. Half of investors in the RBC survey said the COVID-19 pandemic should see companies disclose more details about 'social' factors.

Taking ownership

The spotlight isn't just on the 'S', either. Gartner, the global advisory firm, predicts that 75% of CEOs will be personally liable for cyber-physical security incidents by 2024. Corporates will also fear litigation more than regulatory fines. British Airways recently settled a legal claim from some of the 420,000 people affected by a significant data breach in 2018; the settlement is likely to be "five or six times" the (much-reduced) £20m fine

handed out by the Information Commissioner's Office, according to Banayoti at CyberSolace.

Additionally, companies that experience a severe cyber breach see their share value permanently fall by an average of 1.8%, according to a CGI-Oxford Economics study in 2017. What's worse, the negative impact on share value is getting more severe every year

Banayoti is among a small, but growing, number of experts who sense that the focus on ESG, as well as related financial and reputational risks, could see cybersecurity led by businesses as a whole, rather than just IT departments. "Until the level of accountability is pushed up the chain and visible, we won't see much change," he explains. He is hopeful of "more ownership".

"Until accountability is pushed up the chain, we won't see much change"

There is much to do. A 2017 review in *Harvard Business Review* said that "most board members have expertise in other forms of risk, and not in how to protect corporate assets from nation-state attackers and highly organised cyber adversaries". SEPA's A'Hearn says he certainly knows more about the issues than he did on 24 December. The agency is unlikely to be fully operational again until 2023, with its IT systems being rebuilt in a way that "protects ourselves and the people who work with us".

The businesses regulated by SEPA have, by and large, been patient, but the time will come for a deeper assessment of its preparedness – and any consequences the breach has had on the environment. Consumer-facing and publicly listed companies will be offered less leeway. [†]

DAVID BURROWS is a freelance writer and researcher.



Post-Brexit, the UK has the freedom to change its regulation of gene editing technology – and debate around the pros and cons of such a move is under way. **Catherine Early** reports

Editing the future

Seven days into the UK's departure from the EU, the government announced that it would hold a consultation on plans to move away from EU regulation on gene editing. Speaking to the Oxford Farming Conference, Environment Secretary George Eustice called the EU's approach "flawed and stifling to scientific progress".

"Now that we have left the EU, we are free to make coherent policy decisions based on science and

evidence. That begins with this consultation," he went on.

Gene editing is an alternative to genetic modification (GM). While GM involves inserting whole genes into crops, gene editing allows DNA to be added, deleted or altered. The most efficient, flexible and cheapest approach – known as CRISPR/Cas – is adapted from a genome-editing system that occurs naturally in bacteria.

Only very small amounts of DNA are involved – sometimes a single unit of the genetic code – and the change is

precisely targeted. Proponents of gene editing claim that it merely produces the same changes that could be made using traditional breeding methods, but much faster. They also point to its potential benefits, which include improved yield, nutritional composition, shelf life, tolerance to cold and drought, and resistance to disease, insects and herbicides. In its consultation, Defra states that these attributes could reduce costs for farmers – as well as chemical use, which would reduce farming's impact on the environment.



A new approach

Up until 31 December 2020, the UK had to follow the EU approach, which regulates gene editing in the same way as GM. This approach was confirmed by a European Court of Justice ruling in 2018. Countries such as Argentina, Australia, Brazil and Japan, on the other hand, have taken the position that certain gene edited organisms should not be regulated in the same way as those that are genetically modified. Defra believes that the scientific approach would be to judge the safety of an organism on its characteristics, rather than on how it was produced.

Speaking at a Green Alliance webinar earlier this year, Defra's chief scientific adviser, professor Gideon Henderson, said that the benefits of gene edited products were "really substantial". He pointed out that some products are already in existence, including a variety of tomatoes in Japan that contains higher levels of a blood pressure-lowering compound.

"We now have the opportunity outside the EU to look again at the legal decision that we thought at the time was incorrect, and consider the use of those benefits that we can get from gene editing approaches," he added.

