

Dr. Eric Chu Climate Equity

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SPEAKERS

Doug Parsons, Dr. Eric Chu



Doug Parsons 00:00

Hi everyone this is America adapts the climate change podcast Hey adapters welcome back to a very exciting episode. Joining me is Dr. Eric Chu and Assistant Professor in the Department of Human Ecology and co director of the climate adaptation Research Center at the University of California Davis campus. In this episode, we delve into the challenges of integrating climate curriculum into university systems the functions of the climate adaptation Research Center at UC Davis working with the University students to help them determine their professional adaptation needs. We also examine the National Climate Assessment of which Eric is a lead author and discuss why it isn't used more frequently by adaptation professionals. In addition, we discussed the growing pains associated with bringing climate equity into the climate adaptation space and highlight the empty rhetoric in climate equity discussions. We covered a lot of ground I hope you enjoy this episode with Eric. Okay, upcoming episodes, I will be traveling to Trinidad and Tobago to record a podcast for the keeping history above water conference where we will explore how this island nation is adapting its cultural resources to climate change. I'm also partnering with foreigner, a company that helps communities prepare for the impacts of severe weather and adapt to future conditions. We'll discuss some of foreigners work with local governments in Florida, Eric Rosten, the climate reporter at Bloomberg News will also join the pod to discuss the top climate stories he covered in the past year and what it means to be a climate journalist. Get ready for some thought provoking conversations. Okay, let's join Dr. Eric Chu, and hear about some of the exciting important work he's doing at UC Davis. Hey, adapters, welcome back to a very exciting episode. Joining me today is Dr. Eric Xu. Eric is an assistant professor within the community and regional development program in the Department of Human Ecology, and co director of the climate adaptation Research Center at UC Davis. Hey, Eric, welcome to the podcast. Hi,



Dr. Eric Chu 02:00

thanks. Thanks for having me.

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Doug Parsons 02:02

We're gonna have some very interesting discussions about climate equity about institutionalizing adaptation. But let's just start off with the basics here. Can you tell us a bit about yourself? What are you doing there at UC Davis?

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Dr. Eric Chu 02:13

Sure. You say this, we're doing a lot here. In terms of climate adaptation. We're currently really busy in building a new center here on campus with the intention of connecting all the really fascinating and diverse research but also public policy outreach programs that are hosted here on campus, specifically around climate change adaptation, because that is a recognized research priority not just for the UC system in general, but also for the state of California. We've devoted a lot of resources and time to building the policy frameworks around climate adaptation. We here at UC Davis being the UC campus that's closest to our state capitol, Sacramento, we want to make use of that location be the bridge between the research community and the policymakers down over in Sacramento. And so we spent the past couple years building our center connecting all the researchers on campus around adaptation, building, teaching curriculum, and doing our outreach and liaising with policymakers in various public agencies. So spending a lot of time doing that. And in addition to your regular sort of faculty teaching job, I guess,

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Doug Parsons 03:21

I'm gonna ask you two more questions about that research center. But you specifically your relatively early career, academic, you know, there actually isn't a lot of educational, you know, for getting a PhD and adaptations that what's your background? How did you get into this resilience and adaptation space.

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Dr. Eric Chu 03:38

So I am not terribly old, but I feel like I've been at this for a long time now. Seems a little bit odd. But I think my focus on climate adaptation started in the late 2000s. I did my undergrad at Cornell. And then and then I went on to the University of Michigan for two master's degrees in environmental planning in policy and urban planning. At Michigan, there was a lot of research programs on climate adaptation, resilience, and development and international development. And so I did my research on climate adaptation resilience in Nepal. And so that was my master's research work. And then during my third year of my masters because I had to do two degrees at once. So it took me three years, I did a summer internship, but the World Resources Institute in Washington, DC, and there I was an intern for the climate energy program, as it was known back then, and was doing a lot of sort of national climate policy, national climate strategy, research work and had the good fortune of just happening upon a lunchtime brown bag seminar presented by a professor by the name of John Carmen from MIT, and she was talking about climate adaptation, her work on research and climate adaptation and cities and looking at leadership looking at the different policy regulatory is institutional setups that were being built. At that time in the late 2000s, adaptation was still something quite novel quite new. She was one of the few academic researchers out there looking at how decision making arenas

