Andreas:

Hey folks, and welcome to the Future of Business, the podcast of the Oxford MBA, where we take you on a journey to explore the diverse range of sectors and stories that are here in our MBA cohort, and how they shape the future of business. My name is Andreas, and I will be hosting our conversation today with Nagadarsan Suresh. We're going to talk about his passion for the zero carbon transmission.

First of all, let me introduce our wonderful guest. This is Naga. He's from India, he used to live in Africa, and he's passionate about zero carbon transition. Naga, tell us a little bit about yourself.

Naga:

Hey, Andreas. It's wonderful to be here. Thanks for inviting me. As you said, I'm quite passionate about climate change and the net-zero transition. And otherwise, I'm really interested in culture and languages and history, and a lot of those things associated with that.

I worked in India and then in Africa, and now I'm trying to work on a career in climate change and in net-zero transition. That's something I'm looking forward to for the next decade of my career, really.

Andreas:

Cool. Wonderful. Naga and I, we are classmates here in Oxford MBA, and I think we both really enjoy living in this magnificent city, in this little Hogwarts outside of London. Oxford is made up of around 40 colleges that are a mix of dormitory and society. Can you talk about what your college is and what you like about it?

Naga:

Absolutely. I love talking about this because I love my college. I belong to Merton College, which is one of the oldest college in Oxford. That's contested by three colleges, and we are one of them. It's a beautiful, cozy little college tucked away behind High Street. It has amazingly beautiful gardens, really lovely buildings, great food. So one of the things I really wanted to do in Oxford was to spend as much time as possible in the colleges. I think I spent maybe four days a week at Merton, so that's been really great. And I'm kind of sad that that time is ending. Pretty soon we'll have to say goodbye to our colleges.

Andreas:

Yeah, thank you. My college is St Hugh's. We have beautiful gardens. We have two cats called Professor Biscuit and Admiral Flapjack. And as a final anecdote, we used to be a woman-only college and we were the first college with a female rowing crew. When the time for competitions came, the girls asked the boys where they should compete, and then the men allowed them to row in their competition. And then the women won and they beat all the male boats, and the year after, the men forced the women to start their own league so they wouldn't be beaten by them again. But that's just the legend of St Hugh's. I'm sure the Merton boys wouldn't agree with that.

Nevertheless, let's dive into it and talk about the zero carbon transition. Can you briefly explain to me why this is so relevant to our society and why this is important to you?

Naga:

Absolutely. The net-zero transition is super important to us because we are reaching a stage in the life of our planet where we are very close to being more than two degrees warmer than it used to be in the

pre-industrial times, and that comes with a lot of problems. For every degree that we warm beyond two degrees, there will be massive consequences. There will be increased droughts, floods, and all kinds of things. Life is generally going to be really miserable for us and for the future generations.

So it's really super important to the world that we stop this warming as soon as possible. The only way to do that is by going net zero. So net zero essentially means that you take back more carbon than you emit in the atmosphere. So we have to be looking at ways to reduce carbon emissions. Or even if we are emitting carbon emissions, to ensure that we capture them back. There are multiple ways to ensure this. And the world, as a whole, has to reach net zero sometime towards the middle of the century. That's the only way to prevent global warming from really wrecking our planet and to making livelihoods miserable for us.

Andreas:

That's clearly such a big global phenomenon. Can you try to kind of break it down and explain to us why this topic is important to you personally?

Naga:

Yeah, absolutely. There are couple of things that really attract me within this topic. So the very first time... It's been about three or four years now that I started getting interested in climate, and the complexity of the problem was really what stood out to me. Climate is not a simple thing. It's not one area of study, right? So there are multiple angles to it. There's a physics angle, there's an economics angle, and there are all kinds of other subjects and disciplines coming in. So from a purely intellectual perspective, that challenge was really appealing to me and that's one of the reasons I'm interested in climate change and how to tackle it.

At the same time, I used to live in South Africa at the time in Johannesburg, but I used to constantly travel to Cape Town. We had a water crisis in Cape Town, I think in 2018, where the city was in a situation that we would run out of water in about 80 days or 70 days or something. We called it the Day Zero Drought. We were counting down every single day to the day in which we would run out of water completely in the city. So everyone had to ration and use less water. You weren't allowed to really water your gardens anymore. You weren't allowed to use baths anymore. So there were multiple restrictions. And thankfully, day zero was sort of averted in part due to human intervention.

So that kind of brought it so close to me. It's not something that you read about anymore or you watch in a documentary, it's something concrete, it's something that is in your life. That's what made me realize that this is a field that's really now and complex, and I really wanted to get involved in it.