Defra has received almost 6,500 responses to the consultation. Trade body the Food and Drink Federation (FDF) is broadly supportive of regulation that would allow gene editing, which it says could provide benefits to UK biotech industries while ensuring that the UK adheres to the Cartagena Protocol on Biosafety. However, FDF chief scientific officer Kate Halliwell warns that the government will need to consider the impact on EU trade if it goes ahead with divergence from the bloc's regulations.

The National Farmers' Union believes the UK should be able to trade with the EU as long as robust risk management controls are in place to safeguard health and the environment. It points out that the EU imports GM protein feed from countries such as Argentina, Brazil, Australia and Canada, despite their different approaches to gene editing, and is hopeful that the EU's stance could change by the time gene edited foods are commercialised in the UK (which is many years away). The European Commission has already reviewed the impact of the 2018 ruling to analyse the link between biotechnology and the EU's Green Deal Farm to Fork Strategy, which aims to make food systems more healthy and environmentally friendly.

Its study on genomic techniques (bit.ly/EC_StudyGenomic), published in April, concluded that there were "strong indications that the applicable legislation is not fit for purpose for some new genomic techniques and their products". It added that the legislation needed to be adapted to

scientific and technological progress.

A follow-up study will consider what form any adaptation should take, and what policies should accompany it. The European Food Safety Authority is also producing scientific opinions on advances on biotechnology to assess risks (bit.ly/EFSA_Biotech).

Regulation difficulties

The James Hutton Institute, one of the Scottish government's main research organisations in environmental, crop and food science, also supports a legislation change on gene editing. It already uses both GM and gene editing in its research, which focuses on finding new ways to breed plants.

Research leader Robbie Waugh says that if the government gives the green light to gene editing, researchers would look at how the technology could be used commercially – for example, to create varieties of crops that are adapted to a lack of water, which would help us adapt to increasingly dry spring seasons.

"Adapting crops to climate change and reducing carbon input are the challenges most companies are working on," he says. "It wouldn't necessarily be about increasing yield – more about stabilising yield under adverse conditions."

However, he believes that regulating gene editing would be difficult. "You can't tell the difference between a natural mutation and a genome edit.



Agriculture



Legislators would have the responsibility of saying that something had been gene edited, but they wouldn't be able to do it."

Organic certification organisation the Soil Association is concerned about the impact of genetically engineered crops being grown near organic crops. Organic standards worldwide mostly do not allow gene editing or GM, according to Soil Association chief executive Helen Browning, also speaking at the webinar.

"That becomes hugely problematic, because you've got to be able to ensure you have traceability, that you can label, that you can stop cross-contamination or assign liability if it happens. I'm not sure how you would ever do that under Defra's proposals. These things need to

be taken into account if you don't want to completely jeopardise the progress that's been made in organic farming in the past 50 years," she said.

Working with nature

Critics are also sceptical of the government's focus on the technological solution of gene editing, arguing that it is diverting vital investment and attention from farmer-driven action and research for agro-ecology, which could yield results more quickly.

The Soil Association argues that 10% of the government's agricultural research and development budget should be spent on farmer-led research – up from the current 1%. "It is a disservice to farmers

to ignore these opportunities and prioritise an unproven, risky technology instead," says Louise Payton, policy officer at the Soil Association.

Waugh is supportive of natural solutions, but notes that gene editing could achieve outcomes that natural variation could not – for example, separating two genes that are very close together. However, Martin Lines, an arable farmer from Cambridgeshire and chair of the Nature-Friendly Farming Network, believes that, while there could be benefits to gene editing in some circumstances, the focus should be on working with nature.

"Breeding techniques have narrowed the gene pool," he says. "We used to have over 100 varieties of carrot, but now we only see two or three – and the same is true of cereals and other crops." This has created issues with diseases, because the parentage of the new variety still contains the old varieties, he explains. "We need to expand the gene pool we use, and it needs to be seen as a national asset, not a corporate asset," he says.

Public agricultural research bodies such as the Plant Breeding Institute – which once provided 90% of wheat and 86% of cereal varieties grown in the UK – were privatised in the 1980s, narrowing research on all plants, Lines continues. "All that expertise, and those pools of genetics, are now held for private benefit, not for the nation."

While the government does provide a small amount of support for natural solutions, the emphasis is always on science and technology. Lines believes that equal emphasis and funding is needed when it comes to the use of heritage varieties and improving gene pools, and that breeding should start again from the original heritage varieties, with the results monitored.

