Transcript of ‘COP28 and Business’

Season 1, Episode 11, Transforming Tomorrow

[Theme music]

Paul: Hello, and welcome to a special episode of Transforming Tomorrow, the podcast from the Pentland Centre for Sustainability in Business here at Lancaster University Management School. I'm Paul Turner.

Jan: And I'm Professor Jan Bebbington.

Paul: First question, Jan. What are we doing here? I'd packed up for Christmas, I was on my way to, you know, a nice jolly break way, and suddenly, just as I feel we're done, we've told everyone, that's it, not another episode for another year, and we're back. What's happening?

Jan: Well, I kind of felt inspired with all the headlines in and around COP, that maybe there was something we could talk about there for our listeners?

And, um, then I thought, yeah, great, you said yes, and then I started doing the research, and then I got depressed, and then I thought this was a bad idea, but now I'm again thinking it's probably a good idea because there, there's loads of headlines.

Some of them are happy, some of them are gloomy, and if we can provide a sort of a way to navigate through some of that, then we're probably doing a good job.

Paul: [joking] Essentially, you just made more work for us. Is that, is that what you're saying?

Jan: Yes.

Paul: Okay, I, I accept that. Yes, COP28, and as we discussed last time we actually defined what COP stood for which, I believe I wasn't the only person who, well I was the only person in the studio who didn't necessarily know it, but I wasn't the only person who's listened who didn't know what COP stood for. So can we remind our listeners please, Jan.

Jan: It's the Conference Of Parties, and it's the parties to the Paris Agreement. Which was an agreement made at COP21 in 2015.

Paul: So when I said it was COP15 and just made a random number up, and you actually told me I was right it was COP15….

Jan: …well, there was a 15 in the…

Paul: …you were wrong and I was wrong… [both laugh]

Jan: Numbers, I find them quite confusing. So there was a 15 there somewhere, but not, not the right one.

Paul: And I will give all of our listeners a reminder again. An accountant there is saying that numbers are confusing.

What does that make, give the chance for the rest of us. Yes, so COP28 which we've just had was building on the previous COPs that have come before.

I guess the idea of cops is that they each build on the other and hopefully there's progress made.

Jan: There is, and there's some things that came to fruition in this COP, um, that were set in play in the last COP. There's other things that came to fruition that have a much longer history as well, so these are always progressive, we may be cautiously OK about some of the things at this COP. But the next one has to build on them, so it's, it's a progressive process

[Theme music]

Paul: Now, I know you want to make a caveat before we go on and discuss what we're going to discuss about COP28 and what happened there. Do you want to make your caveats?

Jan: Yeah, three of them. So the first one is that I'm not a climate change governance specialist, which will become quite apparent quite early on, I fear.

But what I'm trying to do is use this podcast to explain something about the significance of COPs, and how they might be helpful for us to understand them better, but in particular what it will mean for sustainability in business.

And that's where we will really, we'll close this podcast on that, um theme.

The second caveat, is that state sovereignty underlines all of this process. And what that means is that states have the right to make their own arrangements about how, what laws they pass, um what kind of approach they have to their economy, et cetera.

And this means that a Conference of Parties, each one of the parties has state sovereignty, their own priorities, and so it is a massive political, intermeshed, trading, difficult, power, all of those things come into play.

And of course, states aren't equal. So, some of the small island states, um they're going to be massively affected by climate change. But they might not have any particular power themselves.

Other states are very powerful and may or may not be affected by climate change. So that's my second caveat, state sovereignty.

Paul: And, yeah, just to talk on your second caveat. Obviously there's certain implications as well from who's hosting the COPs. So COP28 has just been held in the United Arab Emirates, a massive producer of oil, a petrochemical state. That's one of the main industries there.

I mean the president uh, Sultan Al-Jaber is the head of ADNOC, which is a big oil producer, so that's got to have an influence. And then the next COP is going to be in Azerbaijan, another huge petrochemical state.

Um I think the reason it's in Azerbaijan is down to lots of politics that went on, because it had to be in a certain bloc of Europe, and Russia blocked any members of the EU from hosting it, left us with Armenia and Azerbaijan.

