



# Crossing Channels

Interdisciplinary answers to today's challenging questions

A Podcast series hosted by  
**Rory Cellan-Jones**

Presented by



With support from



## Episode II **HOW SHOULD NATURE BE INCLUDED IN THE ECONOMY?**

With  
Matthew Agarwala (Bennett Institute)  
Cristina Peñasco (Cambridge)  
& Nicolas Treich (IAST)



## How should nature be included in the economy?

### SPEAKERS

Matthew Agarwala (Bennett Institute for Public Policy, Rory Cellan-Jones (Host), Cristina Peñasco & Nicolas Treich (IAST)

### Rory Cellan-Jones 00:06

Hello and welcome to Crossing Channels a podcast collaboration between the Bennett Institute for Public Policy at the University of Cambridge, and the Institute for Advanced Study in Toulouse. In this series we'll use the interdisciplinary strength of both institutions to explore some of the many complex challenges facing our societies. I'm Rory Cellan-Jones. And in today's episode we're going to be talking about why have economists ignored nature for so long. Now they've discovered it, are they measuring it correctly? This question is particularly relevant at the moment as we record the week after COP26 closed in Glasgow. Today, we'll discuss some of the recent trends in environmental policy, the different ways in which nature in the economy interact, and what the impact could be of making it integral to how we see the economy.

To explore these issues today, our first guest is Matthew Agarwala from the Bennett Institute. Matthew, remind us of your main research interests.

**Matthew Agarwala** 01:07

Thank you. My name is Matthew, I'm an economist I work on productivity, sustainability, and greening the financial system.

**Rory Cellan-Jones** 01:14

Excellent sounds a busy life. Our second guest is Cristina Peñasco, also from the Bennett Institute. So Cristina, tell us briefly about your research.

**Cristina Peñasco** 01:23

Thank you, Rory. Well, I do public policy and innovation in green and renewable energy and energy efficiency technologies with a focus on the valuation of policy instruments for the low carbon transition.

**Rory Cellan-Jones** 01:33

And our final guest is Nicolas Treich from the Institute of Advanced Studies in Toulouse. Nicolas, what do you focus on?

**Nicolas Treich** 01:41

Hello? yeah, so I'm working on decision theory; that's my background. But in terms of applied field, I'm working on environmental economics, and more recently on the economics of animal welfare, which is really a niche niche topic in economics.

**Rory Cellan-Jones** 01:56

Let's dive straight in, by challenging the title of this discussion. Is it true Matthew, as that until recently, many mainstream economists just ignored nature as something that needs to be factored into the economy?

**Matthew Agarwala** 02:08

On the one hand, yes, over the past half century, economists have largely ignored and omitted the natural environment. That's climate change, biodiversity and ecosystems. But on the other hand, we have also seen a few pioneers in the field professors. Partha Dasgupta, Lord Nicholas Stern, and others around the world who have deliberately brought nature, climate change, biodiversity, ecosystems, air quality, straight into the heart of economic modelling. There's now an entire field of environmental and resource economics, and in fact, we're so mature, we've even had our first schism, and we now have a spin off field of ecological economics as well. So what this tells me is that if you go back to the traditional models, over the past half century, you will see a severe lack of the environment. But if you look for it, you can find environment and climate straight in to the heart of economic analysis.

**Rory Cellan-Jones** 03:02

Nicola Thresh. Didn't it used to be though that governments, the media and so on, would present policies on climate change and conservation policy as a trade off, you can say this much nature, but at the cost of this much to the economy? And is that changing now that we're getting word of, you know, green new deals, the green recovery, and so on?

**Nicolas Treich** 03:21

Yeah, this is true but we usually present the issue related to environment as a trade off, and I think it is a trade off because investing to protect nature, reducing our greenhouse gasses emissions are costly, the end of the day, it is a trade off, and we see how difficult it is to reach some agreement related to climate change, for instance, and which simply shows that there is a trade off. As an economist, I'm usually quite sceptical about this narrative which consists in presenting the investment in the environment as a win win, in general, it's not a win win, it's a cost for the economy but it's a benefit for the environment, and then for, for humans, or future generations, and so on, and we should take it as a trade off and we should explore very carefully this trade off. And this is a way it should be and it is most of the time in economics, it's a trade off that we can hopefully study.