Andreas:

Yeah. Yeah, I absolutely see how a city that is setting rules of how water can be used because they're about to run out of it makes it tangible. I think it's important at this stage to realize that this is not an African problem or a South African problem, but that similar things happen in California, where they start to ration water.

That's where the South African problem now, there's a huge social and equality component to this. So at the moment, water gets limited in a city, we realize that rich people keep on watering their garden because they don't mind their utility bill to go up. And at the same time, there's poor regions where it's really affecting the health and the lives of people in a very physical way. So I'm looking forward to kind of unpacking with you what we all and our society or systems can do to propel this transition to net zero.

Naga:

Yeah, absolutely. In terms of technology, there is a lot happening right now because ultimately, technology is one way that we can positively influence this entire journey.

One of the most important things in my view is carbon capture. So let me try to quickly summarize that. Carbon capture is a series of technologies that allow you to capture the carbon dioxide emitted in industrial processes. This is important because we can't reach net zero by purely depending on renewable energy sources, because there's going to be multiple uses for fossil fuel. There's going to be multiple uses that we can't avoid, really, because there are some industrial processes that can't be done with renewable energy. So we are going to be dependent on fossil fuel for quite some time. The question is, how do we mitigate that. When we use fossil fuel and the carbon is released as a result of that process, you need to capture it and you need to store it away properly.

Andreas:

Okay. I look at this the way you do a balance sheet. So for us to reach net zero, on the one hand, we can try to emit less carbon, and we will, but we'll never get to zero. So at the same time, we try to capture carbon and put it out of the atmosphere. Doing it this way, we are not talking about us planting forests or starting to put fertilizers in the oceans with the gazebo, but we are talking about industrial capturing of carbon. So us developing technologies where machines or systems take the carbon out of the atmosphere, and then using infrastructure like pipelines to transport it and they store it in works under the ocean, similar to the way we would, I don't know, store nuclear stuff. So can you talk a little bit about where we are getting this and how these different elements work?

Naga:

Right, so every single net zero plan by a country in the world right now has an element of carbon capture, at least all the major ones do. In the UK, for example, we are talking about clustering industries, capturing the carbon released, transporting them by pipelines into the North Sea and storing them under rock formations. There's going to be a significant business model around it. That is super critical because as much as 15% of the carbon that we avoid in the next 50 years is going to be through carbon capture and storage.

Andreas:

When we talk about pipelines, we talk about carbon in the form of gas, or some sort of a liquid or solid carbon.

Naga:

Yeah, exactly. So it's going to be compressed carbon that's sent through pipelines and injected into rock formations.

Andreas:

Similar to how fracking works.

Naga:

Yeah. The original idea comes from the world of oil and gas, but the idea now is to give it a more positive interpretation and positive final result, really.

Andreas:

Well, I kind of like that these people are solving the issue, because they're clearly part of the problem.

You already mentioned briefly that companies have plans to reach... That governments have obviously quite detailed plans to reach a carbon neutral future. That kind of leads us into the area of carbon measurement, of planning, of stability accounting. I really kind of want to spend some time on the metrics and the measurements behind it. Can you help us understand how we are trying to track how carbon is being limited? How we are allocating and accounting it, and also kind of how we are using this to drive decision-making when it comes down to the zero carbon transition.

Naga:

Yeah. This is a super interesting area because in terms of emissions, you have scope one, scope two, and scope three. Scope one is really what you emit when you do your business as a company, directly related to what you are actually doing. Scope two is the energy that you purchase in order to enable your business to function. And scope three is everything else in your value chain, which is fascinating because if you are a company manufacturing something and you have a supplier who delivers a particular component, that supplier's emissions will be your scope three emission.

Andreas:

Can you try to break this down by the example of my local Tesco store? So the scope one is the heating I'm doing in house. Also, if I would burn my plastic, that would be part of it. It's also the trucks that I have on the road. That would be scope one. Scope two would be the energy I'm buying. So if I have light switches going on, if I have large energy for my cooling refrigerator. So we would look at, "Do I get renewable energy from solar systems, from wind, or do I import oil and gas from Russia?" And then scope three would be, "What is my supply chain doing? Where do I get my strawberries from? Where are my people being trained? Where's the food produced?" Is that how it works?

Naga:

Yeah, exactly. Scope three for you would be let's say you're buying beef from a supplier, and the supplier is using a particular machinery to do their work to get that beef ready for you. So the energy consumed in that process by the supplier would be scope three for you. And transportation-

Andreas:

It's also if they import wheat to feed the cows, then it would still be part of scope three. So if there's a second or third tier supplier, that is still part of scope three.

