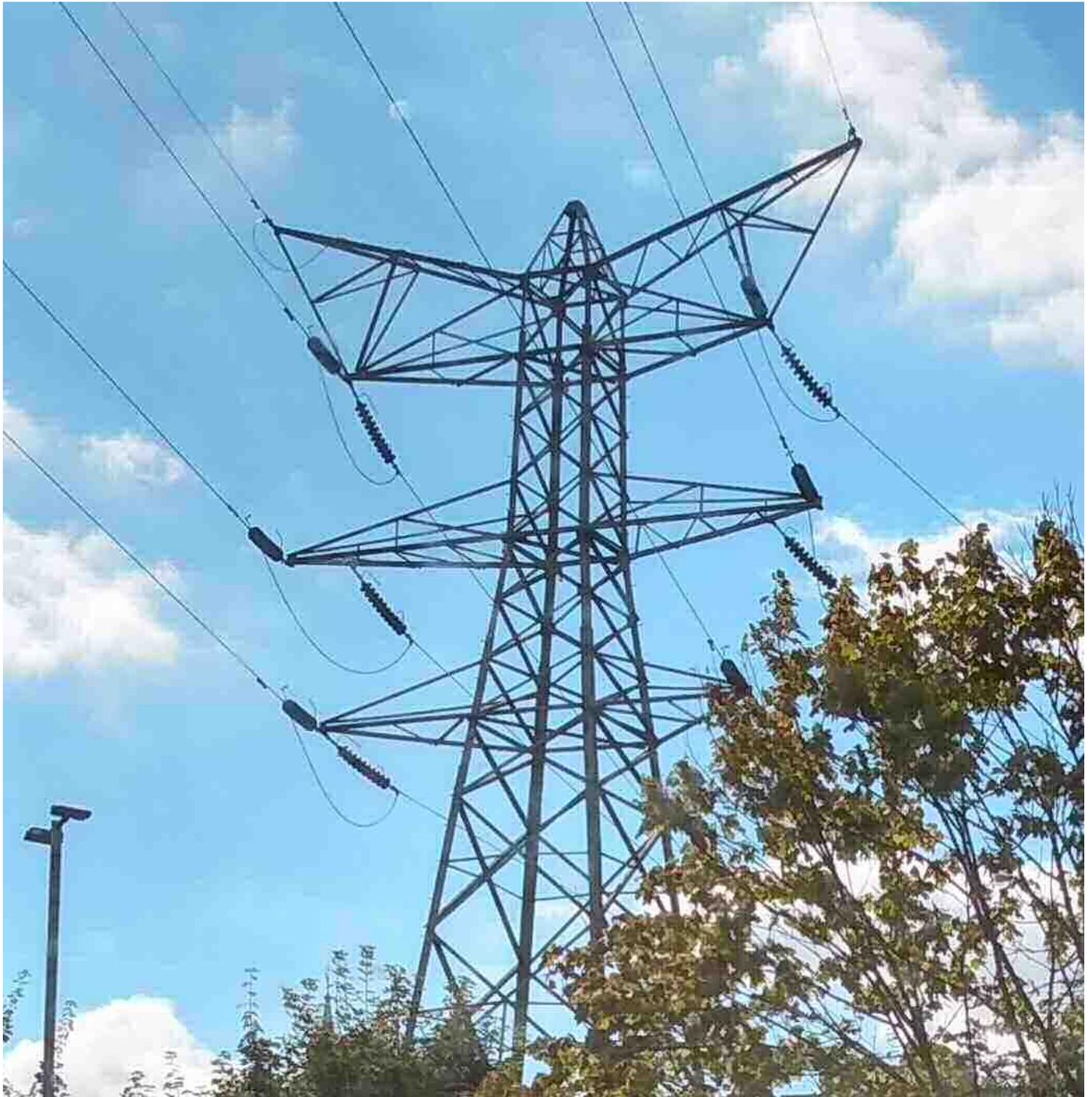


BEFORE COP 26

Glasgow November 2021



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Science, People & Politics is a scientifically literate humanities' quarterly.

Front cover. The electricity pylon adjacent to the car park, outside Sainsbury's
supermarket in Halifax in West Yorkshire, UK. Credit. Helen Gavaghan ©.