were being set up how new policies were being written up to deal with sea level rise, heat and extreme precipitation and all those climate impacts. And she was in an urban planning department, which I had experience in. And she was really interested in looking at how urban decision makers, urban planners, mayors, and all those important folks were thinking about this new idea, this new concept of climate adaptation, maybe for you delegates, not quite new by the late 2000s. But I think academically it was a new sort of space. And so we got to talking and she asked me to apply to MIT. And I did and had the good fortune of studying under her for a couple of years before she passed away, tragically. And so that's, I guess, the long story, it's, it's a path that I just went on, and found a lot of really interesting work, met a lot of really fun people, and got to learn a lot about cities and how they were thinking about climate adaptation and figuring out how they were relating adaptation to sustainability, to buildings to land use to transportation, and thinking about how they were designing new financing mechanisms, new rules and regulations to incorporate different kinds of slow and quick onset impacts and all those things. And from there, that sort of branched out into other spaces of maybe more on the science informed science led decision making stuff. And so that's, that's really the path. And I've never really diverged from that since then. I mean, I've had three academic jobs, since my time at MIT, and my work program has always been around adaptation and cities and looking at how cities are incorporating adaptation and later resilience into their own planning procedures and asking questions like who's benefiting from these new rules and regulations? How are they benefiting? How are they communicating with constituents about the need for adaptation? And how are cities building partnerships and connections with NGOs, with civil society, with private sector with other cities, even and maybe even state governments to maybe look at adaptation in a more holistic manner? And so for the past couple of years, those are really the central questions that I've been asking in my own work. And luckily, that work gives me a lot of connections into the outside world. And so hopefully, I'm not your traditional academic, in the sense that I'm not always sort of in front of my computer and typing away and writing academic articles that nobody reads. Well, hopefully somebody reads at some point, but me as a planner, who studies planning, I get to go out and talk to people on the ground community members, decision makers and ask them really about their work. Why are you doing what you're doing and how you're doing? It is basically what I'm asking them all the time fun space to be in?

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Doug Parsons 08:06

Yeah, sounds like from start to finish. You just been right in the thick of adaptation. That's, that's not always true for most academics. Okay, let's talk a bit more about the research center. I'm interested in how the college is set up these institutes are these research centers. And so you guys are a bit different, too. And the diversity of the professors working within the research center, can you give us just a sample, you don't have to go through the whole list, but a sampling of the different, I guess, programmatic areas and educational areas that you guys are including in that?

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Dr. Eric Chu 08:32

Yeah, we do cover a lot of bases. I think, as university, a public university like UC Davis, a lot of the research initiatives are dictated by funding. And so that's one, we happen to come across some university interest around building climate change adaptation expertise on campus. It's not that it didn't exist before, but it was quite siloed. And so what happened was, we had a

couple of champions on campus, more senior faculty members who said, All right, let's try to build some kind of Knowledge Hub around climate adaptation, and found buy in from the other sections of campus and my college time situated in agriculture, environmental sciences, was one of those who bought in and decided that this is something that they want to build engineering was the other one. And then the med school was the third one. And so this is really why you see the kind of makeup in terms of expertise leading the center. It's because these were the three colleges that expressed interest in putting together the initial members initial cast members of the center, and with research centers go here on campus. UC Davis is a land grant university where you have a public mission to serve the people of California and all its needs and interests. And UC Davis historically has made its name doing more Agricultural Environmental Research. You were huge, huge ag school. So it makes sense that the College of Agriculture would be really, really interested in this. And we went around just building the connections that way and finding some soft money here and there to build the center, and connecting through the center with others who are working on adaptation in Plant Sciences and plant genetics and different kinds of engineering, environmental policy, in coastal marine sciences, in our Tahoe Research Center, et cetera, et cetera. And so, there are a lot of existing research centers already on campus, it was sort of nice to be able to connect to all of them and to harness the adaptation research and expertise that they maybe already had, but to make it all funnel and channel into one space and to have productive conversations that way. Now,

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Doug Parsons 10:46

I've talked to quite a few professors and they are part of these, they they're creating these, you know, they're relatively small and some are better funded than others Institute's are adaptation in research centers and such, and sometimes it doesn't necessarily line with the university's programmatic offerings. And so how does that work at UC Davis, can you get a master's in climate adaptation?

