Climate, Covid and COP26

In a special online ECCI event to discuss 'Climate, Covid and COP26' (recorded on Thursday 21 May) world-renowned climate scientist and communicator Professor Katharine Hayhoe was joined by leading experts drawn from across the University of Edinburgh community - including Prof Elizabeth Bomberg, Prof Gabi Hegerl, Dr Sarah Ivory and Dr Hannah Ritchie - giving insights into the politics, business, science and communication of climate change in a post-Covid world.

Part of ECCI's countdown to COP26 series, the event drew an incredible global audience with around 600 attendees signing up for the virtual session from all around the world.

Below the speakers answer all of the unanswered audience questions, which fell broadly into 9 themes: Covid; Government; People; Organisations; Cities; Industry; Education; Justice; COP26.

Audience questions

Covid

Q: The ability to socially distance and enjoy the low-carbon 'benefits' of lockdown - like slowing down, enjoying nature etc. are only available to the privileged. How do we help everyone access the benefits of a low-carbon lifestyle?

Professor Dave Reay: I think a 'just transition' must be at the heart of the recovery. Covid is accentuating inequalities that were already severe and so recovery plans must overtly address this, such as through prioritising job creation and investment in the worst hit communities and sectors. More widely, abandoning the flawed metric of GDP growth to measure recovery and instead measuring success through sustained improvements in well being.

Prof Katharine Hayhoe: I completely agree with Dave and would only add that clean energy is an important part of this, to address the fact that at the turn of the century nearly a billion people did not have access to basic energy. The vast majority of fossil fuel resources belong to rich countries; yet wind, sun, and tides are available to all. Over 70% of new electricity sources installed around the world last year was clean energy, energy that will enable poor countries to develop without polluting their air and their water like we have.

Q: Katherine, do you have suggestions for connecting the response to the COVID crisis and our global response to human-caused global change?

Prof Katharine Hayhoe: I believe that the greatest lesson the pandemic has taught us is this: that when it all comes down to it, no matter who we are or where we live or what language we speak or what political party we vote for, what matters to all of us is the health and safety of our loved ones, our friends, our community, and beyond. That's what coronavirus threatens and that's exactly what climate change does, too. In this webinar I talk more specifically about the connections between how we think and act on climate change vs. coronavirus: https://www.youtube.com/watch?v=AYiHhX0WxKo

Q: What has the national and global response to Covid-19 taught you about how we - as humans - respond to risk, and what lessons does that have for our response to climate change and the need to decarbonise?

Dr Sarah Ivory: We care. The vast majority of us care, and will act with appropriate evidence, guidance, leadership, and political and social support for the transition to a different way of life. The Covid crisis requires a more temporary transition, but the climate crisis requires a more permanent one. We have the appropriate evidence, we have guidance - what we need (and what we need to champion and vote for) is leadership, and political and social support for the transition.

Prof Katharine Hayhoe: I believe that the greatest lesson the pandemic has taught us is this: that when it all comes down to it, no matter who we are or where we live or what language we speak or what political party we vote for, what matters to all of us is the health and safety of our loved ones, our friends, our community, and beyond. That's what coronavirus threatens and that's exactly what climate change does, too. In this webinar I talk more specifically about the connections between how we think and act on climate change vs. coronavirus: https://www.youtube.com/watch?v=AYiHhX0WxKo

Q: People have accepted the restrictions due to Covid-19 because they perceive the threat. How do we get people and governments to really grasp the threat posed by climate breakdown?

Prof Gabi Hegerl: There is a backstory: epidemiologists and medics have warned for years that the next pandemic is just a question of time yet were not listened to that much and recommendations to better prepare were not exactly prioritized... which has parallels to the climate crisis....

Q: How can we make the same level of behaviour change that we've seen in Covid-19 response without strict government rules put in place?
Professor Elizabeth Bomberg: Behaviour change in democracies depends less on coercion and more on incentives. Need to make clear to individuals how changes we

need for low carbon transition are precisely those likely to bring more jobs, better health, greater care for things we care about.

Q: Pandemics were high on the UK's risk register for years, but we failed to prepare. Can we use Covid-19 shock to challenge politicians to truly 'listen to the science' - to act in timely manner on climate change?