"Government and scientists are very keen to give us solutions through gene editing, but we don't know what other problems a new crop will cause once it's out in nature," he adds.

CATHERINE EARLY is a freelance journalist.

Mitigating damages

Estelle Dehon offers her thoughts on the Environment Bill, environmental justice and the need for more thorough guidance on emissions. Simon Wicks asks the questions

Estelle Dehon grew up in South Africa and studied law at Oxford University before being admitted to the English Bar in 2006. A specialist in planning, human rights, electoral and data law, she has also become a prominent environmental advocate, representing communities opposed to carbon intensive developments. She has argued the case against fracking in Lancashire, coal mining in Cumbria and the expansion of Bristol Airport.

What are your thoughts on the Environment Bill that's going through Parliament?

I'm impressed by what I've heard from Dame Glenys Stacey when speaking about how the Office for Environmental Protection will work and the extent to which she recognises the need for independence from government. But the environmental regime came with at least some possibility of fines for failure, and that has been removed.

It's excellent that our Environment Act will be embedding high level principles

of environmental law. We can have a debate about which ones, but the main ones are there. The difficulty is going to be how those principles are applied. It's a bit like the obligation in the Climate Change Act to achieve carbon budgets – the question one asks is: 'Who is the key entity that bears the obligation?'

So it's less a problem of the environmental regulations than of their enforcement?

It doesn't help that many of the bodies who should be doing this work have

been defunded. I don't blame the Environmental Agency for the fact that it's going to take 100 years to do all the nitrogen testing that needs to happen in order to understand the nitrates in the water. What do you expect? I don't always agree with the Agency's decisions, but I understand what happens when you've got a resource-poor regulator.

There are issues with access to funding for communities to fight legal cases – something affected by legal aid cuts. How has that affected your work?

I'm acutely aware that the funding structure that's available for work like mine is essentially crowdfunding, and maybe you're going to get a grant once in a while. Not everybody is willing to put so much into an area of practice where the funding is precarious. I recognise that there is something in me that has meant I am willing to take those risks and make those decisions. To that extent, my beliefs and my understanding of what's facing the world have led me to take those actions. However, it has meant that I have been involved in some of the most interesting cases that have come to the courts in the last four years.

How important is access to justice for communities concerned about the environmental impacts of developments and policies?

Absolutely crucial. Our system tells communities that their voice will be heard, so they expect it to be, and then it is very disenfranchising when communities realise that it is not necessarily the case that their voice will be heard unless they fit themselves into certain ways of presenting what they have to say. My job with the community is to translate the key concerns that are animating them in a way that resonates within our legal system.

Communities also recognise that if they suffer a significant injustice, they want to be able to take action, despite the

fact that the idea of going to court should be terrifying. Part of my job is to make an experience which is quite alienating and very difficult as feasible for them as possible. That takes a lot of work, and it's very concerning that the areas of funding that are available for that type of work are fewer and fewer, and are more and more precarious. The only reason I can do the work I'm doing is because of the Aarhus costs protection.

Should the Intergovernmental Panel on Climate Change's (IPCC) clarification of the urgency of addressing emissions signal a change in the way we approach new development?

The IPCC estimates that there are just over 10 years' worth of global emissions at pre-pandemic (2019) levels left for a 50:50 chance of restricting warming

emissions – for example, for a mine, the emissions from burning the coal; for oil or gas extraction, the emissions from combusting the oil or using the gas. It would also be helpful for the guidance to make it clear that evaluating the emissions from a single project against the whole of the UK's carbon budget will make almost every project, even the most GHG-intensive, seem insignificant. Much more guidance on evaluation in relation to sectoral emissions and local carbon budgets would be helpful.

There is a real opportunity for IEMA to act and make a serious difference if the guidance is updated and strengthened, given that the Climate Change Committee has recommended that a 'net-zero test' be applied in decision-making. Such a test will only work if there are cogent metrics, and part of that is up-to-date guidance.