ANALYSIS ||

TO SAVE A PLANET

There are two key stumbling blocks in Glasgow [COP 26] that the British chair must overcome. One is getting developed nations to banish the burning of fossil fuel from their economies. The second is persuading them to meet a 12-year-old promise to provide \$100 billion per year in aid to help poor nations... develop their economies without fossil fuel and adapt to changing climate.

Fred Pearce, 15.09.2021. *Science, People & Politics*. Issue 3 (July-Sept.) 2021.

By Fred Pearce* 15.09.2021

As the next UN climate negotiations approach, what can we expect? At the COP 26 talks in Glasgow in November can we look forward to diplomatic success of the kind lauded six years ago in Paris, or a botched failure like the Copenhagen conference of 2009? Sadly, despite the growing urgency for action presented by the worsening signs of the state of the planet's climate system, the omens currently look bad.

Before Paris, there was a smooth flow of pre-conference back-room talks and deals by UN and French diplomats, aimed at a clear goal. By comparison, British efforts look amateur, prone to misunderstandings and unnecessary setbacks and with diffuse goals. This, despite an extra year to prepare created by the postponement of the summit from last year because of the pandemic.

The worst sign is that China and the West are once again in stand-off mode. That is what happened before Copenhagen. Before Paris the US and China, the world's two biggest CO₂ emitters, sealed a pre-conference deal on their respective targets. The deal set the tone for global compromise, and it asserted the importance of nations being invited to make "nationally-determined contributions" to curtail emissions.

China has reiterated its pledge to reach peak emissions before 2030, and to reach net-zero emissions by 2060. That would be just a decade later than Western nations, which have been adding carbon dioxide to the atmosphere for much longer. The Chinese promise has been met frostily by British conference chair, Alok Sharma. In talks with long-time Chinese climate envoy, Xie Zhenhua, Sharma called on China to "pick up the pace" and present "more detailed plans". Sharma plans "last ditch talks" in the coming weeks.

The US climate envoy John Kerry has been even more terse with China, as climate talks become a victim of the deteriorating relations between the two superpowers. This does not bode well.

Host nation Britain has a good story to tell about its own success in reducing CO₂ emissions by almost 50 percent since 1990, better than almost any other industrialized nation, and in successfully pioneering offshore wind power. Yet it has also reduced the chance of success at COP 26 through a series of ham-fisted domestic actions that, as many commentators have noted, will reduce trust in the honest broker role of the conference chair.

The British government is still considering proposals to approve a new deep coal mine in Cumbria and a new runway at Heathrow. It has cut overseas aid by more than a quarter, disrupting climate finance pledges to poor nations. And, hardest to defend of all, Britain is continuing to encourage oil and gas exploration beneath the North Sea. This despite a recent conclusion from the International Energy Agency, an autonomous intergovernmental body, that "if governments are serious about the climate crisis, there can be no new investments in oil, gas and coal, from now – from this year."

There are two key stumbling blocks in Glasgow that the British chair must overcome. One is getting developed

4 *Science, People & Politics* ISSN: 1751-598X Issue 3 (July-Sept.) 2021.

nations to lead the way in banishing fossil fuel burning from their economies. The second is persuading them to finally meet a 12-year-old promise made in Copenhagen to provide \$100 billion per year in aid funding to help poor nations - mostly victims of climate chaos - develop their economies without fossil fuel and adapt to changing climate. By cutting aid and allowing North Sea oil expansion, the British hosts finds themselves on the wrong side in both cases.

Meanwhile the climate system is no respecter of diplomatic travails. The latest IPCC report confirms that temperatures since 1970 have risen faster than at any time in at least 2000 years, thanks to the accumulation of CO₂ emissions in the atmosphere. A year of record temperatures and wildfires underline the urgency of action.

Recent research into the impact of climate change on cloud formation and ice loss suggests that without decisive action future warming could be faster than anticipated, and lead to greater sea-level rise. There is also growing evidence that the Earth system could cross dangerous tipping points, leading to an ice-free Arctic, faltering jet stream and collapse of the Gulf Stream.