Prof Elizabeth Bomberg: Yes indeed - already happening (public trust in 'science' is way up). But note caveat I issued in response to question above.

Q: Is there any evidence that Covid outbreak could be an indirect or direct result of climate changes?

Prof Elizabeth Bomberg: This Stanford University blog explores this link: https://earth.stanford.edu/news/how-does-climate-change-affect-disease#gs.87khmm

Prof Katharine Hayhoe: Climate change is the great threat multiplier, taking issues that already exist (deforestation, loss of animal habitat, shifting geographic ranges, and more) and making them worse. Coronavirus was primarily the result of human actions not directly related to climate change, but as with nearly everything, climate change typically makes them worse. For more, please watch my Global Weirding episode about this: https://www.youtube.com/watch?v=ruOl1R5cpnw And then read this excellent interview with Harvard physician Dr. Aaron Bernstein: https://insideclimatenews.org/news/11032020/coronavirus-harvard-doctor-climate-change-public-health

Government

Q: Arguably change has to come from the top. Mass peaceful and disruptive protest has had little to no effect on politicians. How do we force action when key leaders around the world seem opposed to radical change?

Professor Gabi Hegerl: There was an interesting parallel in the 1970s, when water and air pollution was dramatic in many places for example the US and a lot of the political answer was that it can't be changed would be too expensive etc. but the public and environmental groups campaigned vigorously and blacklisted politicians with bad environmental records. When it started to show that those were not reelected, the issue got more attention. So voting and campaigning will eventually change things. write to your MP about needing a green recovery, about your concerns. and vote!

Prof Katharine Hayhoe: I completely agree with Gabi and would only add here that corporations are a big part of this as well. Today, it's industry that controls the balance of power and wealth in this world, and individuals within large corporations, from Microsoft to Walmart to Amazon, are doing their best to effect change from the inside as well.

Q: Governments seem to be listening to scientists for Covid-19, why do you think they don't listen about the Climate Emergency? What's the difference, what needs to change?

Professor Dave Reay: Time and human nature. Acute risks like Covid are easier for most of us to understand and, for governments, are a direct risk for their economies (and political stability) right now. Climate change is a much bigger risk but it is easier to ignore as something for future/other governments to address.

Prof Gabi Hegerl: I agree with Dave. Also, see my answer below: now that the pandemic is here, we are willing to act but there were many ignored warnings about the next pandemic coming for sure and we need to prepare but that was something less heeded at the time.

Prof Katharine Hayhoe: People don't listen to scientists about climate change not because they truly doubt the science, but because they believe it doesn't matter to them (psychological distance) and they believe that the solutions will be worse than the impacts because they will be uncomfortable, punative, even harmful (solution aversion). I unpack these two terms and explain how they do and don't apply to both the coronavirus pandemic and climate change in this recent webinar: https://www.youtube.com/watch?v=AYiHhX0WxKo

Q: What would be your 3-4 key messages to Governemnts right now on the green reset? How do we make our voices heard in a crowded field?

Professor Dave Reay: Read the CCC's principles (https://www.theccc.org.uk/2020/05/06/take-urgent-action-on-six-key-principles-for-a-resilient-recovery/) and act on them.

Prof Katharine Hayhoe: "We need you to take decisive action now, to reduce our carbon emissions and build resilience to the risks we can no longer avoid."

Q: How do we cope with the likes of Trump and Johnson?

Prof Dave Reay: As long as they continue to fail we must continue to call them out on it, push action at sub-national levels and make our voices even louder.

Q: What's your view on women leaders (Arderm, C Figueres, Merkel, Marin) offering a greater progressive change, who are breaking through and making the positive transformation needed, on climate, social change etc?

Prof Katharine Hayhoe: Interesting question! With Merkel, we have both a woman and a scientist with a cautious and evidence driven approach. Populist governments seem to do badly in contrast. So I suspect there is a mix in place, of background and approach, but women may, on average, be more conditioned to listen and be empathetic, which makes people more willing to comply.