**Rory Cellan-Jones** 04:18

Cristina Peñasco, is that how you see it, because we do hear a lot these days about green new deals, the green recovery and so on. Do you see the two as being you know, economic growth and dealing with climate change really being in conflict and there being a trade off?

**Cristina Peñasco** 04:33

Actually, I have a slightly different view than Nicolas. I think there's a cost for the economy in the short-term, but these will be basically compensated in the long-term. If we don't act now the cost of reducing emissions, the cost of the carbonization will be way bigger in the future. And the cost of inaction is way bigger, the cost of putting money right now on decarbonising economies and on taking care of the environment. The tricky part here, from my point of view on from what evidence says is that the design of the policies are the ones that can transform the trade offs, that is true, that we see certain elements of trade offs in terms of competitiveness, and jobs and all that when we put in place certain policies, but the design of the policies, if we do it rightly, and in the right way, can actually transform these trade offs into co-benefits. And we have evidence about about that.

**Rory Cellan-Jones** 05:24

And have you seen that develop over the last decade in, you know, mainstream and less mainstream economists that they have come up with research that proves the case, you're arguing,

**Cristina Peñasco** 05:33

We've seen a change in the type of evidence we've seen in the last year. And I think very recently, this narrative about instead of cost and benefits of the low carbon transition, as risks and opportunities, half allowed us to change the paradigm somehow, so more and more academics and I think policymakers are analysing environmental issues and sustainability from a risk opportunity point of view more than cost benefit analysis. And this has changed how we see things, we analyse things. There are more and more economists taking this narrative, I think into account when we analyse and develop our own policy evaluations.

**Rory Cellan-Jones** 06:15

Now another trend in environmental policies, the wider awareness of just what pollutes apart from the more obvious energy and transport sectors, we're being encouraged as individuals as well, to reduce for instance, our consumption of meat, single use plastic, fast fashion, is there a limit to this idea that we should rely on individual choice? And at what point should the state start enforcing an industry level policy? Matthew.

**Matthew Agarwala** 06:39

It's a great question. I've been asked this 100 times over the past two weeks whilst I was in Glasgow at COP. The reality is that there's a lot that each of us could do as individuals but it varies based on our lifestyles and our personal circumstances. If you're somebody who eats a lot of meat and can reduce that, then that's one way of improving your environmental footprint. If you're someone who flies frivolously and short haul flights that you could alternatively, take the train, then reducing that and making the shift towards train transport would help reduce your carbon footprint. On the other hand, micro consumerist small actions of recycling this or switching this brand of cereal for the other brand of cereal, this is not transformational change that we need throughout the economy. The reality is that the collective action problem of getting nearly eight billion people on the planet to work together to reduce emissions is insurmountable. And so what we need to do is have governments take the lead to make the default option, greener. People are going to heat their homes but if that heating is green energy, it's okay. People are going to be mobile and travel around the country, but if that's green, low carbon transport, it's okay. The further up the supply chain we can make those changes, the more acceptable it's going to be politically and the more efficient it's going to be economically.

**Rory Cellan-Jones** 08:04

Nicolas, you want to come in there? I know you you've looked at, for instance, meat consumption and what that does?

**Nicolas Treich** 08:10

Yeah, yes, I fully agree with Matthew, I think most of the environmental issues we face are like collective problem. And in what we call the first best approach in economics, we should address them with collective instruments and the collective instruments are a tax, for instance, we could be low. To me, what we see

these days with repeated calls to individual actions is a sign of political and institutional failure. Because it's very difficult for government institution to agree and to go in the good direction, then we rely on consumers. If you take climate change, it's very difficult to agree on an ambitious target, so then at the end of the day, we ask citizen consumer to make an effort to reduce their pollution and meat consumption is one of the best example of that. Regarding climate change, agriculture is exempted from main regulations. It also the case for air pollution or biodiversity, why the meat is probably the main driver. And then as an alternative, we suggest that consumer should make an effort but at the end of the day, I agree with you it should be a decision coming from government.