They were saying, no I don't want the other one to host it, and eventually um they've compromised and reached an agreement that Azerbaijan will host it. But there's obvious politics comes into play from who's going to host each of these editions, and what their agenda is.

Jan: Absolutely, and I'm interested that you mentioned Azerbaijan, 'cause if you have a look at the countries where oil and gas, or fossil fuel exports, make up more than 90% of their foreign income, you've got Algeria, Azerbaijan, Brunei, Iraq, Kuwait, Libya, Sudan and Venezuela.

So, if you like, those countries face a really tricky time because they are so reliant on the thing that we are, hopefully, going to phase out of.

And I suppose that comes to my third caveat, is that. Globally, over some hundreds of years, it's not a sort of very recent thing, we have built economic security and human wellbeing on carbon dependency. And that if you like means that you can't just sort of stop, well you could. You could say, okay no more fossil fuels, but that then disrupts everything, and wellbeing and Sustainable Development Goals more broadly.

So that means that to move to a low carbon economy in a way that's um well-timed, that allows people's wellbeing to be sustained, is important, but of course moving too slowly undermines other people's wellbeing.

So it's a really tricky thing, 'cause we've got carbon at the centre of our economic model globally.

Paul: And in some ways this is where you come to the controversial topics of technology, and carbon storage, and carbon removal, and carbon offsetting.

And because that is a recognition of the fact that we are a carbon-centric global economy and therefore we need to do something about carbon. What can we do about carbon without stopping ourselves from using it, because we know that, that if we stopped using or producing carbon, would the world just grind to a halt entirely, almost certainly, so we need to find a way of doing things that we can offset that.

Jan: Yeah, and some of the language you might have seen in the newspaper is talking about unabated coal, um, that means coal without any technology to try to track the carbon afterwards.

So carbon capture and storage is the main mechanism that people hope to use to capture carbon as it's produced from the energy sources, and somehow sequester it.

That's tricky, 'cause it's at scale, that technology's not developed yet but obviously lot's of people will be trying very hard, but also it's quite an expensive technology to implement. It also has a carbon footprint of its own as well.

A really super abatement is a tree, but then you start going okay [chuckles] [Paul laughs] how much land are you going to put for that, and there's other use for land, et cetera, et cetera. But forestry will come up in our conversations today as well.

Paul: Yes. And you're mentioning coal. I've mentioned before on this podcast, I am actually up in Cumbria, and of course we have the controversy of the first British coal mine in quite a number of years that's going to be opened on the west coast of Cumbria.

What the people who are opening it are saying, it's going to be clean coal, it's going to be carbon neutral coal, it's going to be everything. Which just seems like a ridiculous proposition to me and there's a whole load of politics and

environmental arguments on either side of it, but it, it demonstrates on a local scale the global problem of how we have this economy that's going to evolve in one way or another to combat the issues that a carbon-based economy has.

Jan: Indeed, and I'm going to get this out of the way early, because you're bound to ask me at some stage. The UK's kind of moving against the stream of, you know, global opinion at the moment in some if it's decisions that have been made.

There might be really good reasons why our government is doing that at the moment. Um, there might not be. I can't really tell, can't help [laughs] our listeners navigate that one.

But, but the direction of travel is not open new coal, is not to have new oil and gas licences. Although both of those things are going to happen, um, but it's not the direct of travel.

Paul: And it does tie in with something like COP because if you've got the UK going in there trying to persuade the rest of the world to adopt policies, they're gonna to save the planet in future years, but then at the same time the UK is doing things like opening um new coal mines, like issuing new licences for oil and gas in the North Sea, it kind of limits the amount of influence that they can expect to have.

Jan: Absolutely. And the other thing that the rich countries has, and the UK would be a good example of this as well, is that when you're talking about emissions reductions. If you're a rich country and you've been using carbon for a long time, you only want to look forward. But other countries would like to look back.

And so, there's also what people often describe, historic emissions that are connected to a country and a country's past economic history which brings them to a position of wealth.