Prof Katharine Hayhoe: The social science shows that the greater diversity of people we have at the table to discuss and implement solutions - diverse in terms of gender, age, race, culture, perspective, and expertise - the more robust the solutions that result. For centuries, decisions in Europe and North America have been made by the least diverse group of people you could possibly imagine: older white men. Today, that is changing and that can only benefit the majority of us!

Q: Katharine - you mentioned that Canada is requiring info on carbon reduction. How is Canada's Carbon Fee & Dividend program going?

Prof Katharine Hayhoe: Canada implemented a federal price on carbon in 2019 after the four provinces that already had a price ono carbon - the first being British Columbia, in 2007 - led the country in economic output. The price is currently too low to have a significant impact on carbon emissions yet, but the point of carbon pricing is to ratchet up the price gradually and to support it with other policies (such as requiring businesses to report their climate impacts before receiving pandemic stimulus funds, or as part of the economic recovery, funding jobs to cap old leaky oil and gas wells).

Q: I wonder if any of the speakers would be willing to speak to their thoughts on the role of expertise and experts in climate change policy, and whether the Covid-19 response illuminates anything novel about the relationship between experts and the government/the public for policymaking.

Prof Elizabeth Bomberg: We need to look out for a fascinating double edged effect. On one hand we've already seen increased appreciation of scientific expertise. But watch for how those resisting change will seek to blame future spread of virus on ' inconsistent science'.

Q: Not a cynical question, but I'm stuck. I can see further and breathe cleaner than for 30 years. Is the UK is happy to sacrifice 5 thousand premature deaths per year from bad air, to support "the economy" How is this opportunity cheap enough to take now?

Prof Elizabeth Bomberg: Katharine touched on this to certain extent in the start of her talk. But you raise a fundamental question about how governments weigh risk and deaths. In particular (if I understood your query) you suggest an inconsistent approach to deaths caused by air pollution versus Covid. Risk analysis in my field of public policy (Christopher Hood or Albert Weale) point to some factors (including the notion that our appetite to risk is heavily dependent on whether we think we're responsible for creating that risk in the first place.

People

Q: I find many friends and family members fully understand that climate change is a crisis but somehow this still means that they can drive big cars, take any number of flights etc. How do we remove this dual reality that seems to affect all levels and not just politicians?

Prof Katharine Hayhoe: I do think that stepping on the carbon scales can be incredibly illuminating -- or having our kids do it! -- but the real problem is not that we don't think it's real, we don't think it matters to us. And that's why I've become truly convinced that the most important thing we can do is talk about it - because social science has showed that the more we talk about it, the more concerned we are; the more concerned we are, the more willing we are to act and support those who do! See my TED talk: https://www.ted.com/talks/katharine_hayhoe_the_most_important_thing_you_can_do_to_fight_climate_change_talk_about_it?language=en

Q: Do you have any suggestions for creative climate activism in these times of crisis?
Prof Katharine Hayhoe:
Yes, there is so much that we can do, even during shut-down! I recently saw this fantastic graphic (which itself is creative activism) full of ideas.
https://www.instagram.com/p/CAaPV-3nF8w/

Q: Do you think climate change academics, campaigners and communicators need to take a lead in refusing to fly any more and do all events like this, plus conferences etc online?

Professor Gabi Hegerl: We need to push for making the changes that are needed, but we still need some travel as research lives and is invigorated by international discourse. Also, it is good for people to experience other cultures. but when we travel, it should be for a good reason.
We shouldn't shame others, but we should ask ourselves - can this be done online? How important is this trip to me? Can I combine it with other trips? Can I carbon

offset it? (I know not perfect but better than not...). Also see Dave's response below - jet setting weekends or a hop to the US Westcoast for a 2 day meeting are not the things we should be doing. Fortunately, we are making huge strides right now in doing e-meetings and they work! (largely).