Naga:

Yeah. So that's a fascinating area because that's where the question comes, "Where do you draw your boundary? What is really scope three to you?" That is an area that a lot of companies and a lot of governments are trying to define now to know where scope three ends, what is boundary condition for a particular corporation or a particular industry. There's a lot of work still happening in that sphere, and it's fascinating to follow.

Andreas:

Yeah. And obviously, everything that is scope three for one company is scope one for another company, given the fact that it's a capitalist system and we don't have some sort of free labor market in there. But

you already talked about the fact that somebody got to take responsibility for all the emitted carbon. Can you talk about on what level this is being allocated and accounted for? So if we now look at zero carbon planning or trading or pricing, is that something that's being done on the basis of regions or companies or countries? And what levels are we compiling this?

Naga:

Right. So about responsibility, first of all. Ultimately, you have to look at the business model and see if that particular business model is causing emissions in whatever way, whether it's scope one, two or three, and the responsible party has to be that particular business model and that particular corporation. That's one way to look at it.

And in terms of the measures that are being done, there's fascinating work happening in accounting standards right now. There's something called the ISSP that has been set up during COP26, which intends to include sustainability within the disclosures that are mandated by companies. It's a work in progress.

Andreas:

Okay. Let me quickly jump in there. So obviously for financial accounting, we have a very big legal framework that dedicates in detail how companies track their finances, how they disclose their finances, and how their finances being audited by third parties. So I understand that now when we are looking at sustainability accounting and carbon emissions, we are trying to bring legislation on the way, or we are actively bringing legislation on the way that treats this in a similar way that companies are forced to track their emissions specifically and following regulatory boundaries, and also to disclose them and for these to be audited by third parties. Is that how it works?

Naga:

Yeah, exactly. So right now, last week, the SEC has proposed a policy that would mandate companies to disclose scope one and scope two, and scope three, provided you can sort of tie it back to your business model and essentially claim that it's part of the way you conduct business. So it's not a legal mandate, it's not going to be a legal mandate in the near future, but scope three will become more and more relevant in the coming years. And that's going to be the most important part of this because in some industries, it's more than 80% or 90% of the emissions of a particular company.

Andreas:

Yeah. What I find really fascinating here as an MBA student is how there's very different areas of business interrelated here. So a couple of years ago when we discussed climate change, we mostly talked about engineering and technologies evolving. And then at some point, we kind of looked at the business of it, the business models. And now we really look at it in terms sort of one line, in an accounting perspective, and on the other side, in a supply chain management perspective, and really kind of how these things come together. And obviously, how both boards, so companies, and governments, regulators, are trying to design rules where we collaborate on this and where we try to work together on this. With all these progress happening, why are we not getting there? Can you talk about the issues and complications that we need to solve?

Naga:

Yeah, that's the million dollar question, right? Why aren't we getting there? And when do you really realistically expect to get there?

One of the main problems is that there aren't enough regulations right now. So scope three, as I was just talking about, it's not mandatory yet. It is something that companies are expected to do if it's material to them, and even that's just an advisory at this stage. And at the same time, the technologies haven't evolved properly yet. Carbon capture has been in the forefront for some time now. We are looking at a situation where the UK government wants carbon capture machinery, the entire model, to be complete by the end of this decade, but that's still far away. That's still quite a few years away and things have not been progressing very fast. So the evolution of technology, the evolution of regulations, these are two really important things.

That brings me to another thing, which is carbon pricing. So there is no global carbon price yet, and that's something that will become more and more important as the years progress. Because we are a global economy, companies are going to be trading between each other. So unless there's a value on the carbon that you emit, unless there's a penalty for you as an emitter, we are never going to have an economic quantification of what it means to emit something like carbon dioxide. And once we have that economic quantification is only when we can really think about essentially balancing between emitting for necessities and not emitting because it's going to be too costly to emit. So these are some of the areas where a lot of work still needs to be done, and I'm hopeful that'll happen in the next decade or so.

Andreas:

Let me just try and understand carbon pricing better. I'm a businessman at heart, at least I really hope so, and I love the idea that you would simply put a price on carbon so that if anybody is planning their business, their venture, their next investment, they really have to calculate the impact it has on nature and have to pay a price for it. But what I don't get is who are they paying? If I start a logistics company and I get 500 trucks on the road and they are emitting and there's a price on carbon and I plan into my finances that I have to offset this and pay, who do I pay? Do I pay governments? Do I pay Greenpeace?