"Many of the bodies who should be doing this work have been defunded"

to 1.5°C. There is no room for complacency. There is no wriggle room. There is no justification for adopting a lax approach on the basis of lack of scientific consensus – a fully precautionary approach needs to be taken and best practice methods adopted that are most likely to capture the full extent of adverse climate impact from causing additional greenhouse gas (GHG) emissions and the full extent of benefits from preventing or reducing such emissions.

Do the professionals who conduct assessments have sufficiently strong guidance?

IEMA's own guidance on assessing GHG emissions during environmental impact assessments was important for establishing the principle that all GHG emissions will contribute to climate change and thus might be considered significant. But the guidance could be clearer about the need to assess 'scope 3'

Are you hopeful that we'll meet our net-zero targets?

I'm not, because we're increasingly putting our faith in big technological solutions – they're baked into the analysis. In order to reach net zero, we're going to have to be pulling carbon out of the atmosphere, so we're going to be developing this technology to pull carbon out of the atmosphere – and it's 2021. The technology is going to take a long time to develop, and we need to be acting now.

I think it's incredibly important for people in the environmental movement to have a positive message – to say: 'There are things we can do that are going to be good for people and for the planet.' But seeing how much time we've wasted, seeing all these policies that should be in place that aren't and seeing that we're still building all these houses that need to be retrofitted immediately, I'm at a point where I am less optimistic than I have previously been. 

From Sweden's *flygskam* ('flight shame') movement to the battles over Heathrow's third runway, air transport has long raised the ire of the environmental movement.

Can anything be done to allow us to continue flying without further contributing to climate breakdown? Is it possible to get to zero-carbon in aviation? Might guilt-free flying be within reach?

As we approach COP26, the UK government has been attempting to drive the net-zero transition agenda in a range of ways. One of the most interesting initiatives is the FlyZero programme, initially a 12-month research

programme under the wing of the Aerospace Technology Institute. Its bold brief is to deliver zero-carbon commercial aircraft to market by 2030.

From a standing start late last year, the project now has a multidisciplinary team of more than 90, drawn from across the sector. They are undertaking a detailed study of the design challenges, manufacturing demands, operational requirements and market opportunities involved in potential zero-carbon aircraft concepts. The core team is also leveraging expertise from across UK academia and beyond, through work packages investigating solutions to a spectrum of technical challenges.

An ambitious brief

The project's ambition is impressive. Rather than confining its scope to just in-flight emissions, it is also mapping out all aspects of the infrastructure that delivers aircraft to air, so that a fully integrated vision for the future of aviation might emerge.



A new flight path

Greg Webster speaks to **Naresh Kumar** about the potential of the FlyZero programme, which aims to deliver zero-carbon commercial aircraft

Naresh Kumar is FlyZero's head of sustainability; he started in his role in January, following a long career at Rolls-Royce. "We are looking into radical new technology that will fundamentally change the aviation sector in the long term," he says.

When it comes to sustainability, a comprehensive approach is being worked through. "Although the primary aim of the project is to achieve zero-carbon emissions aircraft technology, we recognise that when we put the concepts into service in 2030, they will have to be certificated," Kumar explains. "So carbon dioxide (CO₂) emissions aren't the only thing we have to get right. We have set targets that address not only CO₂, but also other aspects of sustainability, such as water and nitrogen emissions, and noise. As we go

"We are looking into radical new technology that will fundamentally change the aviation sector"

forward, sustainability stringency will become tighter and tighter, so we have built into the targets the next level of stringency that we expect on all those parameters."

Lifecycle analysis is also an intrinsic part of the study. "We are conducting a full lifecycle assessment of the changes that we would see as a result of FlyZero technology – from the different processes and different materials that may be used, to the latest manufacturing assembly and testing techniques, and the actual aircraft operation in its flight envelope. We are also taking stock of what the implications would be for airports in terms of the infrastructure that will be needed for different fuels, and the energy that might be needed for those fuels to be available to the aviation sector. Finally, we are making sure that we understand the end-of-life and decommissioning aspects – so it is genuinely a full lifecycle assessment."