So it's not only looking forward, although the planning is about looking forward, part of that negotiation then is looking back and looking at historical emissions as well.

On that front, the UK the has been a high emitter for many years, and we built our wealth in a high carbon way, at a time when we didn't fully realise what the implications of that were going to be. But it's part of the, part of the conversation as well.

Paul: As a student of history, as I was many years ago, all the Industrial Revolution and everything that went around that was just seen as a massive boon, a great positive for this country, helping us advance and become a great global power.

There was zero consideration to, hang on a minute, if we're all coughing in the streets because of all the fumes and gasses that are going about, is this damaging the planet as a whole? It's just, oh this is just a, an unfortunate byproduct, everything's great, we're doing wonderful work.

Jan: Yeah. There was a global impact of that. Alongside that local impact which, which led us to a particular economic position.

Paul: Let's go to COPs then, and let's go back to COP21 in Paris in 2015. Too many numbers, I agree with you Jan, numbers. If we just pretend numbers don't exist.

What was the structure of that Paris Agreement? What did it all look like and how has that shaped what has come since?

Jan: Well the Paris Agreement becomes really important for COP28, 'cause one of the things that was written into the Paris Agreement is so-called 'the global stocktake'.

And this is a look at everything that's happened, um over you know past year or the past few years um, and to look at how better working can be achieved going forward.

So global stocktakes, 2023 is the first one. There'll be one every 5 years going forward, and that was written into the Paris Agreement. So hence that sort of reinforces our earlier point that these are progressive, that these things build off each other.

So there are several elements, I'm not going to say [chuckles] not going to say their number, because clearly numbers are off, off the pitch today. [Paul laughs]

But, there's elements…

Paul: …just make, make random noises that that indicate numbers, that'll be fine…

Jan: [chuckles] So, um elements of uh the Paris Agreement then, is a long-term temperature goal. So that temperature goal is 1.5° Celsius. Quite often I read in

the papers, people talk about it being the target, it's not the target, it's the limit.

So in that respect if you like um science says 1.5° is as much as we want to warm before we go into a more volatile um and dangerous climate change situation.

Paul: Yeah, and just so we're clear there Jan, so 1.5° temperature rise that relates to 1.5° above pre-industrial levels.

Jan: It does indeed, and that's probably worth saying that globally we're currently warmed at 1.2° above, so, yeah there's not a lot of scope to manoeuvre in there.

Paul: Yeah, and I believe predictions are that next year might be the, the first year that we actually touch 1.5° at some points during the year.

Jan: Yes, and we will come on to this later on because, are we going to stick at 1.5° on the basis of agreements that have been made to date, and at the COP? The answer to that is no, but I'll come back onto that later on.

So, so that was a, if you like Paris Agreement said 1.5 is the very, very sensible limit. The second thing then that Paris Agreement talked about is when will global peak emissions arise and, and there we've got some um, again later on the podcast um, this might be the year it peaks actually, so I've been looking around at international energy agencies estimates, this is important that we peak it.

Now of course, though that peak is a common collective aim, which means that depending on um your state of development but also some of your own country needs, some people might still have their emissions going up, whereas other people who are maybe high emitters definitely, well the high emitters are on the way down, by and large, um but some people will still be increasing their emissions on a country basis because they need them for development.

The third thing then was mitigation. Now mitigation means um how do you reduce emissions. How we know what's happening there, and this is again where state sovereignty um becomes important, is that countries write Nationally Determined Contributions um plans.

So basically it says here are the policies we're going to pass, here is our approach to climate change in our country, and this is how much carbon that we will take out of, of the system through doing that.

So all countries produced and presented nationally determined plans um at this COP.

Next one is uh sinks and reservoirs. And so this is where nature and climate become really closely intertwined, in that it's not just what you do doesn't just produce carbon, what you can do is actually capture carbon as well, through land and land use, change for restoration of peatlands, for example. But also forests.

