

SDG 13 - Climate Action

GF: Greg Foot
DA: Daze Aghaji
MS: Mark Sutton

GF: Hello everyone, welcome to Cheltenham Science Festival at Home in association with EDF energy...and the last of our series of videos exploring some of the United Nations Sustainable Development Goals - 17 ideas to transform our World - from Gender Equality to Zero Hunger.

My name is Greg Foot, I'm a Science Journalist on BBC TV & Radio... also a YouTuber, Podcaster, and Science Communication Trainer, and it's been a real pleasure hosting this series of 6 short daily conversations, supported by UK Research and Innovation.

Each video has been introducing you to one particular Sustainable Development Goal - one SDG - and the plan has been to have a relatively compact chat with two new guests each show. They may be scientists, engineers, activists, thought-leaders - they guide us through the SDG and what can be done to achieve it.

These videos are pre-recorded but there will be a live conversation in the YouTube chat so do put your questions to my guests there and they'll do their best to reply to some. If you're watching this back later do continue the conversation in the comments or on twitter using #cheltscifestathome

Today we're looking at SDG Number 13 - Climate Action

The climate crisis is now affecting every country on every continent. It's disrupting national economies and affecting lives; costing people, communities and countries dearly TODAY and even more TOMORROW.

Joining me to discuss what can be done to help is: young social justice activist Daze Aghaji and Professor at the UK Centre for Ecology & Hydrology Mark Sutton.

Thanks for both joining me.

DA and MS: Thank you

GF: So Daze, let's start with you. you stood as a Candidate for the European Election last year Under the banner of the Climate and Ecological Emergency Independent group can you kick us off by painting a picture of the planet's climate situation - where are we currently and where could we be heading?

DA: We could potentially be heading to extinction. Not just for animals and wildlife, but also if we don't create radical change very soon we could be seeing the ways that we're living now becoming unimaginable. I think that is the truly scary part about the climate crisis. It's very very real to many people, especially people living in the global south. We'll experience the same thing. What people call "lovely warm weather" right now, it is a symptom of climate change and what's happening to our planet. It's not looking great but I think in this time, with everything that's going on, we should hold on to optimism and know that we can really create change and we can do it very soon.

GF: Fantastic thank you Daze. Mark, I know you work closely with the United Nations on research in your area of expertise - which we'll get to in a minute - First, can you give us the top lines on what has led us to this climate crisis and what we need to do to tackle the target - as set out in the Paris Agreement - of keeping global temperature rise well below 2 degrees Celsius.

Let's not get into how we could tackle it yet, just what we need to tackle it and what led us here.

MS: OK, well we have a whole range of sectors. It's pretty much nearly everything we do when we use energy, when we travel, when we eat. It's pretty simple, so think about travelling first. Every time you use a car, every time using public transport where you're using a lot of energy. That energy has got to come from somewhere. When it's fossil fuels, we're taking the carbon out of the ground, and putting it in the atmosphere. When it comes to farming, it's not just about carbon, it's about nitrogen as well. We fertilise our crops, that's leaking out into the atmosphere, creating a gas called laughing gas, nitrous oxide. It's 300 times for powerful than carbon dioxide, it's going to be there for 700 years, we have got to learn to farm with a high nitrogen efficiency, less polluting. Now then the third one, our food choices. Basically long food chains have more losses. The more dairy and the more meat we eat the more liable we are to making more pollution for the climate, that in if we more efficient with a more plant-based diet.

GF: Thanks Mark, now before we turn to what we can do to achieve the goals of the United Nations, of the Paris Agreement, I've been asked to tell you that Cheltenham Festivals is a not for profit charity that works year-round to inspire the next generation of doctors, scientists and researchers. If you'd like to support this work - and myself and the other speakers and performers would hugely appreciate it if you did - you can make a donation here: crowdfunder.co.uk/cheltscifestathome. Thanks.

So, onto what we can do. Daze, you're an active member of Extinction Rebellion, what do you and XR say we could and should be doing?

DA: I think XR is really asking for a really fundamental system change, which sometimes is quite a grand idea and position to hold. This is kind of why we use our three demands to guide us though that. So the first is to tell the truth. We need to start actually telling the hard truth about the way the climate is currently, and we need to leave space for grief and mourning for that as well. And then next we should use that energy and channel it into something that's really great and really grand, and that's to act now and take action now. Not wait until later and not waste any more time. Then the third is basically how we can start creating better decisions. How we can start making true democracy in our areas, and this is what we think could be done through citizens assembly, which is a form of direct democracy.