**Rory Cellan-Jones** 09:26

But surely there won't be that pressure on government which is needed unless you kind of mobilise individuals and one way of mobilising them is to give them an idea of what impact their own actions can have.

**Nicolas Treich** 09:38

Yes, I agree we need, we need to measure the impact and there are measures and they also measure that show that some actions are particularly efficient in particular views regarding the use of coal, oil and meat. And so this is where we should target our policies.

**Rory Cellan-Jones** 09:56

Cristina, do you find people from outside the sphere ask you what I can do? And if so, what advice do you give them?

**Cristina Peñasco** 10:03

I always say that is a matter of individual choice, I see myself, I went to Glasgow, and I saw all these nudges about like carbon emissions of each of the of the food you eat. And for me, that works, but may work for me may not work for other people, so I think I agree with Matthew, in the sense that globally, we need or the governments need to facilitate the change but people have a lot a lot to say from the more bottom up bottom up approach. The role of the government is basically to make this default option or green default option available for everybody without putting at risk certain segment of the population. And that's always tricky how you communicate to a citizen that lives in a rural area that a carbon tax might not be comfort for them, when they are seen, actually, it's comfortfor them. So I think communication in that sense, is one of the instruments or key soft instruments that we can use to bring citizens on board.

**Rory Cellan-Jones** 11:02

So for instance, would you like to see governments effectively making meat more expensive, pushing people in that way, using those kinds of fiscal incentives, because those would be quite controversial.

**Cristina Peñasco** 11:13

That would be very controversial, probably won't be politically acceptable, and in certain countries, that is literally impossible. I mean I'm just thinking countries like Argentina with with high meat consumption, which these products are basically part of the culture. We can't, from a political point of view, establish these kind of policies. We can disincentivize this kind of consumption, if it's about making it more expensive, we have to give an alternative that is feasible and that is not more costly for citizens.

**Rory Cellan-Jones** 11:47

Now, there is another movement, a more radical movement, which basically says we've got to abandon growth in the economy altogether. Reporting, as we as journalists do the latest GDP figures and saying it's good if it's grown, which is obviously the assumption, is the wrong way forward. How does that fit in with your your outlook, with your research? Matthew, are you a zero growth person?

**Matthew Agarwala** 12:12

Absolutely not. In none of the aspects of my lives am I a zero growth person. What really counts is growth of what? If we are targeting our entire discussion around growth of GDP, or shrinking GDP, then you've already missed the plot. GDP is an imperfect and incomplete measure of the economy. It's only one lens through which to look at it. I like to use a different lens and the way that I describe it is, imagine you're running a bakery; the size of the pie you could produce in the future depends on the stock of ingredients in the pantry; run out of ingredients in the pantry, tomorrow's pie is smaller. But GDP statistics only ever focused on the size of the pie and they completely ignore what's going on in the pantry. And our economic pantry isn't just filled with milk and eggs and butter as the baker's would be, it's filled with capital assets with wealth, with nature, a stable climate system. And if we measure what's going on in the pantry, our economic pantry, these core ingredients of economic prosperity, we could say that growth in that is a good thing. Which is different from saying that growth in GDP is necessarily a good thing.

**Rory Cellan-Jones** 13:19

So you need a measure for natural capital, is that what you're saying?

**Matthew Agarwala** 13:22

Absolutely. We need to measure nature as an asset, it generates contributions into the economy in the same way that any factory or piece of equipment in the factory does. We can invest in forests, and they will retain water, they will purify air, they will host biodiversity, they will prevent floods, and those are all beneficial services for the economy, or we can degrade our forests and we lose those services. So we need to measure the natural capital and that includes all of our ecosystems. It includes a stable climate system, and healthy clean air and safe drinking water. But natural capital alone won't do it. We need to think about all of the other assets in combination; the human capital, the social and the physical capital as well. If we start talking in these terms, the discussion about growing or shrinking GDP becomes an afterthought.