So one of the agreements as part of 28 um was an agreement that tackles deforestation, and um, we know how to stop deforestation, we know it's a good thing from a climate perspective, but it's also a good thing from a nature perspective. And so the whole nature-climate intersection was I think dealt with in a better way at COP28.

The next thing on our list from the Paris Agreement is adaptation. So there is already impacts in play and there's lags in the, in the natural system, so there will be more coming. So there needs to be steps about supporting resilience and vulnerability.

And this is where the interest of low-lying states is really different from other kinds of states. And that whole bloc of um small island um nations, where we, who are going to risk losing land, and some of them right poised to lose land at the moment, this is where adaptation becomes important because they are suffering the effects of climate um emissions from elsewhere. So again it's another one of those equity questions that come into play.

In the final two pieces, um the big parts of the Paris Agreement, is loss and damage. So how do you avert, minimise and address loss and damage that arises because of climate change? And the sharing of the costs of those loss and damage between richer and less rich countries.

Paul: Mmhmm.

Jan: And there was, there was a good agreement on loss and damage that started in COP27 and is carried over into COP28.

Then the final one is finance, technology and capacity building. So partly it's about what you don't burn, i.e. fossil fuels. But then it's about renewable energy, and so this part of the Paris Agreement is about how you transfer technology, um how you transfer capacity building, and how you finance poorer countries being able to make that transition out of fossil fuels.

So you can see that there's a lot of elements in there, there's about stop doing things, doing other things, it's got equity and fairness written throughout it, um and then it's got you know some ideas about where the science is about how much carbon you can have.

Paul: It's interesting what you say, Jan, about countries at different levels of their development, and what was, seemed to me to be quite a positive thing that came out of COP28, there was obviously an original draft that came out that made no mention of stopping using fossil fuels.

But then some of the people who objected to that were the people who you might expect to object that, some of the climate leaders, but there were also some countries, from less well-developed countries, poorer countries, who were very much saying exactly the same thing.

Even though their industrial economy might benefit for them to be able to use certain technologies they recognise that the other issues that are there, that stood there the way that the climate is affecting them, the way that sea level rises will affect them the way that continued droughts will affect them. That's a far more important thing than speedy, right here right now industrial development.

Jan: Absolutely, and this is where if you like there, you know it is one country one vote. Of course the power behind that is not equal, but there can be blocs of countries that come together as well to actually, to advance common positions, and they can be quite powerful in, in how they do that.

Paul: You talked about, before you outlined what the Paris Agreement said, the fact that there is a global stocktake. This year was the first one. So where are we standing now, what, what do things look like, right now 2023?

Jan: Emissions are still rising globally, but some people are estimating that 2023 is going to be the peak year of emissions. So this is the International Energy Agency, it's not, not somebody lovely who I bumped in on the bus but I'm just gossiping about things, [Paul laughs] so somebody who has the authority to make those kind of statements.

So one of the things that they um track as they track each country, and what's happening. So there's a, a bunch of countries with declining emissions, which include low, medium and higher emitters. But that's 42 countries, where um, and the key ones are actually some of the higher emitters um, that are actually

reducing their emissions over time. That includes USA, China, Japan it also includes the UK in that, that set as well. So we can be pretty cheerful about that.

There are some countries who are increasing emissions, some of whom are low emitters, others who are high emitters. And the, the trick will be to get those high emitters who are currently increasing emissions to reduce them.

And indeed those countries that have got declining emissions is increasing in number year on year, so this year it's 42, last year it was 36. So it's about moving people off that increasing emissions group, onto the declining emissions group.

The reasons for those um declines are varied, so it will include what a country has done in terms of maybe transferring over to you know, more renewable technologies, but also global economic forces change this as well.

So the Russian invasion of Ukraine meant that the, the energy markets have been really unusual in the last two or three years. This has decreased global demand for energy. Partly because of the price, so that has helped on the emissions front, it won't have helped vulnerable people who are trying to heat their homes. So again, this is where this equity element comes into play as well.

In terms of global warming estimates, I said before we're sitting at probably 1.2° to date. And with 1.2° we are seeing quite significant climate events um flowing through the system.