Prof Katharine Hayhoe: I personally believe it is important for scientists who study climate change to not only talk the talk but walk the walk. Each person can and should decide for themselves what that looks like, and for some that is indeed a decision not to fly. However, a blanket ban on flying is not going to fix climate change since it only represents a few percent of global emissions, and in some cases could actually slow scientific progress. Instead, I believe scientists and institutions should have a sensible plan regarding what can and should be done remotely (a lot more than we did before the pandemic!), where can ground travel be used instead of air (easier in the UK than North America, but still an important consideration) and where air travel is needed, as well as doing what they can to support the growth and development of new technology including electric short-haul flights and sustainable biomass-fueled long-haul flights as well as the not-so-high-profile but still very useful gains in efficiency from better management and planning. In fact, as I was writing this answer I received an email with an ad for a doctoral student to study sustainable shipping and aviation! https://www.jobbnorge.no/en/available-jobs/job/188669/phd-candidate-in-climate-change-and-air-pollution-mitigation-in-the-aviation-sector I talk more about my own approach, which was to transition 80% of my talks to online events and only travel in person when I can group multiple events together (usually 4-5 but sometimes as many as 20-30 in a single week) so as to minimize the carbon footprint of each individual event here: https://www.dw.com/en/climate-scientists-should-cut-back-on-air-travel/a-42862862

Q: What are the best things everyday citizens can do to encourage and promote our work/cities/countries response to Covid-19 to encourage climate change action?

Dr Sarah Ivory: Support (explicitly) politicians who are offering solutions, support businesses who are offering products and services, support individuals (friends and family) who are making resolutions even if it is for an action we ourselves can't commit to. While our acts alone may seem insignificant, they lead to collective action which helps those taking the lead.

Q: How can we continue to be visible without being physically present in climate strikes/marches etc?

Professor Elizabeth Bomberg: Katharine gave examples of online examples of action. I'd also reinforce her message which is about TALKING about climate change. If, say, you're speaking with folk (relatives?) more often than before, seize this opportunity to tell them what you're thinking about, care about and why.

Q: Katherine, is there one message that you offer to Evangelicals that you've found to be most likely to bring them around to recognizing the anthropogenic sources for global heating?

Prof Katharine Hayhoe: See also answer to 44 below. There is no one approach that works with everyone; rather, a constructive conversation must be customized to what they genuinely care about. In the US, where I live, sadly about half of the people who self-identify as evangelicals are simply using that as a political identity. Appealing to their professed faith yields no results if their faith is actually based on political ideology rather than theology. But for those who do take their faith seriously - whether Christian or another religion - it is often possible to connect over foundational shared values of caring for what we view as creation and caring for those less fortunate than us who are disproportionately affected by the impacts of a changing climate. For more, see our Global Weirding episode on climate change and religion: https://www.youtube.com/watch?v=W53uRqITk2I as well as my TED talk: https://www.ted.com/talks/katharine_hayhoe_the_most_important_thing_you_can_do_to_fight_climate_change_talk_about_it

Q: How do we reduce food waste during this special time and give it to more people who need them?

Prof Dave Reay: Depends how you shop, but for us it's a case of ensuring we don't over buy in the shop (or over serve at home) and, in the shop, still making sure we put a contribution into the food bank collection.

<u>Organisations</u>

Q: We are committed to being a net zero carbon University by 2040 - If you had advice for us at the University on playing our part and making the difference we need to make, what would that advice be?

Dr Sarah Ivory: One of the greatest impacts a University can have is in education and influence. Getting our own 'house in order' and taking the lead on low carbon technologies, processes, and innovations is important. But our greater opportunity is in the students, faculty, and professional services staff who spend some or all of their education or careers with us. Changing hearts, minds, and motivations to commit to the ongoing fight for solutions is more important in our focus.

Cities and regions

Q: What advice do you have for cities and regions that have strong employment in carbon based energy industries and the post covid green recovery?

Professor Dave Reay: Lead the way to net zero. For Oil & Gas sector, lead the transition to Carbon Capture and Storage, offshore renewable generation and the hydrogen economy. Work with government to secure livelihoods and opportunities through green skills and reskilling provision that is accessible to all, and that is directly aligned with the needs of industry, to switch from carbon extraction to carbon sequestration.

Q: Any thoughts on how municipalities could/should be properly empowered to take strident action at local level on climate action, as counter-weight to national/international inertia?

Professor Gabi Hegerl: I think municipalities could do a lot to reduce emission from transport by ensuring sustainable options being available and safe; also building standards play a role. When a new development is approved; is it well connected to public transport? Are the houses low energy use?