Naga:

Yeah. So it's an interesting area, again, and it's complex. The best case scenario in my mind would be you pay the government, and that money is used by the government to fund the climate transition in other places, potentially, or maybe in areas where you need even more money investment. So if the price that you pay for emitting carbon is going to be used to improve the accessibility or renewables or improve the external development of technology that helps you move forward to net zero even more, then that's really the best utilization of that money. So to answer your question, yes, ultimately the money will go to the government, but we need to have clear ideas and clear models on what happens to that money once it gets to the government.

Andreas:

Okay. For a moment, that sounded to me like there already is a price for carbon, but there seems to be no clear system of who's paying it. Can you maybe just draw for me the current landscape? We clearly have an understanding for this.

So just to put in perspective, when I was a kid, when I was 10 or 11, one of my best friends, their family didn't own a car because of climate change. Instead, they had e-bikes. That was 15 years ago and everybody thought they were crazy. Now a long time later, we all kind of woke up. They were clearly ahead of their time.

So my point is at this moment in time, let's try to assess the current state, there is an understanding in the population. There's a sense of urgency. I think we finally reached a moment where the vast majority of people know what's happening. I think there's a consent. I think we also managed to get over the whole there is no climate change thing that happened in the States a couple years ago. I think by now there's a consent on climate change. It's just that there's first regulation in place. There is technologies being developed. There has been huge progress made on electric vehicles, on solar power, on hydrogen, and there's first attempts on the accounting side, but not yet enough on regulation. Can you kind of talk about a little bit where we are right now and what's happening next?

Naga:

Yeah, so first of all, that family was probably a visionary family. That's absolutely... But I also want to take the conversation away from individual responsibility to corporate responsibility, because a lot of what we do as individuals are limited. We can only do so much while the bulk, the massive effort needs to come from corporations. That's where things like carbon pricing or other kinds of mechanisms can work properly.

As to where we are right now in terms of timelines, like I touched upon briefly before, in the UK, by the end of this decade, a lot of these technologies and policies have to be in place, otherwise we are going to be running behind. So the 2030s are going to be all about scaling up. Scaling up the technologies, extracting carbon out of the air in significant quantities, moving ahead with renewables in significant numbers. That's the only way we'll be ready to hit that net zero 2050 target in the 2040s.

So this decade is all about putting into place policies, making sure that our housekeeping is done and that we are doing the right things. So we can't really afford to make mistakes, really. So if we go ahead along the route of carbon capture for five years and put in place the infrastructure, then we can't just go back and do something else entirely different. So this decade is all about that, the preparation, and then next decade is where we really ramp up.

So from a timeframe perspective, unless we are on this ramp up phase in the next 10 to 15 years, we aren't going to meet our targets and we aren't going to make net zero by 2050. Then that two degree Celsius that I mentioned before, we are never going to be even close to that, and that will lead to significant consequences later on.

Andreas:

Okay. Yeah, I agree and I think on one side, it's kind of helpful to understand it right now. We are putting on the basis, developing loss and technologies to where to scale up. At the same time, I'm kind of cautious and a little scared because I've seen many business cases where the first couple of years, slow growth is expected, and then miraculously, at a time that is outside of my responsibility, then it skies up suddenly. So let's hope we get it done properly.

With so many problems to solve and so many exciting developments, how does somebody get involved? How do I get to work on this?

Naga:

That's simple. Come to Oxford. So for young people who want to get involved in something like this, this university presents a lot of opportunities. You can get involved with the climate OBN in the business school, with the Sustainable Finance society, with the Oxford Climate Society. There are a number of avenues here, a number of professors and researchers working on things that are related to climate change. Or even otherwise, there's so much to read up. You can read up government policies, get deep

into those research papers, read the nitty-gritties. That's when you really realize just how complex it is. And when you appreciate the complexity, you start realizing ways into the problem and how you can be a part of the solution.

Andreas:

Okay, cool. I just have one last question for you. Just one question for you. What impact do you want to have on this?

Naga:

For me personally, next decade of my career, I want to devote it to climate. I want to have clear impact in terms of the tougher portions of the story. So I want to be working closely with the sectors that are in the hard to abate category, like manufacturing and mining. I want to play a part where I end up advising them on how they can mitigate their climate risk, or potentially try to think of ways to move on from their current potentially legacy processes into something new and something brighter for the future of the world, and-

Andreas:

Amazing.

Naga:

Yeah.

Andreas:

I'm looking forward to see you showing them a green way. There's certainly important work to be done, and there's a lot of opportunity to make a difference and also make a career of this. I wish you all the best. Thank you so much for taking the time, Naga, today. Thanks for coming out.

Naga:

Thank you so much, Andreas. Thanks for the invite. I've had a wonderful time here. Thank you.

Andreas:

And thank you, folks, for listening in. It's been a pleasure, as always, and I hope you will join us again here at the Future of Business podcast.