Offsetting and alternative fuels

What part might offsetting play in the FlyZero vision? This question raises the spectre of controversy, but Kumar is quick to offer clarity: "We are assessing offsetting in the sense that we don't want to leave any stone unturned in terms of available mechanisms. This is an area that is quite important for the aviation sector as it exists today, but as we are evaluating zero-carbon fuels and energy sources, we do not envisage having to offset any emissions. We recognise that many organisations in the manufacturing arena already participate in emissions trading and offsetting schemes, so we want to make sure we understand those aspects – but our principal deliverable is to achieve zero-carbon emissions aircraft."

A crucial element of the project will be establishing an alternative to

"Aviation is a growing sector and new capacity will be needed – wouldn't it be fantastic to fill that using technology that offers environmental solutions?"

current fossil fuel-based energy for propulsion. The programme is scrutinising a range of options, with hydrogen being the prime candidate. This brings up the debate around blue versus green hydrogen, as well as doubts over the scalability and commercial viability of carbon capture and storage technology, and what transition scenarios might look like when moving to a fossil fuel-free, zero-carbon future.

"We are looking to understand this area in as much detail as we possibly can with the information that is available," Kumar says. "There are a number of different ways you can manufacture hydrogen – it's not something you dig out of the ground, like crude oil. We don't want to swap one problem for another, so we are doing that evaluation. We need to establish the most efficient way of generating and transporting hydrogen, from all the different technologies that organisations are exploring today. We are taking a fair amount of time to understand that."

FlyZero is focusing on the regional and single-aisle aircraft sector, which is responsible for 48% of aircraft CO₂ emissions (the umbrella Jet Zero Council is responsible for the wider transition to net-zero transatlantic aviation, including the promotion of sustainable aviation fuels [SAFs] to kickstart emissions reductions). But we need to address 100% of aviation emissions – so does the FlyZero technology scale up?

"FlyZero technology will look at regional aircraft, single-aisle aircraft and middle-of-the-market aircraft concepts. We realise that scaling up from those technology levels to bigger

aircraft, with much longer ranges for intercontinental flight, will take more time, expertise and technology as we go forward. SAFs clearly offer an immediate emissions reduction because of the way they are developed, so you need SAFs in order to reduce emissions from the current aircraft fleet as quickly as possible. However, we must also carry on developing zero-carbon emissions technologies. In the long run, zero-emissions technology gives you different prospects."

A glimpse of the future

The 2030 goal for a certified zero-emissions commercial aircraft sounds incredibly challenging – and even if it is achieved, how long might it take to replace the existing fleet? "If we have entry into service in 2030, it will take a finite amount of time to replace existing aircraft, and typically that might take 25 years," says Kumar. "At the same time, aviation is a growing sector in many developing parts of the world and new capacity will be needed – wouldn't it be fantastic to fill that new capacity using new technology that offers environmental solutions of the kind that we are looking into?"

Throughout our conversation, Kumar exudes an optimism about what can be achieved by bringing the right skillsets together and working with conviction towards ambitious goals. It's hard not to be impressed by the scope and vision of the FlyZero programme. When the initial phase is completed early next year, it may offer us a glimpse of what zero-carbon air travel could actually look like in the not-too-distant future. 

GREG WEBSTER, PIEMA is a writer and consultant.

CONNECT

NETWORK AND COMMUNITY NEWS FROM IEMA

Climate Action North welcomes 'the Human Swan'

Jennifer Clair reports back from the Round Britain Climate Challenge Team's North-East visit

Climate Action North was delighted to welcome Sacha Dench and the Round Britain Climate Challenge team to the North East Business Innovation Centre, located beside the River Wear in Sunderland.

Dench, an ambassador for the UN Convention on Migratory Species, founder of Conservation Without Borders and known as 'the Human Swan', is undertaking a 3,000-plus mile journey around Britain in a solar-powered electric paramotor. The mission is designed to inspire the nation to get involved in tackling the climate crisis, and the team is landing in locations across the UK to interview environmental campaigners as part of its Climate Champions campaign. A compilation of these stories will be presented at COP26.

The team landed in Sunderland to check out the award-winning Wear and Tees Action for Rivers (WATAR) initiative, which focuses on clean-up activities on the beach, water, mudflats and rocks, and will repurpose and reprocess all collected plastic. WATAR is delivered in partnership with marine safety partners Swiftwater Solutions and local company Impact Recycling.