Professor Katharine Hayhoe: Cities are much more empowered to act in concrete, tangible ways than larger entities, and in an increasingly urbanized world, they have the ability to make a real difference. First, cities can invest in the infrastructure and accelerate the behavioural changes that reduce our carbon emissions and often our air pollution, a key problem for many cities, at the same time: from making decisions on road, rail, and air transportation to building codes to their municipal electricity provider, there are many solid actions cities can take, and many excellent organizations such as the Cities Climate Leadership Group (C40) that can assist with experience, information, and advice. Second, cities can do a lot to build resilience to climate impacts: re-drawing flood zones, increasing drainage, reducing the urban heat island effect, developing hazard mitigation and emergency response plans, increasing the awareness of city planners and public officials and public servants and people living in that city to impacts, etc.

Industry

Q: There is a lot of discussion about how governments should be denying bailouts to polluting industries - what sort of action would you like to see to push businesses towards a new attitude to business?

Professor Gabi Hegerl: I fully agree with this idea! We should bail out industries with a future and a positive contribution. so it should be looked at to what extent these industries have a carbon plan and are sticking to it- as part of a health check for bailout.

Prof Katharine Hayhoe: This is already happening in many places! In my home country of Canada, for example, businesses are required to disclose their climate risk in order to qualify for government stimulus loans. In France, Air France has been told they must reduce their carbon emissions 50% in order to qualify for a government bailout. I would love to see these and many more actions to help accelerate our transition to a green, sustainable future.

Q: The tourism industry is one of the most impacted industries right now. How do you think they can recover from Covid-19 in a sustainable way?

Prof Dave Reay: One major thing (and easy for us in Scotland given we have the most beautiful country in the world :)) is to massively ramp up the domestic tourist industry. For foreign tourism, providing more sustainable travel and accommodation options is also important, but these will come at a cost and overall the jet-setting weekend breaks that were the norm pre-covid have stay a thing of the past.

Prof Katharine Hayhoe: The tourism industry has already been struggling with how to be sustainable and the good news is that changes are happening. Increasing domestic tourism, offering incentives for ground-based travel, providing options such as electric rental cars and net-zero accommodations, providing virtual travel options (I've seen a lot of these from Lonely Planet the last few months, and there was even an amazing program from the Faroe Islands where you could sign up to have a local guide for the day where they would take you .. virtually ... all around the island, wherever you wanted to go!) and emphasizing activities that allow us to appreciate nature without harming it: all of these are concrete steps in the right direction.

Q: How truly essentially would you say that carbon capture and storage (Eg. Bio-energy With Carbon Capture and Storage - BECCS) and negative carbon emissions/carbon sinks are going forward?

Prof Gabi Hegerl: Very important to make the transition - at least CCS. BECCS might be tricky in its possible consequences.

Prof katharine Hayhoe: Technically we still have a chance of achieving a 1.5C target without it but realistically I personally do not believe that we can without drawdown.

Q: Geoengineering is increasingly being touted as a "solution" to climate change, despite the unknowns and risks. What are your thoughts on this?

Prof Gabi Hegerl: I am worried about it. Humans don't have a good record of anticipating the side-effects of interventions in natural systems. Approaches that capture the problem by the root (CCS for example) and reduce carbon in the atmosphere are for me less problematic than approaches that shoot particles into the stratosphere to reflect or mess with the oceans biota or cloud reflectivity. I would rather not do this personally.

Prof Katharine Hayhoe: What we have to realise is that "geoengineering" covers a broad range of actions: from tree planting (yes, really!) to solar radiation management. There are geoengineering approaches that are low-tech and approaches that are high-tech. Similarly, there are methods that carry little risk, and methods that carry a great deal of risk. And there are methods that accomplish little (like here in Texas, where they are capturing carbon emissions from a power plant in order to use the CO2 to enhance oil and gas recovery from wellfields, the net result being an increase in overall carbon emissions!) and methods that have the potential to accomplish a great deal (smart agricultural techniques to draw down carbon into the soil). In terms of solar radiation management, though, it is at best only a partial solution, similar to going through all the difficulty and expense and pain of gastric bypass surgery while continuing to consume (in our case, fossil fuels) at your previous rate. Please see this Global Weirding episode for more: https://www.youtube.com/watch?v=w7Bfr2Vzxbs

Q: How do we balance the economic & societal presumption for Oil & Gas extraction with climate science - how to convince the BP's of this world that their business has to shift substantially?