Not all the news is bad. The world has taken some important steps since Paris. Many countries are carrying out their Paris pledges: deforestation is slowing; renewable energy technologies are now often cheaper than fossil-fuels, allowing more than 30 nations to grow their economies while cutting their emissions; and more gains could follow as electric cars become the norm.

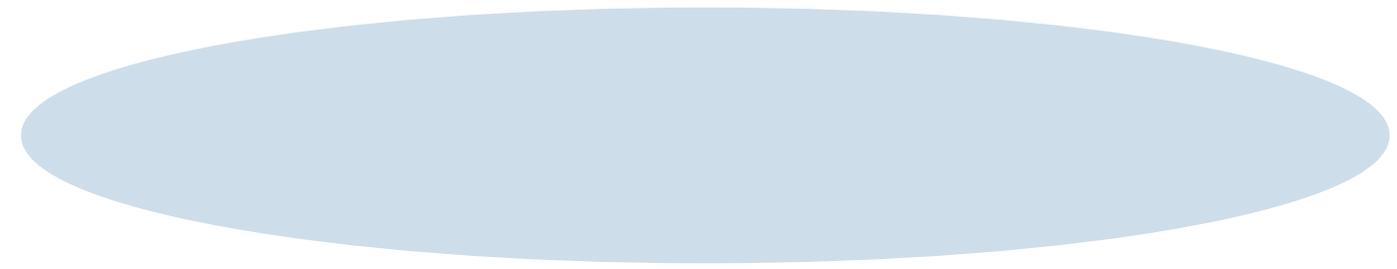
But while the science becomes ever more compelling, and the green technology more inviting, emissions keep rising and diplomats who could halt it seem stuck in the slow lane. Glasgow currently seems on track to underline that failing.

* Fred Pearce is a freelance author and journalist based in London. A former news editor and environmental consultant at the UK-based *New Scientist* magazine, he has reported from 89 countries. He also writes regularly for the Yale e360 web site and *The Guardian* and other newspapers in the UK, as well as irregularly for many other outlets, including the journal *Science*, *The Washington Post* and *The New York Times*. His recent books include "A trillion trees, how we can reforest the World", "Fallout: a journey through the nuclear age" and a revised edition of "When the rivers run dry". His books have been translated into 26 languages. He won a lifetime achievement award for his journalism from the Association of British Science Writers in 2011, and he was voted UK Environment Journalist of the Year in 2001. Pearce is a fellow of the Royal Scottish Geographical Society.

Edited by Helen Gavaghan, editor of *Science, People & Politics*.

First online at 12.30 BST on 15.09.2021 as <https://www.sciencepeopleandpolitics.com/cop26.html>.

This item will appear in the KINDLE edition of Issue 3 (July-Sept.) 2021 of *Science, People & Politics*.



PRESS NEED TO BE IN THE COURT BUILDING AND COURT ROOM, AND NOT ON VIDEO LINK

By Helen Gavaghan

A day in Crown Court during the Covid pandemic which began formally in March 2020 and upended global life.

16.09.2021.

Three and a half years after admitting to police he was guilty of production, possession and supply of a small quantity of cannabis, Mr David Dower (66) was today sentenced by Mr Recorder Tariq Khan QC to an 18-month community order and 30 days of rehabilitation activity. The case was held at Crown Court, sitting in Bradford. Ordinarily such an offence would have been dealt with by magistrates, but this case took longer because of an issue related to the basis of Mr Dower's plea. Mr Recorder Khan additionally issued a confiscation order for £1000 (one thousand) which police had found in Mr Dower's possession. The judge accepted Mr Dower was not running a profit-making enterprise.