"It was fantastic to catch up with Sacha and the team and share with them the practical action we take in the climate emergency here in the North of England," said Sharon Lashley, Climate Action North managing director. "Taking appropriate and tangible action now is critical, as we don't have much time left to solve the climate crisis."

Dench also took part in a Climate Action North litter pick, which resulted in a haul of 10 bags and a shopping trolley. "Climate Action North work tirelessly to support and spearhead projects that address climate change solutions, and it was brilliant to talk to them and find out more about the WATAR project and how it supports biodiversity and takes positive climate action," she said. [T](#)

Watch and learn

TED's back catalogue contains dozens of fascinating insights into how we can preserve our planet. Here are the most popular TEDTalks related to climate change and the environment:

- **Stephen Petranek**
Your kids might live on Mars. Here's how they'll survive (6.9m)
- **Greta Thunberg**
The disarming case to act right now on climate change (5.8m)
- **Suzanne Simard**
How trees talk to each other (5m)
- **Mark Bittman**
What's wrong with what we eat (4.9m)
- **Tshering Tobgay**
This country isn't just carbon neutral, it's carbon negative (4.9m)
- **Kristin Poinar**
What's hidden under the Greenland ice sheet? (4.8m)
- **Emma Bryce**
What really happens to the plastic you throw away? (4.6m)
- **Wade Davis**
Dreams from endangered cultures (4.5m)
- **Prosanta Chakrabarty**
Four billion years of evolution in six minutes (4.2m)
- **Kenneth Lacovara**
Hunting for dinosaurs showed me our place in the universe (4m)

Source:
www.vbqspeakers.com

"These talks are a great resource to help educate people on these issues and we hope this awareness translates into concrete progress at the COP26 summit which takes place in November 2021," says VBQ Speakers founder and director Leo von Bülow-Quirk.

Sharing the load

Hannah Lesbirel and **Beccy Wilson** speak to IEMA members about climate anxiety

The Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report has prompted headlines warning that we are on the brink of catastrophe. It sets an interesting scene for COP26, with the public and scientific community putting pressure on politicians to make progress.

Around the world, current targets for reaching net-zero emissions and carbon neutrality range from 2035 to 2060, but there are questions over how to define these targets and whether governments are progressing fast enough. Most scientists and climate experts have declared that the Paris Agreement will not be enough to avoid the global average temperature rising by 1.5°C.

June's G7 Summit promised action on the climate crisis, but a global emergency can't be solved by just a few countries. What we need is a holistic and ambitious outlook, and COP26 is an opportunity to establish a more immediate approach.

Hopes and fears

As an environment and sustainability professional, it can be difficult to listen to news reports on climate change. We have chosen our careers because of our drive to make a difference. We spend our days working on how to make projects more sustainable, and see first-hand the size of the issue we face. The media attention on climate change can lead those in our sector to feel anxious about the future; the steps we take may feel like a drop in the ocean.

How can we make a difference when the issue is larger than one

person or community, and global corporations don't appear to be stepping up? Was the IPCC report enough of a wake-up call? And is there any hope that COP26 will provide the outcomes needed?

Members of IEMA and IEMA Futures have provided their views and expectations.

Mohammed Mohamoud, intern at Fast Futures, and environmental assessment and management masters student at the University of Salford, says it's hard not to

feel hopeless. However, he believes that if we can balance our hope and fear, and take a collaborative approach, we can ensure rapid and real progress is made.

Helen Chaplin, technical development executive at the Chartered Institution of Wastes Management, says "it's the scale of the issue that seems so daunting." She worries that people in the sector may feel that it is too late, and that it's about choosing the "least bad" option.

Joss Watson, senior environmental consultant at Arup, points out that there has been little communication on proposals, plans and discussions for COP26, and more emphasis on the few

days of the event itself. Does this mean there will be less influence from environmental professionals, and more focus on political motivations?

"It's disheartening how quickly it is

not news anymore," says Nicolette Harrison Craven, environmental consultancy masters student at the University of Southampton. She adds that the lack of responsibility taken is "shocking".

Sandra Norval, business development

manager at West Sussex County Council and CEO of Bluedotaug, provides reassurance, saying that "we are certainly not alone" and must draw strength from our peers and each other.