**Rory Cellan-Jones** 14:15

But Nicolas, I mean, GDP is the kind of be all and end all in a lot of countries' attitudes to their economy, it's going to take quite something to get them to to change that, isn't it and to get economists frankly, macro economists in particular to say, you know when we told you about GDP growth, we told you that two quarters of negative growth equals a recession, forget all about that, we're moving into a new world.

**Nicolas Treich 14:41**

Yes, GDP is used a lot and the what is nice with GDP is that it's a common metrics. People understand in general what we mean, when we talk about GDP. But I fully agree with Matthew, we need to move away from the simple metrics and out of our metrics, in particular, to be more precise about the damage to the environment. And I would add one thing here, I think we should nevertheless, explain that to get any type of measure there are some values inside, and the measure depend on values. For instance, we are going to have some discount factor which reflect how much we value future generation. We are going to use some approach like willingness to pay, which reflect how much people value the environment, for instance, and one I think, of a big blind spot of economics and most sciences, I will say, is anthropocentrism. At the end of the day the only values that matter are human values. You mentioned that Dasgupta report on biodiversity, it's a wonderful report, but it's anthropocentric. At the end of the day, the only thing that matter is the fact that we conserve species for humans. And if we listen to experts in ethics and in philosophy, that's morally crazy to do that. So I would be even more ambitious than Matthew and I think we need to also account for the intrinsic value of nature, not only the anthropocentric value of nature.

**Matthew Agarwala 16:13**

So there are two very exciting and interesting issues we're discussing now. One is growth versus deep growth, and I think your position on that depends on growth, or degrowth of what. The other that I'm really interested to explore the intrinsic value of nature. So I've done a lot of work in environmental economics on how do you value environmental goods and services that are not traded in markets, things like how do you value an improvement in air quality, or an improvement in the water quality of a lake. And we've got loads of different methods for doing this. But we always caveat this, and note that these values, these methods that we've developed over the past 30 years, are entirely anthropocentric. And one of the reasons is because we don't know how we could reflect non human values, is it possible for a human to reflect that, Nicolas?

**Nicolas Treich 17:06**

So I agree with you, but we don't, and I tend to agree with you, but we don't know how to do it. But to me, it's, it's a, of course, it's a quite of a weak justification. I think the best response to that is not to ignore the intrinsic value of nature, as we do now, is instead to change a bit of our research focus in order to try to, to account for that. At this point, there is very little research effort in order to capture the intrinsic value of nature, in particular the value of sentient animals, as recommended by philosophers.

**Rory Cellan-Jones** 17:40

Matthew, we've talked a lot about GDP and growth in relation to nature and valuing it but there are other areas, too. I think you're a bit of an expert on green finance, for example. Tell us about that.

**Matthew Agarwala** 17:52

There are loads of self styled experts on green finance. How do we finance the transition towards a more sustainable economy or a net zero economy? It's going to take, best estimates, 50 to 90 times billion dollars worth of new investment in infrastructure, in buildings, in energy systems, in transportation, in new technologies, in changing the way that we do agriculture, in the way that we clothe ourselves, absolutely everything in the economy is going to need to undergo some form of the transformation. And that's not going to come for free.

So how do we mobilise 50 to 90 trillion, and what have the policies that we've developed so far, actually committed and contributed? One of the major sticking points at COP, it was something called the Green Climate Fund. This was promised back in 2009 in Copenhagen, that rich countries would provide \$100 billion a year of finance to poor countries in order to help them decarbonise and adapt to climate change. We haven't made it; the estimates of how much have actually been delivered, actually committed, range from around 10 billion, if you ask the Indians to around 85 billion, if you ask the OECD a group of wealthy countries.