The analysis of the promises made, these Nationally Determined Contributions um, versus what we need to keep at 1.5° is uh there's a gap, as you might imagine.

If we only do what we, we promised so far as a as a as a globe then we'll probably move towards 2.43° warming, so in that respect we're still off on that.

Even though we're on a trajectory for a higher warming, clean energy and increased investment and, and deployment of clean energy, apparently is keeping the door open for 1.5°.

The other thing I've heard expressed by Johan Rockström is that we might peak over 1.5, but turn very quickly down the way. Now of course 1.5° global average doesn't mean it's 1.5° everywhere.

And so in that respect, if you like, there are again really big distributional questions in terms of where the warming happens on the planet, and what systems it disrupts. So whilst a global average is what we're after, that is regionally differentiated and therefore regionally important as well.

Paul: Is this one of the reasons as well where it's key to say 'climate change' rather than 'global warming' sometimes, because the weather patterns will change sometimes, it's not just the fact it's distinctively getting hotter everywhere at the same rate.

And this is where some climate sceptics can come in and say how can we be having global warming, it's snowing outside. Well, it's winter, of course it's snowing outside.

Jan: [chuckles] Absolutely. I think you, you've got that, that sussed. And it's a bit of a, a curse of geography is that some of the places where the warming is going to be more severe and therefore the change in the weather patterns is going to be more severe, are the poorer parts of the world, but also the parts of the world that didn't emit carbon in the first place.

Paul: Mmhmm.

Jan: So again, I mean this is, this is becoming a bit of a mantra of our conversation today, Paul, is that equity and fairness is also tied into this as well.

Paul: Let's try and bring some brightness and positivity to the discussion, because at the minute I feel like I'm going to go and lie down in a very dark room as soon as we finished it.

COP28, was there any good news?

Jan: There, there are some. So, there's a loss and damage agreement. So if you remember from the earlier part of our discussion, this is about how do you deal with the fact that the people who had the least benefit of the carbon emissions are feeling the worst effects of it.

Um, so in that respect there was agreement um for both uh, a mechanism to make that work, but then also um money was pledged as well. Less money's pledged than what we needed, but this is you know two days after the end of COP and so that might, you know more money will be forthcoming but, but having a process within which this operates is also quite important as well.

So the principles were agreed at COP27, now the next layer of how that works out at, at COP28.

One of the things I found interesting about this bit of good news is that there was a sense in which uh COP28 noted that we need to be able to have safe and dignified human mobility in the form of displacement, relocation and migration, either permanently or temporarily when there's a, a climate problem.

I think this one's going to be really tricky for countries to get their heads around, because it does mean um as we trigger some of these, these um events people will be trying to move, quite sensibly. Or we might need to actually accept people moving in order to be able to sustain their wellbeing.

So that's, that opens up another, a can of worms that's maybe much bigger than this podcast.

Paul: Yeah, exactly, because whilst a lot of migration that goes on, and what people maybe think of the main cause of mass migration, might be conflict, it might be things like famine, it could be uh political persecution, climate-related migration is only going to increase, because as you said there are countries that are more heavily affected by this if they're the less-developed countries, the countries that as you have said maybe have never reaped the benefits of the industrial causes of climate change.

They are going to want to leave, they're going to want to go to countries where they're safer maybe from climate issues. And those are the countries that, possibly at the minute politically, trying to push back against migration trying to close the doors, so that they limit the number of people, limit the type of people who come in.

As you say, that's a massive political issue that ties in with climate-related issues as well.

Jan: Indeed, and that's a subject of any number of dystopian movies and books, is about how that plays out. I read recently that uh Tuvalu, it's a small island state in the Pacific, or large ocean but a small island state, are in um conversations with the Australian government, who are trying to work out how they can support that population to be somewhere um safe which may be on Australian, what is currently Australian territory.

And then there's lots of, it's not to do with that particular um agreement, but then it's lots of things like does everyone move together to the same place, and is that your new country in some way? But if everyone moves and goes into different places do you still have a country? I, I think you probably do but actually how we might conceive of that and what that looks like will be quite different.