*Professor Dave Reay: It's happening. Shareholder pressure, risks of stranded assets. Ultimately, people powe*r.

<u>Education</u>

Q: What's your advice for teachers wanting to create positive change in schools after lockdown? Where should we start? Could Universities help audit national qualifications to be more focused on the strands of Learning for Sustainability?

Prof Elizabeth Bomberg: We've got great programme here at the University of Edinburgh, sustainability programmes led by, inter alia, outdoor education (Pete Higgins).

Prof Katharine Hayhoe: So often people feel that climate change is an "environmental science" so that's the only type of class where it can be taught or discussed. Climate change is certainly an environmental issue - but it's als an issue of health, of basic science, of economics, of technology and engineering, and of political science, communication (both through writing and creative expression in art, film and more), and more. I would encourage teachers, regardless of their specialty, to figure out how to incorporate ways to have students tackle climate-related issues in any class!

Q: We hope to cut fossil fuel emissions in half by 2030 and achieve net-zero emissions by around 2050. How can pupils help with this?

Prof Katharine Hayhoe: I have a section on that in the FAQs on my website! http://www.katharinehayhoe.com/wp2016/faqs/

Q: Do we need to do more to make people carbon literate? And what could this look like?

Prof Elizabeth Bomberg: Yes – I refer to point made by Katharine: Talk about climate and link it to things that matter.

Prof Katharine Hayhoe: Absolutely! But what does "carbon literate" mean? I believe it consists of three things: understanding that the main cause of climate change is our fossil fuel consumption (many people still believe it's plastics or the ozone hole, which means they don't understand either impacts or solutions); understanding how climate change affects here in the places where we live, now and in the future, and in ways that matter to us personally; and finally, being aware of the fact that solutions consist of reducing emissions through efficiency and clean energy and behavioural changes, adapting to build resilience to the risks we can no longer avoid, and drawing down carbon from the atmosphere through conservation and smart farming practices that benefit both human and non-human life!

COP26

Q: We've seen the Scottish and UK Government's take increasingly diverging approaches to the pandemic. How to you see the Scottish Government's desire to maintain its distinctiveness as a sub state actor playing out in organising period before COP26?

Prof Elizabeth Bomberg: Interesting! Note different perspectives are not just about different approaches to Covid or climate crises, they are also about inter-governmental relations and political tussles they involve (see work by Bomberg and McEwen on this dynamic if you can excuse a bit of self promotion). So

what to watch for is the extent to which the Scottish position emphasises 'contrast politics', seeking to distance itself from the Westminster model.

Q: Surely accepting 2 degrees rather than 1.5 degrees as our target is to condemn millions of people to unimaginable suffering?

Prof Dave Reay: That's why COP26 is so crucial - there is still a chance for us to get back on a 1.5 degree trajectory and that stakes we are playing with are indeed lives and livelihoods numbering the millions.

Prof Katharine Hayhoe: 1.5 and 2C are not magic thresholds. If we end up at 1.499 versus 1.501 we will not avert all suffering; in fact, a great deal of it is already happening today. As IPCC chair Hoesung Lee concluded two years ago, "Every bit of warming matters. Every year matters. Every choice matters". We need to cut emissions as much as possible, as soon as possible, and draw as much carbon as we can down from the atmosphere as well.

Q: In terms of getting a public following to our narratives around COP26, what non-environmental hooks do you think might allow people currently non engaged with climate change to engage for the first time with our messages?

Prof Katharine Hayhoe: Aha - this is exactly what my TED talk is about! The most effective hook is one that already exists. If someone is already passionate about ... football? fishing? the rotary club? their faith? their family? hillwalking? birding? cooking? even knitting? ... then that is exactly where to start the conversation. For more, please see:
https://www.ted.com/talks/katharine_hayhoe_the_most_important_thing_you_can_do_to_fight_climate_change_talk_about_it

Q: Even with the Covid forced delay to COP26, it is due in 2021, before the next IPCC full assessment report (AR6) due in 2022. Given that ARs inform the UNFCCC's policy debate, how can/will this be mitigated?