GF: Mark, I said I wanted to return to your particular research as you focus on something that doesn't get much attention when we're talking about Climate Action. Carbon Dioxide and Methane get all the limelight... but what people don't talk about is something that you have just hinted at, and I know is a big area for you, so tell us more.

MS: OK, so I have got the job of doing science, understanding it, turning it into policy and raising awareness for nitrogen. Nitrogen is not something you hear about every day. Everybody talks about carbon, you get carbon footprints left, right and centre, but nitrogen is amazing because it's affecting climate, it's affecting water quality, it's affecting air quality, affecting biodiversity, human health. There's a different form of nitrogen in every sphere of the planet, and that means if we manage our nitrogen better, we're going to get a hit on climate, and all those other problems at the same time. The other thing to bear in mind is really expensive, this is making fertiliser for example, if we were to halve the amount of waste of nitrogen on the planet we'd be making a saving, a cash cost, of a hundred billion, a hundred billion dollars per year. So effectively we're saying join up all those parts, think in a joined up way, good for environment, good for development and of course good for the economy at the same time.

GF: So we're right to think about carbon, we're right to think about methane, but you say there's a part of this that is just not getting the attention it deserves.

MS: Exactly. So the point there is, we're talking about sustainable development goal 13 on climate, what I'm saying is that it's great that we're doing that. It's wonderful that Extinction Rebellion are raising awareness, but let's look at all these challenges together. By taking action on nitrogen it's a way of building that partnership across the sustainable development goals.

GF: And what can we be doing, what should government be doing, what should industry be doing and what should we be doing to reduce not just the nitrogen emissions and pollution but also our carbon emissions as well?

MS: So let's just take where we are at the moment. We're in COVID. It means we're travelling less, we're having this call from home. I'm really happy that I'm not at an airport, it's wonderful. A lot of our meetings are now happening over zoom like this. That kind of transformation is something we might see after COVID. Are we going to be seeing a lot less travel, a lot more use of electronic things, because all of those aeroplanes and the cars are massively polluting for air pollution and the climate? Coming onto the food system, the way we grow our food really matters. Now farmers are often in dire straits about how to make a living. We've got to show them that there are opportunities to manage their manure better. How many farmers have got a lid on their manure heap to keep the goodness in? When you smell it you're losing goodness, it's air pollution, climate change gases etc, and then back to the point I mentioned before about our own food choices. The kind of work we're doing, funded by UKRI, in the South Asian Nitrogen Hub. We've got a situation there. South Asia is rapidly increasing its meat consumption per person. That means in the future even more pollution, even more affect on climate change. Now take a UK side – let's learn lessons and find out how much we really need to eat, can we eat less, and be better for the climate and the wider environment.

GF: Daze, something I've heard you talk about before is 'regenerative culture' - can you tell us a bit more about what that is and how we can achieve it?

DA: The way I think of regenerative culture, it's regenerative cultures with an "s" don't forget because there can be many different types and many different ways as well.

GF: Noted

DA: It's a radical way of being and a radical way of caring and it has around five main pillars. The first one is self-care, how can we learn to take care of ourselves, how can we learn to purge ourselves from this toxic system that we're currently living within? The second is interpersonal care, how can we learn to relate with one another with care and hold each other with our grief, and this kind of goes onto community work as well. Which is the third pillar, community care, to really take care of our community, and work as one to fight everything. The fourth one being action care, which is one that at Extinction Rebellion we are very proud of, is how we can really take care of each other during our high-risk actions? How can we make sure that everyone is OK and that everyone's well-being is being kept for. And the final one is people and planet care. How can we take these really amazing ways of learning with each other and taking care of each other, how can we use that to take care of the Earth? So it's a really holistic way of looking at the environment but also it can be used in many different ways. Once we start to foster this learning of a new culture we can start really breaking down all other social issues as well, because we'll start having radical empathy with each other and start understanding each other and really listening. Through that we can create change.

GF: Do you think that that kind of foundation is essential in order to start turning the tide on the climate crisis?

DA: Yeah, I definitely think so. A lot of the time issues happen when we don't listen to each other and we don't talk to each other and we don't confront these issues. Some things are really hard to talk about, like for example the climate crisis. It's quite an emotive thing and some people totally get shut off from it but some people thrive with it. And the people who get shut off from it, this is a time when we be like, "OK I understand that it's really hard to hear about how the Earth is dying and how air pollution is real and people are dying from this. However, can I hold you in your grief? Can I comfort you and can we take some steps together?" It's that way of really learning how to care and live as each other. We have to understand, the climate crisis is a symptom from the toxic system that we're living within. Once we start learning how to respect ourselves, respect our community, respect the people who live on this Earth with us, we'll in turn learn how to respect the Earth as well.