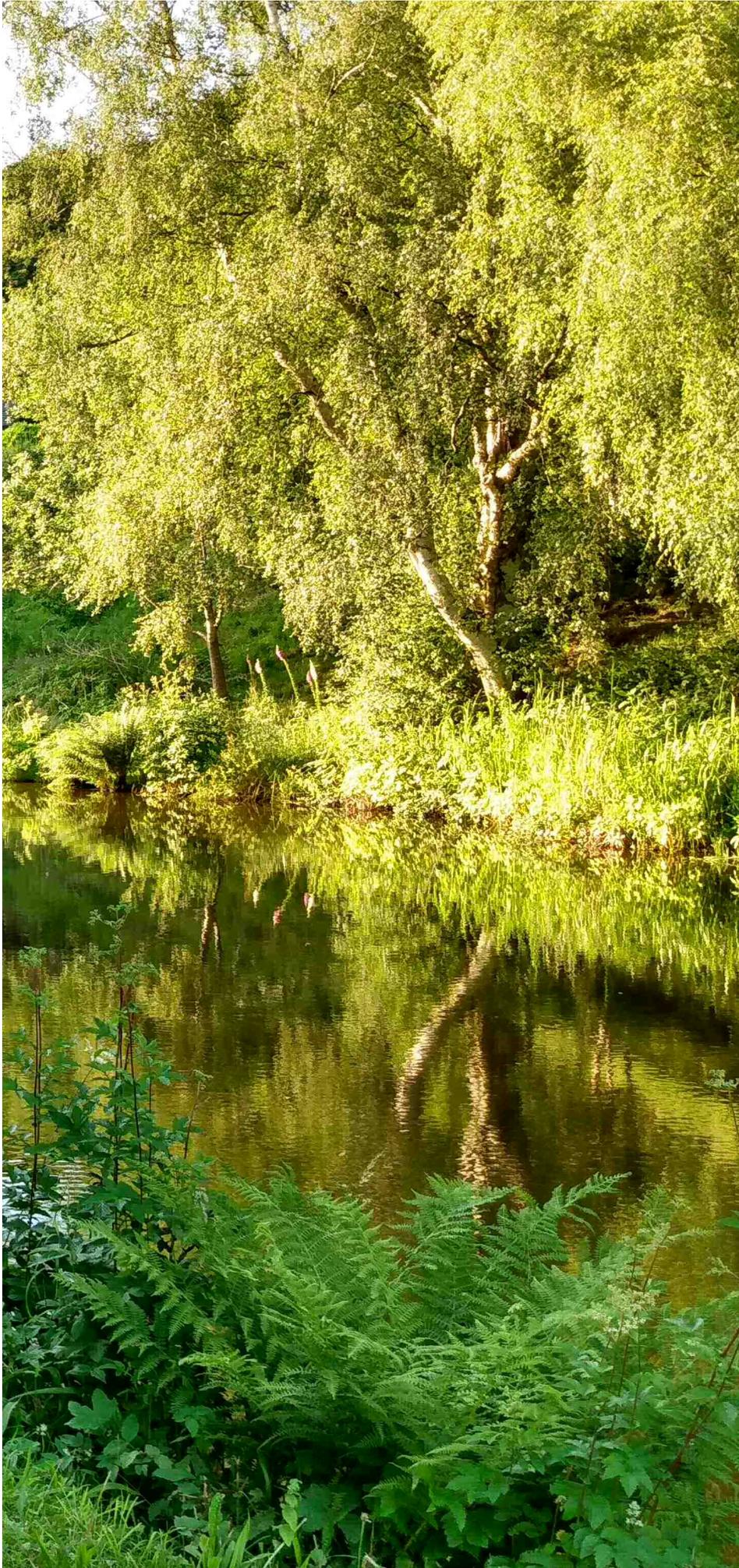
In the next door Court a trial involving seven defendants was taking place, and Covid restrictions limited the numbers allowed in the Court. Initially I was allowed in the Court, and told I could stay if there was space. In the event, I ceded my place to one of the solicitors. I passed by the defendants as I left the Court, and the usher provided me with access details for following the trial remotely.

Before leaving Court I was present as the judge heard a case brought by the West Yorkshire Probation Service. That defendant escaped prison because he had begun to demonstrate compliance with the terms of his suspended sentence.

On arrival at the Combined Court in Bradford, I was asked if I was well, or had Covid symptoms. I had my NHS App with me to demonstrate my vaccination status, but it was not needed. My bags were searched in the usual way by guards wearing protective gloves. The guard handed me my hand gel, and asked me to put some on. I asked what the Court's policy with respect to masks was, and I was told it was up to me. Next I asked if access to the press room was the same, and the guard went to check whether the press room was still sealed. I was told I could go to the press room. Access was as usual, despite the sign saying, "no access". On the way up the stairs there was a sign requesting visitors to wear masks. The public area had open windows, so it felt safe to take off the mask with people no closer than a meter to me.