So there'll be, there'll be lots of different models and ways of thinking about this.

Paul: So one of the main things that myself many people will have picked up that might seem a positive with regards to COP28, and relating back to what I talked about earlier, there were two statements. The first one was rejected and had to be redrafted, and the second one came in and it talked about the phasing out of fossil fuel, transitioning away from fossil fuels.

That seems like a positive, but I'm always willing to be sceptical, [laughs] because I'm also aware that the um President of the COP, who I mentioned earlier, President Sultan Al-Jaber, has come out and said that his company ADNOC is going to carry on producing oil and such, because it's needed, and he's fully intending to do that.

So seems like there's the potential for positives in this message that talks about a movement away from fossil fuel use, and I think there's a key distinction there between an actual move away from, and a statement that talks about a move away from. Is it positive?

Jan: The things that get agreed at the very last stages of these events are some of, always some of the most contentious. It's good to get some stuff out early, so loss and damage was done within the first couple of days.

This came right at the end, it also spilled over the end, so there was a bit of an extension of negotiations between the countries to get to this.

Surprisingly, I think to many of our listeners, and kind of surprising to me as well, this is the first time there's been this um statement, and remember it's an international statement of all the, the parties to the Paris Agreement, that there was a recognition to, that we would have to leave fossil fuels in the ground, and that we'd need to transition away from their use.

Now you might say, how's it taken this long? Well, realpolitik takes this long. There might be something really significant about it being said in the region

that it was in, it might be something really significant about the, the fact that the, the chair of the COP is from a country which um, if you like, is relying on fossil fuels.

So in that respect, if you like, this is the wedge. This opens for the next COP and the one after, and the one after that, to move that element forward. So hugely contentious. It's probably better that it's in this agreement than not. Loads of people had different views. They would, would have loved 'phase out', but I think that that language was lost. Um then there was, as you said, a lot of objections, so transitioning away from is the language that we've got.

But that's only half of it. The other half always has to be, as you move away from a high carbon source of energy, you need an uptake and um lower energy, a lower carbon energy. So an uptick in renewable energy technologies and implementation is really, really important.

And here, if you like, the, the International Energy Agency again notes that that um this uptick is unstoppable. It's moving quicker than they estimated. So when they first estimated at Paris how much uh solar we would have in 2050, the amount they estimated we went past in 2023. Um so in that respect if you like that uptick is, is enormous and, um when we come back to our final theme in the podcast, this is also an area where sustainability and business becomes important.

But I'll close out this bit by, by actually reading the actual text. So 'transitioning away from fossil fuels and energy systems in a just, orderly and equitable manner'.

So that emphasis that I've been putting on the equality is here in the text as well.

Paul: That's great, and um the next episode, the one that we promised would be the next episode when we did the last episode, but then we've thrown this one in. We'll be discussing things like solar power as well, here at Lancaster, because you talk about the uptick in solar power, and we're going to be a solar power generator for our campus here at Lancaster University.

And I think that, when I was a student here 25 years ago, a long, long time ago. I don't think that would have ever have been a thought at all, that there would be a massive solar plant generating you know X% of the energy that's needed for the campus. So, there's good progress seen that.

And likewise, I live near a place called Walney Island, I was brought up on Walney Island, and off the coast of Walney Island now all you can see a wind farms, and it's wonderful. 15 years ago, 10 years ago when they were first starting to appear, there was a lot of people saying [makes grumbling noise] they're spoiling the view a little bit, I don't like this. Now I don't think anyone says that.

They, they do actually look quite nice, I like the look of wind turbines. So people are accepting the aesthetics, but they're also accepting the real need for the energy and the benefits of them. So there's been a big change in attitudes, not just among governments and nations, but among the people living in those nations.

So, unless you want to say something, 'cause we are a podcast about sustainability in business, let's talk about sustainability in business. [Both Jan and Paul chuckle]

What does this COP agreement mean for businesses?

Jan: As ever, it depends what kind of business you're in. So if you're in the fossil fuel industry, um the increased risk is now really clearly there, if it wasn't so clear before, of having 'unburnable' carbon.