Amy Bennett, environment officer at the University of Plymouth, explains that "having the key information about where the issues lie is important for us to know how to fix them." She suggests we need to focus on what pressure needs to be put on large industry and corporations.

Stand together

The climate crisis will require much collaboration, a wide range of experts, and for those responsible to act and be held accountable. Environment and sustainability professionals cannot take on the whole burden ourselves. We must sustain our energy so we can continue to push the agenda, ensure progress is made and educate colleagues. COP26 needs to ensure the emphasis is on countries and organisations that contribute most to emissions, not individual actions. 

HANNAH LESBIREL, GradIEMA is co-chair of IEMA Futures and an environment consultant at Arup.

BECCY WILSON, GradIEMA is an IEMA Futures member and an environment consultant at Arup.



If you would like to contribute
a member profile contact:
media@iema-transform.com

Why did you become a sustainability professional?

To use my directoral and academic ability to help organisations operate sustainably at a gold standard.

What was your first job in this field?

As development director of one of the UK's largest social housing programmes – the first to be awarded ISO 14001:2004 and the largest black-led organisation in Europe. The environmental software I designed was Constructing Excellence awarded.

How did you get your first role?

I created it! I see sustainability as a duty of every director, so I led by example; colleagues saw the benefits and bought in. It led to enhanced environmental performance, post-completion occupational surveys, and happier customers trained in the operation of better homes.

What does your current role involve?

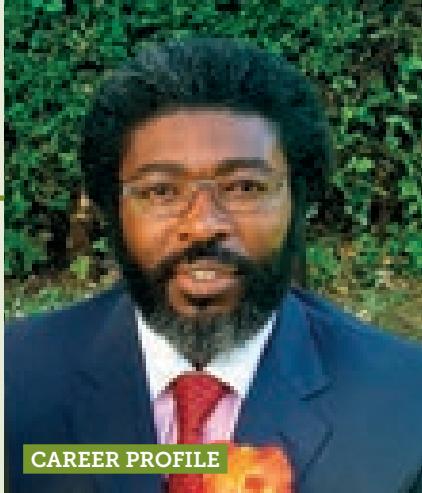
Providing training and consultancy services that enable organisations to improve efficiency, be more profitable, cut costs, increase revenue, enhance reputation, improve diversity and become resilient. I have written books on sustainability and use my expertise to help executives who want to change their organisation's environmental, social and governance (ESG) performance and response to the UN Sustainable Development Goals (SDGs). I chair, moderate and speak at global policy events as the UK's first Global Reporting Initiative certified expert.

How has your role changed/progressed over the past few years?

As ESG reporting is increasingly mandated, organisations must change or be left behind. It is good to help more organisations and individuals gain qualifications so they can help deliver the sustainable industrial revolution.

What is the best part of your work?

Happy clients, as we achieved for the London Organising Committee of the Olympic and Paralympic Games.



CAREER PROFILE

Kye Gbangbola

FIEMA CEnv

Founder and managing director of Total Eco Management Ltd

What is the hardest part of your work?

Trying to grow a business in a sector that needs to support black-led organisations more, and keeping the team and others safe during coronavirus, which has resulted in us placing our corporate sustainability reporting training online.

What was the last development event you attended?

I chaired a global policy discussion on SDGs for built environment professionals.

What did you bring back to the job?

The joy of seeing leaders understand that 'business as usual' cannot continue.

What are the most important skills in your job?

The ability to apply knowledge, leadership and collaborative working. I did an MBA to develop my skills, having been a director for 28 years.

Where do you see the profession going?

There is increasing demand for qualified, competent people to operate sustainability departments. Wealth funds are investing £2.4tn a year to meet new

global laws for sustainability. Consistency across reporting standards will reduce misleading claims and greenwashing.

Where would you like to be in five years time?

Leading a restorative net-positive organisation that has decoupled growth from resource use. The world is always learning – my son Zane brought sustainability into the lexicon of his headmaster, and the school now has many sustainability credentials. At the age of six, he said: "People think being green and sustainability is about tidying their garden, but it's about tidying a bigger garden that belongs to everyone." I hope we all get his message.

What advice would you give to someone entering the profession?