Within the Court holding a multi-person trial I sat briefly in the press box during the Court's preceding business. There were two instead of four seats, and these were separated by perspex barriers. Only four of the seats in the public gallery were accessible, and most of these were taken by legal staff. Perspex barriers separated the defendants, the barristers, and were in the jury box. Though the public area outside the Courts was well ventilated with open windows, the Court room itself felt less so, but I was told by Court staff the space is air conditioned and subject to formal risk assessment. The windows behind the jury cannot be opened because of noise. When I left Court, a solicitor for one of the defendants took my place. I sat outside among defendants, and their family, and others. Police, barristers, solicitors and Court staff milled around as usual, though there was a notable absence of members of the Court's chaplaincy service.

I went and chatted with defendants, and others in the public area, paying due attention to the law preventing me from asking questions of witnesses in the middle of giving evidence, and being sure to do nothing to prevent a fair trial. Throughout I took care to display my press badge. 



**On
reflection
Helen
Gavaghan.
©2021**



Perspectives in development. I lost my original of the above artwork, and only had a resized small version. This was reimagined today (21.1.2022).

Helen Gavaghan ©

NEWS ||

COP 27 STARTS NOW SAYS UN SECRETARY GENERAL

"...when yet another hurricane devastates my country, the treasury is empty. Protecting countries from climate disaster is not charity. It is solidarity and enlightened self-interest."

Remarks of Antonio Guterres, secretary general of the United Nations, at the closing on 13th November 2021 of the 26th Conference of the Parties (COP26) to the UN Framework Convention on Climate Change (UNFCCC). The conference was extended by one day beyond what was originally planned. Mr Guterres, a former prime minister of Portugal, imagined himself in his speech into the shoes of the leader of a country vulnerable to the consequences of climate change in response to global warming.

By Helen Gavaghan

COP 26 missed the jackpot.

The aim of the climate-change conference, COP 26, which ended in Glasgow at the weekend, was simple. Work cooperatively and internationally to deal with climate change resulting from global warming. That work needs to be against a backdrop of economic development for least developed nations and coupled with poverty eradication. All to be undertaken without depleting the planet's resources. In the final document from COP 26 – The Glasgow Climate Pact – important building blocks were established in finance, ending deforestation, and drastically reducing the greenhouse gas, methane. But the final text of the meeting was a compromise. "The political will was not enough to overcome some deep contradictions," said Antonio Guterres, secretary general of the United Nations. Coal is a significant stumbling block in the fight against global warming.

Scientific analysis concludes that to reach the 1.5 °C target, emission of greenhouse gasses like methane and carbon dioxide must by 2030 reach 45 percent below those of 2010. Burning coal emits a lot of carbon dioxide, and it remains in the atmosphere longer than methane does. With that in mind the secretary general of the UN, Antonio Guterres, has already put Glasgow behind him. He says it is time now for the nations to go into emergency mode. Guterres is looking toward next year's climate change meeting in Egypt, and the one after that in 2023 in the United Arab Emirates. The prize is to reach net zero by 2050. That means a combination of reducing greenhouse gas emissions and not destroying sinks which absorb greenhouse gasses, so that what is emitted is balanced by what is absorbed. Even with net zero, much of the already emitted greenhouse gasses remain in the atmosphere, and temperatures will remain elevated until they come down naturally.

Members of the UN tackle their national response to greenhouse gas emissions through national commitments such as switching to renewable energy, and they seek to quantify their actions in terms of how much reduction there is of greenhouse gas emission as a result. In UN speak, these are nationally defined contributions (NDCs). More national commitments are needed because the world otherwise will exceed the goal of no more than 1.5 °C above pre-industrial levels by the end of this century. Already Earth has warmed about 1.1 °C above pre-industrial levels. Resulting extreme weather events and national disasters such as forest fires give an inkling of how much worse matters could become for people and the planet's flora and fauna.