**Rory Cellan-Jones**

Big gap there, big gap.

**Matthew Agarwala**

Exactly, it's a huge gap. And it's because there's no clear definition of what constitutes green finance. But remember, I started by talking about the 50 to 90 trillion, and now I'm talking about almost 100 billion, it's a rounding error. Does it matter when we're talking 50 to 90 trillion, if I'm really talking about 50.1 to 89 point 9 trillion? No, we don't care about that decimal point. But it takes up so much of the political landscape that it becomes actually a sticking point. So what we need to do is understand the fact that there is no path to net zero based purely on public investment. The only way to get there is to crowd in private finance. And in order to do that, we have to use public funds to leverage private finance. And that's why I'm excited by some of the statements that have come out of COP26 and particularly around Article Six, the rulebook for international carbon markets. If we get that right, then the private sector can really jump in to help finance decarbonisation.

**Rory Cellan-Jones** 20:18

Cristina, are you excited by anything that is coming out of COP26? Are you seeing any impact of this gradual process of bringing nature into the economy, making it something that people actually think about?

**Cristina Peñasco** 20:34

I'm excited about all the parallel progress that has been made through the through the meeting. I understand that the processes of United Nations are very difficult if not impossible to bring to the table 190 something bodies to sign on language basically, on to bring consensus. So all the parallel agreements, and all the parallel bilateral actions that we've been seeing during the last two weeks are the ones that make me feel optimistic and hopeful. We have seen all these classical breakthrough agenda on investment in innovation and so on for an asset of 40 countries. This, of course, doesn't include the 190 bodies of the UN but it's already a starting point, to make clear what Matthew mentioned that certain countries receive the technologies that we forced technology transfer, that we develop capacity building in these countries to continue decarbonising the economies to the extent that we need as fast as we can. I want to think that they see the basis for where we're going for where we are going sorry. And now what we have to do, basically, is to take the policies right? How do we design this?

**Rory Cellan-Jones** 21:50

And your speciality is energy and actually there are reasons to be cheerful about what's happened in the last 10 years. I mean, renewables have made great progress and the economics of, you know, for instance, wind and solar, made great progress. And we've seen this sudden transition to electric motoring, that we kind of didn't expect to happen that quickly. Is that, is that fair?

**Cristina Peñasco** 22:13

That is fair. Rory, actually, I mean I participated in this project economics of energy innovation and system transitions, and what we've seen is exactly that models haven't been able to accurately measure the extent to which costs have decreased and reduced in the last 20 years, we've seen that incredible cost reductions in offshore wind, incredible cost reductions in in solar PV. And this is the result of market shaping policies. So if the government goes there and leapfrog, the private sector will follow up and we are seeing crowding in effects on this and not crowding out effects. So we need bold policies, market shaping policies from the governmental side, and the private sector will follow up.

**Rory Cellan-Jones** 23:02

Nicolas, I think I saw you shaking your head on, on our video conferencing software.

**Nicolas Treich** 23:08

Yeah no, I just I agree with what was said but I will be more sceptical about the COPs in general. To me it doesn't work. This shows, I mean, countries made pledges in COP21 in Paris six years ago and we what we see is what we have, what we have done so far is not much. We are not moving away essentially from the polluting economy as we see. So the method doesn't change, we should change it. This game of pledges, always in 20 years into in 2060 for instance, by a very ambitious agreement, it doesn't work. So we should offer something else, probably some economist proposed the club of countries that decide about

ambitious targets and putting some, for instance, some carbon tax at the frontier of the club and who want to join us to pay the tax and implement some ambitious policies. The current policy game political game doesn't work, we should change it.

**Rory Cellan-Jones** 24:09

Matthew, do you agree?