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Dr. Eric Chu 11:06

Not right now we're working on that what we have are certificates. We have a certificate and climate sciences that a student can pursue at this point, having a degree in climate adaptation is possible. It takes a lot of bureaucratic wrangling. As you can imagine, with a giant institution. like ours, we have a student body of 20 30,000 students and a lot of layers of bureaucracy. As you can imagine, the UC system is the largest employer in the state, and we have 10 campuses. And so we have to get through all of that paperwork, we are in the process of designing a graduate degree program in climate adaptation, having will from faculty members is one thing, having the resources to do that is another thing, what we're finding is in terms of the climate adaptation space, maybe I'm speaking specifically for California, but there is financial resource for climate adaptation research, especially for research that has real translational potential translating into real world changes in building technology, real world changes in how people write about different kinds of climate impacts, and their general plans, translational impacts into maybe new medical technologies to deal with urban heat. And in housing, for example, those come across as more popular areas of funding, the least popular area funding is funding curriculum development around climate adaptation. And so that's been a wall that we've been hitting its funders are very happy to fund both basic and applied research and adaptation, it's people see the need, especially here in California, when we constantly get bombarded with news about extreme heat events, like the one we experienced

late last summer, or flooding events, we're still living through that. We're speaking in January, well, now February, January 2023, we had extreme levels of precipitation funding. And so all that is right front and center in everybody's minds here in California. And so there's research money into all of this stuff. But there is no money that's being diverted into while training both the student and the workforce to participate in the adaptation sector going forward. And that's been a huge challenge. And most of our funding has come from just in kind support from our existing teaching resources. And that can only go so far, because we without an actual degree program, all of us have our own departments and our own department responsibilities. And so a lot of this is relying on in kind support.

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Doug Parsons 13:41

That's interesting. It's I do bring this up a lot with the professors I have on and for funders out there that are listening, it might not be as sexy, some of the desert areas, but curriculum development and Easter series that you should support. So you're hearing right now why we're probably not seeing more of these program areas. And Alright, so in that respect, you teach a course I think you're still teaching in his planning, climate resilience communities. Can you tell me a bit about that? And is it for graduate students? Is it for everyone?

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Dr. Eric Chu 14:05

Yeah, it's our climate planning climbers in the communities class is not offered every year. And it's a course that's really designed for upper level undergrads. We do get some grad students who come in, and it's really responding to a need our students have articulated, it's a need that they know that climate change is an important social thing. It's happening and it's we're finding that our students and our youth are feeling a lot of climate anxiety, especially a lot of our students and UC Davis. We're a minority serving institution. And so we have a lot of students who come from first generation University kind of college attending families or even first generation students and coming from middle lower income communities. Because that is our student base. A lot of our students come from the represent those communities. They come into the program, and they read a lot of about climate change and pollution and different kinds of disaster risks. And what we see by the fourth, third year is that they're really interested in doing something about that both dealing with the climate crisis, climate change challenge, but also giving back to the community giving back to the neighborhoods that are coming from the planning, climate resilience, communities class really respond to that gap articulated by students themselves, it's, well, we need actual tools and skills to equip us to participate in the adaptation field and planning. Yes, it's about policy. It's about assessment, analysis of vulnerabilities and risks. It's about communication, and how do you talk about climate change to a public audience. So it's really all of that stuff. And just going back to our earlier point about training workforce training students to participate in the adaptation economy, it's really that I mean, that course came about to do that. We are lucky in the sense that my department committee, mutual development of the program within my department, is really focused on training folks to be more active reflective practitioners in the real world. And so it really fit the mission and ethos of the program. In addition to the fact that students were really, really wanting that we were very good at teaching about the science of climate change the science of climate impacts, we're really good at talking about vulnerabilities. And we're really good at maybe potentially exacerbating the climate anxiety that this particular generation is already facing. And so they really appreciated this more applied approach to Okay, so now we've

learned about the climate crisis, what can we do about it? Where can we start, I brought in my own expertise on urban planning and climate change, and kind of looking at examples of what cities were doing over the past 10 years, I also brought in a lot of friends, colleagues from state, county, local governments to talk about their own work, because here in California, there, we have a lot of planning update mechanisms going around, we have a lot of state leadership, around health, around housing, around transportation, around coastal resilience, and other sorts of adaptation efforts that are going on. So it was nice to sort of have students think about the pipeline itself, but also be able for them to connect what they were learning about the science of climate change with what's going on on the ground, and, and hopefully, maybe kick starting some thinking about how they could participate in that field.

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Doug Parsons 17:24

Alright, we're gonna pivot a little bit here. So you are one of the lead authors on the built environment, urban systems and cities chapter of the National Climate Assessment. And I think that chapter is supposed to be I mean, it's the sixth. We'll just explain all that to me, but that's going to be done this year.