Given these realities Guterres is calling also for developing and least developing nations to step up their plans to meet the consequences of global warming. The UN language for that process is "adaptation", and the text of the Glasgow Climate pact formalises Guterres's call for adaptation to move front and centre.

Guterres wants the world to commit to what was hoped for from this conference. That is: an end to fossil fuel subsidies; phase out coal; put a price on carbon; plan for the worst by creating ways to cope with climate change, and for the developed economies to make good on their \$100 billion dollar pledge to support developing countries through what is a seismic global transition. To meet the challenge, nations need to act locally as well as nationally. To help the process along Guterres is convening a global stock taking in 2023 when heads of state can review updated climate plans. He is convening a high-level expert meeting also to establish standards against which the contributions of non-state actors can be assessed.

"Our fragile planet is hanging by a thread," says Guterres, and Guterres is the man the combined United Nations have chosen as their secretary general. If he tells those who appointed him they need to do better, it is time to listen.

Outcomes of the Glasgow Climate Change Conference - Advance Unedited Versions (AUVs).

Accessed on 15.11.2021.

<https://unfccc.int/process-and-meetings/conferences/glasgow-climate-change-conference-october-november-2021/outcomes-of-the-glasgow-climate-change-conference>

The edit for sense of the above news item was finalised 16.11.2021. HG.



Major UK science infrastructure gets greenlight for bid preparation. Circa £100 million in contention.

By Helen Gavaghan

11.09.2021.

Against a backdrop of the usual science cross talk, specialists in a critical analytic field known as mass spectrometry heard Wednesday evening (8th September 2021) that they have the go ahead to submit a bid - which will be in the region of £100 million - for infrastructure funding. It is hard to think of a field of science which would not be affected if UK Research and Innovation (UKRI) makes such an award. Partly, the money would pay for next-generation equipment. Not that the old machines are ready for the scrap heap, said Mark McDowall, a member of the British Mass Spectrometry Society's executive committee.

Existence of the option to bid to UKRI, and information that preparation time for the bid has been extended by twelve months, emerged during the annual British Mass Spectrometry meeting this week (8th and 9th September 2021) at Sheffield Hallam University.

Mass Spectrometry takes tiny amounts of matter and categorises that material according to the intensity of the charge to mass ratio. It can reveal the components of matter and their nature. The method already answers questions in forensics, medicine, archaeology, geology, plant biology, vaccine development and genetics, among many others. New science and data analysis methods are already underway with existing equipment. Next generation machines could deliver results from mass spectrometry that reveal new understanding of regions of physical nature manifested in stereo chemistry and stoichiometry, for example.

Already, and with existing equipment, mass spectrometry pushes ethical boundaries and raises significant privacy issues. For example, Melanie Bailey, from the University of Surrey, told delegates of methods she is working with which have potential to determine the medical condition of people from traces in their fingerprints, even when those fingerprints are not in a legally designated database. She says there is potential to check from matter on fingerprints for what she called compliance, in taking serious antipsychotic medication. Bailey seemed unaware of limitations in hospital, the traumatic nature of the medications she discussed, or the difficulties patients face. Bailey next discussed work in which police might be able to apply mass spectrometry to make identification of individuals and where they have been, not from fingerprints in a lawful database, but from what can be picked up from the fingerprints of people who may never have come in to contact with the law. This is a plausible field in general development. Bailey has recently been made a full professor.

Shimon Atunde, a doctoral student from the University of Leicester, is mid-way through research using mass spectrometry looking for biomarkers of cardiovascular disease. He wants to identify low concentrations of small proteins in blood plasma which have biological and medical significance as surrogates for biomarkers of heart failure. Atunde's research supervisor is a clinician. When I asked Atunde if ethnicity and environment would be important in the work, his intuitive response was yes, but that the work is not yet complete. Cardiovascular disease is also of importance to the World Health Organisation as a pan-national priority.

CALL FOR COMMUNITY COHESION

Jackie Mosely, chair of the British Mass Spectrometry Society, was keen to emphasize the need for her community's participation in moving to the preparation phase of the infrastructure bid to UKRI. Equally importantly, those in the field of mass spectrometry want to know the needs of the wider scientific community. Mass spectrometry can provide data giving insight into topics as varied as dimer formation (a two-polymer subunit) in biology and cloud formation. The latter matters as the world prepares for the global climate-change summit in November. Another key area, says McDowall, is battery design essential to a net zero carbon future.