Note the things you like, then identify companies that do these things well, seek to join them and grow through continuing professional development.

How do you use the IEMA Skills Map?

To review my personal development, and that of my team.



If you had to describe yourself in three words, what would they be?

Professional,
hardworking,
pioneering.

What motivates you?

A vision of sustainable global communities that lift humanity, where justice, environmental justice and protection are rights for all.

What would be your personal motto?

Never give up, never despair.

Greatest risk you have ever taken?

Staying at home during the coronavirus pandemic when I was very unwell, with the symptoms of COVID-19. I got lucky!

If you could go back in history who would you like to meet?

Jesus Christ and his disciples.

THE READING ROOM



How to Save Our Planet

Mark A Maslin

How to Save Our Planet is a call to action that aims to equip everyone with the knowledge needed to make change. We need to deal with climate change, environmental destruction and global poverty, and ensure everyone's security. We have the technology. We have the resources. We have the money. We have the scientists, the entrepreneurs and the innovators – but we lack the politics and policies to make a better world happen, so we need a plan to save our planet.



Saving Us: A Climate Scientist's Case for Hope and Healing in a Divided World

Katharine Hayhoe

A Canadian climate scientist living in Texas, Katharine Hayhoe negotiates distrust of data, indifference to imminent threats, and resistance to proposed solutions. She argues that when it comes to changing hearts and minds, facts are only one part of the equation. We need to find shared values in order to connect our unique identities to collective action.



Climate Adaptation: Accounts of Resilience, Self-Sufficiency and Systems Change

Various authors

An unflinching look at climate change, drawing upon the latest data to analyse the eminent threat it poses to life as we know it. As international climate change experts gather in Glasgow for COP26, this vital new book examines the unimaginable magnitude of the challenge ahead. It offers workable case studies and models from communities around the globe to help confront the issues head-on, develop positive adaptations, and build resilience and self-sufficiency, while never underestimating the danger of 'maladaptations' or complacency about the current emergency and the desperate need for action.



DATES FOR YOUR DIARY

iema.net/events

28 SEPTEMBER

WEBINAR

Republic of Ireland: Current Bog Restoration in Ireland

Dr Shane Regan from the National Parks and Wildlife Service joins us to discuss bog restoration, and the advancements in understanding the ecohydrology and greenhouse gas emissions of Irish peatlands.

☞ Register at bit.ly/Ireland_Peat

Adventurer Sacha Dench – known as 'The Human Swan' – will join us live from her Round Britain Climate Challenge project, which aims to raise awareness of climate change in the run-up to COP26 by flying around the UK in a renewable-powered paramotor. Dench will discuss how organisations can use their influence to drive net zero.

☞ Register at bit.ly/Human_Swan

20 OCTOBER

WEBINAR

Legal Update

Keep up to date with UK environmental law and policy issues in this webinar. Hear from Simon Colvin FIEMA, a partner at Weightmans, where he leads the environmental law team and heads the its energy and utilities sector.

☞ Register at bit.ly/Legal_update

28 OCTOBER

WEBINAR

Bridging The Gap: From COP15 To COP26

The focus of this event is on connecting the outcomes of the biodiversity COP in October to the climate COP in November, to understand where integration of the two areas is required.

☞ Register at bit.ly/COP15_26

29 SEPTEMBER

WEBINAR

Yorkshire and Humberside: Low Carbon Construction

We will discuss how 'building back better' is an opportunity for us to do things differently – particularly concerning water and magnifying carbon production on sites. With Matt Pluke and Jon Slinn from Sustainable Advantage.

☞ Register at bit.ly/YorkHumber

6 OCTOBER

DIGITAL EVENT

Scotland West: Promoting The Climate Change Agenda

Regional networking events: New Zealand – Christchurch Networking Event | 27 October | bit.ly/NZ_Christchurch • The Solent – Regional Coffee Morning | 16 November | bit.ly/Solent_Network

If undelivered please return to:

IEMA
City Office Park
Tritton Road
Lincoln
LN6 7AS



Environment & Sustainability Professionals' Conference

Free and
exclusive
to IEMA
members



Thursday 9th December 2021
9:00 – 5:30pm GMT Online

Register now at iema.net