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Dr. Eric Chu 17:38

Yeah. And so that's we're currently in the fifth national climate assessment cycle. The National Climate Assessment is the congressionally mandated exercise, it's important. It's termed an important scientific assessment by the federal government. It's congressionally mandated to happen every several years. I think it's every four or five, but there that changes depending on sort of administration at the top, and we're in the fifth cycle. And we're charged with summarizing and synthesizing the science of climate change since the previous assessment that came out in 2018. And what we're trying to do is bring federal government conversations and thinking about climate change up to speed and creating a, maybe a baseline scientific awareness of climate change. And its impacts on different sectors and the risks of posed to different sectors of society. That's where we are, we're in the process of building that document. It's a very, very big document with 30 Something chapters, it's not a dense science jargony report at all, it's really meant for a public audience. And if you've seen previous assessments, it's meant to be much more understandable for the public. And so there's a process of trying to distill all that really complex science around adaptation into something that's understandable for the public. So yeah, I'm doing the chapter on the built environment, and we're distilling a lot of that information down and supposed to come out at the end of this year, I think,

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Doug Parsons 19:18

October November pencil, you're distilling it down to 37. Chapters?

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Dr. Eric Chu 19:22

Yes, but each chapter is only my chapter is only 5000 words.

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Doug Parsons 19:27

Okay. Okay. Where I'm going with this. Jeff talked about the assessment before, you know, I briefly talked about this. And first off, what stands out, let's say just specifically in your chapter, what it's not, we're not gonna talk about the other chapters, that's just its own episode, but from the 2018 edition to this one, you know, things are a little bit worse, or do you talk like that within the assessment, what did you see as the major differences?

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Dr. Eric Chu 19:49

Okay, so here's maybe a little bit of caveat, because it's not public release. The final version of is not public release until later this year. I don't think I can talk to much about the actual insects that are in it, what I can maybe see a little bit about is because we've had several rounds of public review, I can maybe give you some initial tidbits that the public has already seen if they've managed to get on the website to download. But those are, of course subject to change as we continue to respond to public comments and from expert comments within the federal government and do our work for the next couple months. But with all that being said, what I can probably say is, there's a renewed focus maybe on compounding and cascading risks through and in the built environment, we spent a lot of time thinking about how the built environment and cities concentrate certain kinds of risk, and also in relation to that and vulnerabilities of different communities. And what are the different ways that risks manifest in the built environment. And just to there's a lot of examples that we try to put in it. But we're trying to make a good while we're trying to look at insights on on how and why cities are particularly important when we're thinking about climate adaptation, and resilience building. And so that's one area maybe of advancement. The other advancement that we're seeing is how the built environment and cities in local and regions, localities and regions are hotspots of inequality, social economic inequality. And so there's a lot of insights, many of you will have seen in previous drafts of our chapter on equity, on climate justice, and thinking about communities that are not as well equipped to deal with certain kinds of impacts, then maybe the third thing I'll say here is, there's a lot of work, especially since the previous assessment report on documenting and synthesizing adaptation examples of what's been done last time, the assessment sort of left at the very end of the assessment basically said, there's a lot of risks, there's a lot of risks, there's a lot of impacts, and it's getting worse. And there are a lot of constraints in terms of resourcing in terms of local, regional buy in terms of leadership, etc, etc. And that's it, that's where they ended off last time. And so the advancement this time is that well, since five, six years ago, there has been a lot more action in terms of implementing different infrastructure, but also different programs, were spending a lot of time looking through the science, looking through the literature to distill those examples. And to come up with some assessments of where we are in terms of progressing along whether or not we're actually doing adaptation, whether or not adaptation is meeting the needs of communities, but also actually responding to the science of climate change, is there actually connection there? Are we actually solving different kinds of risks by doing adaptation, and also thinking about the more maybe more creative types of things that different localities are doing? And so there's some focus there as well, it's a

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Doug Parsons 22:57

little premature to give very specifics, but more like your own experiences working with the National Climate Assessment. And when I was out there actually doing adaptation planning

National Climate Assessment. And when I was out there actually doing adaptation planning, and, you know, never really tapping into the national climate. And so there's two issues here. It's, it's an amazing process and amazing assessment, bringing the best scientists together. So discussion around the science being developed or just sort of the output of it. There's nothing wrong with it, but then how it becomes sort of useful tool. And so let's say yours, I mean, do you know from experience that you would hope a local community or maybe a state government or city government is like, okay, we're accessing the National Climate Assessment. And I know, there's some out there, but a lot of times, you might even go to some of these groups, and they don't even know what it is. And so it's like, all this amazing works happening. And I don't know, if it's just maybe a little bit too high level for them to be like, well, we can't really apply it here in our community. What's your experience with that? That? Are people actually taking the assessment and using it in a productive way?