As currently envisaged part of the infrastructure bid would be designated for training in how to use the equipment, but it may not be applied to funding doctorates. An important need under discussion – which is taking place across all science internationally - is data standardisation. Consistent standards for data curation and accessibility are needed.

When I asked scientists if data standardisation might interfere with the autonomy of the principal investigators I was told, “no”. The general point was that we are now in an era of big data and artificial intelligence. How can raw data be annotated so that the normalised, calibrated, and benchmarked outputs of that raw data from laboratories across the country, all working on different problems, can be standardised for storage. Proper curation and archiving, with annotation of limitations relevant to individual disciplines or across disciplines, would enable general uses for meta-analyses, for example, or hypothesis development.

Large hardware for mass spectrometry can cost between £500,000 and £3 million. Less expensive add-on items can significantly enhance performance, both of current and future infrastructure, and leading manufacturers were present at the conference.

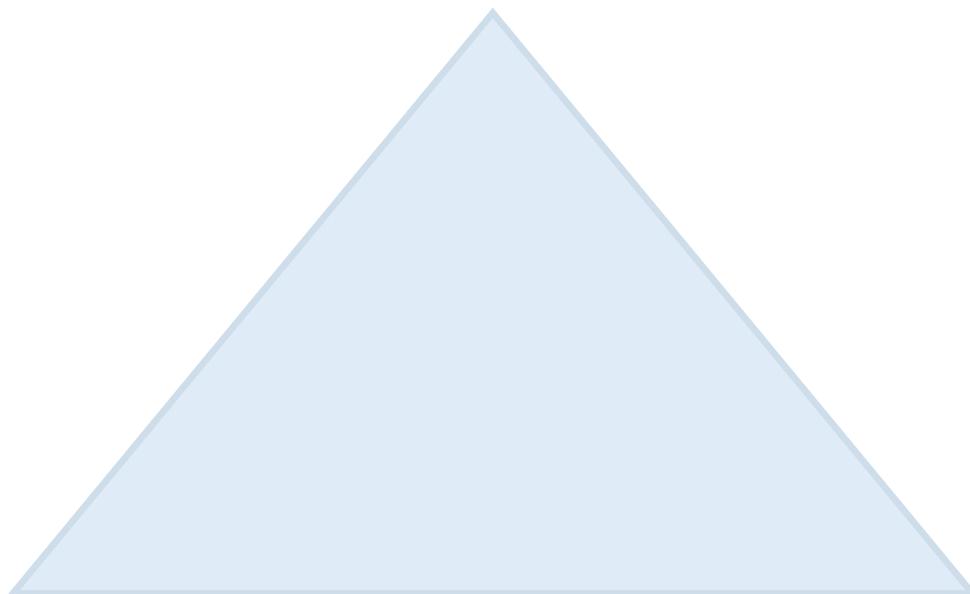
Several informed people commented that they were worried in case any products decommissioned in the UK were disposed of without care. Some expressed concern that such machines might be sold in a way taking advantage of needs in developing countries. In that context it might matter that the mass spectrometry industry is undergoing

transition from helium to hydrogen for use in one form of the technique. The dilemma is that helium is a much more finite resource than hydrogen.

The conference was notably energised by meeting in person, and it broadened the spectrum of people making presentations so that industrialists and students were included. The take home message from Mosely to the broader UK scientific community? What are your "moon shots", tell us so that we can hone our infrastructure bid?

McDowall says the BMSS will co-ordinate the consolidated bid to UKRI in 2022 on behalf of the UK MS Community. "If that bid prevails we expect that sub-bids would be invited to implement the proposed 6 national MS research centres together with an associated networking, training, and standards 'ecosystem' to leverage that investment."

Pre-publication online at 19.00 BST on 11.09. 2021 as <https://www.sciencepeopleandpolitics.com/bmss.html>. This item will appear in the KINDLE edition of Issue 3 (July-Sept.) 2021 of *Science, People & Politics*.



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