**Matthew Agarwala** 24:11

I think there are very few people who have been more historically sceptical of the COP system than I am. Maybe the 26th time is the charm. Not really how the saying goes, is it. So I'm open to all sorts of criticism of COP. I think we also have to be open to the fact that this is a consensus driven process and maybe consensus is not the way to go. But that's what the COP is and every country has to agree. And if that's the case, then everything is inherently going to be watered down. This is COP26 – it's the first time that coal and fossil fuels have been included in the draft of the text. Now, that might tell you that for a quarter century, we've been trying to deal with climate change without talking about fossil fuels and most of us would think that's quite a silly thing to try to do. But it also tells us that at this one, at least we've started to make that step. So it's not quite the progress we would want. But it's something I'd also point out that cost does not prevent us from also introducing carbon taxes, the EU has developed the emissions trading scheme, even though COP hasn't provided this for the entire world. So it doesn't prevent necessarily. I think, yes, a healthy degree of scepticism is absolutely required, but, although it's tough, especially for economists, we should try not to let that degrade into an unhealthy degree of cynicism.

**Rory Cellan-Jones** 25:34

Now, I feel we're moving towards the close and I'd like to ask you, whether you as academics feel frustrated by the fact that it's taken so long for policymakers to listen to your arguments, and whether you feel that's your fault, or there's. Cristina, let's hear from you on that.

**Cristina Peñasco** 25:49

Thank you Rory, that's a tough question. I think probably it's both sides, probably academia has been perceived sometimes as these people in the ivory tower and we haven't been able until very recently, to co-design and work hand in hand with governments. I want to think that this paradigm is changing; I mean the example is that more and more governments are asking us that we have for example here in the University of Cambridge this programme with CSAP, the Centre for Science and Policy in which actual public servants come to speak to academics and try to understand what we are doing and how can we contribute to the policy to the policy landscape. It's taken a lot, yes, it's taking too long, yes, but we are going there I think. Of course, we are running out of time. Of course these steps are just needed, but no way sufficient. So the next 10 years are going to be key in actually delivering goals in terms of everything environment, economy, sustainability, biodiversity, ecosystems, and more and more economists are aware of these issues. Some policymakers are able to listen because the evidence is clear.

**Rory Cellan-Jones** 27:11

Nicolas, are they listening to you?

**Nicolas Treich** 27:15

Uh, you know I'm working a lot on meat consumption and I can tell you that in France policymaker, politicians, do not listen to me much.

**Rory Cellan-Jones** 27:25

Why does that not surprise me steak frites is still part of every French citizen's right. Is that it?

**Nicolas Treich** 27:34

Yeah, as Cristina suggested before it's it's a very difficult political issue, social issue as well. It relates to culture, identity, and it's very difficult to design, identify optimal policies well, so it's extremely difficult. And also there are very strong ties between the industry and politicians. This is true for the, of course, for agriculture, for food, for meat, but this is also for all the problems we have discussed before and actually coal, oil and so on.

**Rory Cellan-Jones** 28:06

And Matthew, we know, don't worry that Cambridge University is in general incredibly influential amongst policymakers. Are they listening to you?

**Matthew Agarwala** 28:15

I think they're listening to Cambridge University and the body of science and information that the institution delivers. I think that academia, as a sector, has not aligned the incentives of academics appropriately, if the goal is to improve public policy. Most academics will be promoted on the basis of the research publications that they produce, but they're impenetrable to policymakers. What's really exciting about the Bennett Institute is that we've kind of broken that link a little bit. And so we are more encouraged to engage directly with policymakers and that's recognised in our context. If the rest of academia could do that, then it would deserve more influence in policy. But until it does that, I'm not sure.

**Rory Cellan-Jones** 29:00

Well, thanks to our expert panel, Matthew Agarwala and **Cristina Peñasco** from the Bennett Institute and Nicolas Treich from the Institute of Advanced Studies in Toulouse. Today we've discussed the many interactions between nature and the economy and why it's important to make these explicit. Let us know what you think of this edition of Crossing Channels. You can contact us via Twitter, the Bennett Institute is @BennettInst, the Institute for Advanced Study is @IASToulouse, and I am @Ruskin147. Please join us next month when we'll have a new edition looking at another big research theme that Cambridge and Toulouse have in common.