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Dr. Eric Chu 23:53

I think that's a very legitimate critique. And that's the question that I asked myself all the time, especially as someone who spends quite a bit of my time working on these things. I think in response to your question, Doug, it's really sections of audience that we're we're targeting the National Climate Assessment, we have to get right who the audience is. And so I'm basically saying it's, it might not be the appropriate knowledge source for everyone. I think, and I'm not speaking on behalf of the federal government at all here, but I think the target audience have a big, big national assessment. We're not even talking about global, it's just the USA is the US. It's the 50 states in our territories in our overseas territories as well. So it's Puerto Rico, its Virgin Islands, it's American Samoa, Guam, all that the audience for the National Climate Assessment is really first and foremost, federal government, scientists, federal government, agency workers, bureaucrats, and those who are tasked with leading the policy agenda for the federal government and sitting in Washington DC. So I think that is maybe the primary audience we're trying to say At the baseline scientific awareness and conversation around climate change for the federal government, it's different agencies to plan out its work for the next couple years. And so I think that's where you see the most impact. Previous climate assessments have really influenced federal government decision making funding priorities and awareness of climate change, maybe even into those in Congress who are reading it. So that's maybe the primer audience. Yeah,

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Doug Parsons 25:29

you know, and I did a couple episodes with Jesse Keenan, about the federal agency adaptation action plans. And part of the critique was there isn't this sort of uniform approach somewhere, some department fence, I think, if I recall, did a really good job using common terminology, but others, they they're not tapping into the National Climate Assessment. And that, to me, is crazy that, you know, there should be at least some uniform use a bit like every federal agency is at least using it as a resource. And so because again, I'm not trying to knock the process of the content, because it's just this amazing thing, but does it there's, there's tweaks at the margins, and all of a sudden, it becomes, hey, I'm from Midland, Texas, and I'm going to do some climate change planning. And you would hope that they can look at the National Climate Assessment, and there's going to be real value for them beyond besides the saying The science is spot on, you know,

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Dr. Eric Chu 26:19

I think that's a really legitimate critique. And to be honest, in terms of setting the baseline of how climate is talked about in the federal government, a lot of that also depends on the more political side of things. And so for example, in the previous national assessment cycle that came out in 2018, it was during a administration and executive administration that was very hostile to this, they didn't manage to kill the process, but they managed to bury it in a lot of different thing, there's a little bit of kind of give and take right to it. There's a lot of effort into synthesizing producing this scientific knowledge. However, it depends also on how it's being sold and how it's being taken up by those who are in leadership positions. I mean, all that to say is, it's a tough space to be in. I mean, it's yeah, we know that there's a knowledge gap in climate adaptation. We also know there's a communication gap and climate change. To be honest, I can't do all of that. I mean, I'm really, I'm not trained as a I'm not trained as a public relations person. I'm not trained as a journalist, I'm trained as a scientific researcher, and I'm doing my best to communicate the science in the ways that I think are most understandable, the most, most front and center and the most impactful, maybe even, but I'm also reliant on those who know the structures itself, who know the the politics of it to, to get the message across. And sometimes that doesn't happen.

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Doug Parsons 27:55

In I agree, this is an on you. And it's a lot of it's just marketing. I know there's an engagement too. And I don't know if it's being funded very well, especially since the Trump years, but like, there is an arm that's supposed to take, how are we getting it out there, but I'm assuming it's just underfunded, like most things, but you know, this might be a poor analogy, but I think of like, when they do a big blockbuster movie, they might spend \$200 million on one of these movies, and then they'll spend \$200 million, marketing it around the world, because they see that as a valuable use of their money. And we just the government, and a lot of groups just don't look at the marketing side as they think that just magically going to happen. We're gonna have that penetration. And it really does take a lot of resources and and actually skilled people, and it's that you shouldn't be used as an academic to come up with the selling points for how to get people to use it. So it's, there could be some reform. But that's that in itself is not easy, either. So