GF: Yeah I think empathy, openness to grief is very powerful. What do you think we could be doing? Not just us but higher up the chain, governments, institutions, to try and achieve the target and tackle the current climate and ecological emergency?

DA: I think that in this time of COVID it's really interesting because the first thing we did was get scared, and bulk-buy, and then the next thing we did was making sure we were taking care of our community, and the people who are seen as more vulnerable. And this is kind of just showing how we can truly make this happen. We can learn to just be nice to each other and really educate ourselves on the issues that are happening and why they are happening. Once we start openly talking about this, even though it is so so hard, once we start doing that, things will change because we start listening and hearing each other. I think the fundamental part of that is to make sure that once you listen you act. And don't just leave it for someone else to do because this is our planet, this is our world and our futures as well.

GF: I was really interested to read the targets set out for goal 13, climate action and a lot of them were about strengthening resilience, improving education and of course mobilising a large cash sum to help all the communities around the world. But going back to what you were saying earlier Mark, about meat consumption especially in other places around the world. Actually when we were preparing for this conversation you introduced me to a new term that I wasn't aware of: demitarian. Can you tell everyone about that and also what it means for you as a scientist?

MS: No problem. Demitarian simply means half, have an ambition to eat half the amount of meat you had before. The reason we introduced this idea, was about ten years ago now actually, and we made a commitment in our scientific conferences to make available a demitarian meal. This means the chef is cooking with half the amount of meat for everybody than he would have done before. When it comes to let's say personal ethics it's a question of "do I want to eat meat and dairy or not?" But when it comes to environment, it's about "how much?" That means everybody can make a difference – every choice to eat a bit less meat has benefit for the environment. Going for a half is a simple aim, and it means you can massively reduce your nitrogen footprint. Let's take an example of what you might do in agriculture to reduce losses to the atmosphere – put together a club of your best measures, maybe you'll be a 40%, 50% effect reduction. If Europe were to half the amount of meat and dairy we eat it would reduce pollution by 40% so imagine putting the two of those together, they are both really powerful.

GF: That would be quite the impact. Just before my final question, a big thank you to UKRI for supporting this series of conversations around the Sustainable Development Goals

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Through its investments in research for international development, UKRI is proud to support and contribute towards global efforts to achieving the SDGs.

Now Daze, Mark. before I ask you my final question, I always like to give each guest the opportunity to ask a question of the other? Let's start with Mark, Mark do you have a question you'd like to ask Daze?

MS: Yes I have a question for you Daze. I spend a lot of my time talking to the United Nations, and I see that the countries, they want to change, but really slowly. To get a substantial major agreement is hard. Now it's not my job to say how far they should go because people want me to be neutral, they want a level balance of evidence. But from your perspective, you clearly want to accelerate things. How would you see that the UN could accelerate change for climate action sustainable development.

DA: Thank you Mark, I think the UN needs to think radically. We are in a situation that can not be predicted. We need to act with caution. We need to make sure we say OK, we don't know what may happen. The science is concrete, we know that climate change is happening, but we don't know the severity, so why should we wait until everything is already messed up to try and do something about it? For me, that's the issue because politics works so much with the short term. You're thinking about "how can I get elected in the next five years", rather than "how can I make a better future for society that's currently living now and forever". This is where we need to start asking more of our politicians. We need to tell them "we vote you in to protect us, to take care of us, and you're not doing so, so we're going to ask you to do it, or we're going to take it into our own hands". Obviously I say practice civil disobedience, there are so many different ways you can be radical, and have civil disobedience. You don't need to be in a road and glueing on, you can actually just stand up to power in your own homes and that's more than enough.

MS: Thank you

GF: Daze do you have a question you'd like to ask Mark?

DA: Yeah actually, so I've been looking into the ideas of soil degradation. Could you go over it a bit more because I feel like it's a really interesting topic and the audience at home would love to know a bit more about what our soil is looking like currently in the UK and how can we improve it?