Prof Elizabeth Bomberg: Jim Skea, Co-chair of Working Group III, noted in May that working groups are meeting (virtually) regularly and he expected these meeting reports to inform CoP 26 (and he noted they are already taking on board links to Covid.

Prof Katharine Hayhoe: Frankly, at this point we already know 99.9% of the science we need to act. Of course there's always more we could and should learn about the processes that are thawing the giant ice sheets, or how warming is super-sizing our weather extremes, or how it's altering atmospheric or ocean circulation patterns in

ways that will alter precipitation in the breadbaskets of the world. But we've known for over a hundred years that fossil fuel combustion is producing heat-trapping gases that are warming the planet, and we've known for over 50 years that the majority of those impacts will be negative, and the sooner we act the better off we'll all be. As IPCC chair Hoesung Lee concluded two years ago, "Every bit of warming matters. Every year matters. Every choice matters". We already know that, and that's all we need to act.

Justice

Q: How can we best build the links and join the narratives around Covid Justice and Climate Justice?

Prof Dave Reay: For me, the Just Transition Commission is the model that should be replicated on this in every nation.

Prof Katharine Hayhoe: Those most affected by poverty, hunger, lack of access to resources and more are those most affected by climate change - and the coronavirus pandemic. Achieving the UN Sustainable Development Goals means fixing our threat multipliers: climate change, biodiversity loss, habitat destruction, and more.

Q: The immediate emergency of Covid-19 that was visible and felt across all strata - including the privileged - inspired and required global response. How can we communicate the immediate emergencies and impacts of climate change that those with more resources can keep ignoring or discounting?

Prof Elizabeth Bomberg: Note the Covid impact was itself extremely varied across those same social strata; those able to protect themselves, through, say more self isolation, secure jobs, gardens, have been better able to weather this storm (as they will future climate – exacerbated storms). That's why, to me, questions of justice are absolutely fundamental to addressing and thinking about climate. It's also why on a more immediate level (and as I said in reply above), the way to get folks to think about climate is to link it to what we value, families, future families, fairness.

Q: How do you convince the privileged and the 'rising middle class' in developing countries to consume more responsibly?

Prof Dave Reay: Education, education and education (plus a large dollop of intervention via regulations, markets and standards ;))

Q: Are any of the panelists following the current conversation being led by the International Integrated Reporting Council (IIRC) on using the 6 Capitals as a way of unlocking a more sustainable version of capitalism? A 90 day comment period opened this week on the proposed reporting framework.

Prof Elizabeth Bomberg: No I hadn't heard of this but thanks for the tip. It sounds somewhat linked to the WeAll wellbeing economy alliance which you might be of interest.

Q: Keep in mind that there are many important businesses that depend on people traveling at the local level- hotels, restaurants, etc, which employ thousands of people. So the change has to think about local economies and social justice. I like Katerine's statement about making flying carbon free.

Prof Elizabeth Bomberg: Yes, you may be interested in the Scottish Government's Just Transition theme and committee which seeks to address precisely these sorts of questions.

Resources referenced/shared

- Not a shaming resource but really focuses on helping people to analyse their own choices and as speakers said - ask themselves Do I need to travel? Link here: https://www.sustainabilityexchange.ac.uk/travel_better_package
- Reflecting on commentary on individual choice and right to vote in making change. Looking for stats only c4.5billion out of 7.5billion in democracies (ourworldindata.org)
- Suggestion: "Hope for the Future" website (https://www.hftf.org.uk/) - advice on climate activism and having climate conversations...
- Rebecca Willis' book "Too Hot to Handle": https://www.nature.com/articles/s41558-020-0797-x
- link to our climate activities as a University is here: https://www.ed.ac.uk/sustainability/what-we-do/climate-change
- COP26 is the 26th Conference of Parties to the United Nations Framework Convention on Climate Change: https://www.carbonbrief.org/cop25-key-outcomes-agreed-at-the-un-climate-talks-in-madrid