So that's a phrase that's used for carbon, well fossil fuels, who have been discovered and who are commercially viable, but who won't be used because of the limits on the emissions.

That also increases the probability of risk of stranded assets. So these are manufacturing operations you might have, for example, that you won't be able to use over their whole lifetime, and so they'll have a shorter lifetime than what you imagined before.

Coal is the first one to go, oil will be the next, and then gas. So these are different kinds of carbon intensities associated with these three fossil fuels. So if you're in any of line of that business then um that's going to phase out.

If you're in the renewable energy industry, this is very supportive news, because um that industry is going to be, continue to be one that grows. Of course it's not, from a holistic sustainability perspective, it's not entirely without its own risks in terms of where you get materials for making renewable energy um, installations, both in terms of the electronics, but also in terms of the installations themselves.

So I think if you're investing in the sector, and you've got the ability to invest more, this is going to be good news. But for everyone, not just those who are in particular industries, there are um a few things that come to the fore.

The first one is that how you acquire your energy um will be decarbonising as you go. So as the energy system changes, if you're buying electricity it will also be decarbonised. In the UK decarbonisation of energy has gone really well, and it's going really well.

The tough one to decarbonise is transport. So looking at transport, how much transport is happening within your organisation, how people were getting around, et cetera, is part of, you know maybe the tricky next step to have a look at.

Paul: And not just transporting people, but obviously logistics, goods because that's a main contributor to the carbon footprint of just about anything.

Jan: Indeed. And I think if I had my time again I'd actually take a degree in logistics, because I, I'm not sure how my math would be up to it, mind, but I just think it's one of the most fantastically interesting and, and important parts of our economy now.

Paul: The more comments you make about your own mathematical ability, the less I wond, well no the more I wonder how on Earth you're an accountant. I can only believe that accountants don't really need to know maths at all.

Jan: [laughs] I think you're right. We have computers to add things up. I, I know what the numbers mean, but generating them I don't find to be that easy. So, that's a…

Paul: … [indecipherable]…

Jan: … a true and a sad admission.

For any businesses, energy source is number one. Number two, if you've got a land-based business, then protecting nature will enhance its ability to be one of those sinks or reservoirs that we talked about earlier. But also will help with adaptation needs.

So land-based businesses are really important for climate change as well, through nature.

The third thing that I would think every business needs to think about is, work out adaptation strategies to be resilient. Um these are, in terms of ,you know

flooding risks, but also risks of other disruptions of your supply chains um, risks of materials and goods that may be coming from places that are prone to forest fires, et cetera. So that whole adaptation is not just your own adaptation in a place, but a supply chain adaptation element as well.

And then lucky last, 'cause we're going to finish where we've touched down on several times. Remember that justice is a big part about how you resolve climate change issues. That actually that becomes really important in the overall mix as well.

[Theme music]

Paul: I think we've covered everything. And for someone who started out by saying, you know I'm not an expert in any of this, we've discussed it well enough that I feel better informed than I did at the start of our discussion.

Jan: I feel better informed after I've prepped for this discussion than I did before as well. [Paul laughs]

So even, even though it was a bit of frantic um work, I really appreciate the chance to do that. And hopefully for our listeners it's a little, a bit clearer about how you decode those headlines, what's behind those headlines, but also what's not in the headlines but will affect our everyday lives as well.

Paul: And hopefully as well, how it ties into just about everything that we have discussed throughout this series so far, and things that we'll carry on discussing over the coming months, with lots of other topics that we'll have tie in to this too.

Thank you very much Jan. And unless you're going to call me and drag me away from unwrapping presents on Christmas Day, that is definitely now our last episode of this podcast for 2023.

We will be back in early January 2024, when we'll be speaking to Georgiana Allison about Lancaster University's carbon emissions, sustainability plans, all the work that we do to make our University a better place environmentally.

Until then, thank you very much, Jan. I'm Paul Turner.

Jan: And I'm Professor Jan Bebbington.

[Theme music]