GF: And also Mark, just to add to that, the contribution that that soil degradation actually makes towards climate change and the climate crisis

MS: I think when it comes to the soil we clearly want a healthy soil. That will often mean that we want a really good amount of organic matter in it. Too much farming, just taking out, without replacing, is not going to be good for storing the carbon in the soil. The next thing is that the carbon and the nitrogen go together, they can't live without the other, so protein is part carbon, part nitrogen, amino acids, they fit together. In terms of action, the number one thing is a good healthy soil. The challenge there is we have to not take out more than we put in. And I think one key thing for me is manure. Manure doesn't get much excitement. Whenever I want to talk about food, people are happy, but nobody wants to talk about manure. That is life, but it's full of nitrogen, it's full of carbon. Good manure management is I think the thing we really need to do. In the South Asian Hub with GCRF we worked out that in India alone there's a street value of urine of 6 billion dollars a year worth of urine that's not necessarily being made full use of. So around the world our urine and our manure I think, thinking about ways of getting it in the soil, avoiding it getting to the atmosphere, careful timing of crops and of course, back to that food choice thing, nearly 85% of the harvest we have from our agricultural land in Europe is going to feed livestock. Only 15% is going to feed people. That's an amazing number and it shows this whole point about let's optimise and tune our diet, recognising the environmental consequences.

GF: GOsh, super interesting, so urine really is liquid gold for the soils.

MS: Great phrase.

GF: We still have time for me to chuck two quick questions at you. Here's the first one: three top tips for our viewers who are watching for them to make a significant personal contribution to SDG 13 Climate Action to helping relieve the climate crisis. Mark let's go to you first.

MS: Think about what you eat. Also bear in mind that long travelled vegetables grown in a greenhouse halfway around the world also have an impact, not just the meat so you've got to balance the whole story. The second one of course, we all know about travel, but really think about your travel footprint. And I think lastly the whole energy saving story, it's not about nitrogen it's about carbon here but of course it is obvious energy saving opportunities.

GF: Thanks Mark. Same to you Daze, top three tips

DA: The first one is learn from the people who have been taking care of the Earth for so many generations, and that is the indigenous people of the world. They have lived with nature and they know what to do and I feel like the Westerners we have messed this up a little bit, so I think it's really taking understanding from and understanding from people who have been doing this so well. I think also we need to start thinking about what do we see as impossible and start making that happen. I think we should aim for the stars and beyond and if we fall a bit short at least we have done that. That's why I think we should start thinking about more radical changes. I think we should put trust in the youth. I'm not even talking about people who are my age, I feel relatively quite old in this youth movement being twenty. There are amazing young activists who really have power and who have owned this issue as their own and they are as young as 11, 12, 13 and they have ideas. We should give them some power in making those decisions for their own future.

GF: Fantastic answer. My last question was going to be, this is obviously a worrying, concerning situation we are currently in and it's only set to get worse, my last question was going to be, what gives you faith in the future? Daze you've just touched on it a bit, but Mark, what gives you hope?

MS: I think it's about building trust with communities and people. That's what we're seeing across all these zoom platforms around the world. What I'm finding in our Hub activities, that's activity with UKRI in South Asia, we're working with eight countries. We've had some amazing conferences together, up to 150 people, all these windows opening at once, and building that community of working together across national boundaries. There may be political differences but the people themselves want to work together.

GF: And Daze, last word to you then on this, about your hope for the future?

DA: I think it's really young people. I had the pleasure to teach a primary school class last year and that changed the way that I saw the world because they have such vivid optimism, where even though it feels bleak they are so hopeful and they have ideas and they have the intelligence to bring these to life. I think it's mainly giving the reins over and saying to young people "we are here to support you and we're here to make things like you feel are possible happen".

GF: Brilliant. Thank you both so much, that's the end of our time together to explore SDG 13 so thank you both again for joining me today and sharing your wisdom.

DA: Thank you

MS: Thank you.

GF: So there we go. I'm taking away from that the importance of community and empathy and support and not just focusing on carbon footprint but thinking about nitrogen pollution and nitrogen footprint. This new term of demitarian and thinking about reducing the amount of meat, it's not about cutting it out completely if that doesn't work for you, even halving it it going to have a significant effect. We heard from Daze about civil disobedience and ways it can be done and the power it can have and also that lovely idea about aiming for the impossible. I think that's a wonderful thing even if we fall short, we're still going to be doing something. Thank you so much for watching and thank you to UKRI for supporting this series of 6 short daily conversations

There are a few more events happening today as part of Cheltenham Science Festival at Home in association with EDF energy so do check out the website and the social medias for more information

Big thanks to my guests today social justice activist Daze Aghaji and Professor at the UK Centre for Ecology & Hydrology Mark Sutton

I'm Greg Foot and I'll see you at Cheltenham Science Festival 2021!