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Dr. Eric Chu 28:46

may I just add something to that? Because you talked about Midland, Texas and other localities around the country? I don't know. I mean, to be very honest, how much information that is of relevance to specific cities, specific county specific humanities, how much of that I can actually write into the National Assessment? I mean, for for my built environment, specifically, I'm given 5000. It's not a huge amount of space. And so there's gonna be a lot of generalizations. I can't I don't even have enough space to mention every state in the union. I mean, we're at that point. I mean, it's not. I see a reason for that. I mean, it's a long, long, long document. I mean, you're just diminishing returns by that you're just getting dementia. I mean, look at IPCC reports, these are 10s and 10s, of 1000s of words, and nobody ever kind of reads through them in detail word by word. And so we're not trying to replicate that process. I don't think in the national assessment side of things and what I think what's happening again, not speaking on behalf of the federal government is that we're strategically deciding which audiences to pitch to, and very local decision makers may not be the primary audience that we're Looking at, there is

hope that they'll look at it. But it's likely that they won't find themselves mentioned in it, they might find their state or their region mentioned. And if we're talking about transboundary impact, like sea level rise, we'll see, oh, I'm on the Gulf Coast. I'm on I'm locality. I'm a city county government official working on climate change on the Gulf Coast. And the report mentions hurricanes, storm surges, and sea level rise and possible sort of impacts on coastal critical infrastructure or displacement, it's going to be at that level, it's not going to say, Oh, the city of mobile, the city of Galveston has done these XYZ things. We try our best to highlight examples, but we can't highlight all of them. And so I think the messaging that I'm trying to maybe convey here is the national assessment with all kinds of assessments relies on connections on partnerships with those who are doing similar efforts at different scales, those of us who are working on the National Climate Assessment, are relying on states maybe, to make the assessment outcomes, a bit more relevant for their own states, and maybe even be the intermediary to convey the National Assessment messages to their own states, and maybe even communities kind of doing their own community based assessments to tie into this overall sort of multi level architecture of scientific assessment, just so that we hit all of the specific contexts, the specific examples, the specific human experience of climate change, and some states are doing this, but not all states are doing this.

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Doug Parsons 31:41

Right. And this is just to the bigger point of what information is being provided to the public out there, that's really useful. And that's not on you to decide. But I think of some states, probably like Texas, Alabama, where they're not really providing a lot of resources for their own state government people. And this, I don't want to get into this discussion. But you look at the It's a wild, wild west nature of climate data modeling companies, they're coming out there, they're working with these small communities like Midland, whatever, and saying, We can do this and this and not being able to sort of, and I know, the assessments, not necessarily supposed to provide that kind of information. But this quality ground truthing that what some of these private sector companies are saying that they can do these smaller communities really just they don't have the expertise, especially if they're states that are even somewhat hostile to a lot of this planning. So we still have a long ways to go, I think, to providing the information. But listen, we could keep talking on that I want to pivot here, because this is, I think, going to be looking forward to this part on top of everything else. But let's talk a bit about climate justice, Environmental Equity more broadly, I know, this is an area and let me I've got some questions for you. And I know, certainly, it can be controversial. And you know, not everyone's on the same page on this. But you know, some have argued that equity and equality are in conflict. But isn't the ultimate goal of equity to provide resources and opportunities for people so that they have a fair chance of participation in society, government, and the economy as people whose autonomy is equal under the law? And so that is a question there. And, um, that was a long winded question, but I just wanted to kind of start off the discussion around that topic. So did you kind of get that?

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Dr. Eric Chu 33:06

I mean, that's a legitimate question. I think in terms of climate change, I mean, there is a lot of focus on equity, because it's about mechanisms. It's about making decision making, making participation more fair, and more representative, more inclusive, because one of the things about climate change is that the effects and impacts are not a seen equally across a landscape

across the country. I think primarily, there is a focus on building procedures, building spaces in which those who have historically been impacted more. Those who have, in the planning sense, been not consulted as more in the past, be able to voice their concerns and interests, there has been a lot on equity. And I think this is particularly important. If you think about the history of planning and policymaking in the US in particular, where arguably, those principles of fairness have not been actually realized to its fullest extent. We have a long history in post World War Two planning in the US where we've had very strict definitions of whose voices we account for and whose interests are legitimate in how we plan, especially in housing and transportation, right. I mean, we see a lot of evidence in those particular sectors. And so those inequalities cast a very long shadow. I'm not saying that those who are doing climate change planning on the ground today are sort of really purposefully excluding different interests and people. I'm not saying that I feel like there's a lot of I think there's a really great people really forward looking really people who are really interested in maybe even thinking about doing things radically different in their own localities in our local counties. I'm not saying that that it's not happening. I'm saying that the History of unequal inequality casts a really long shadow. And especially when we're talking about climate change as a multi generational thing, right? I mean, it's when community a low income community gets is living in poor quality housing, the children who are brought up in that poor quality housing may have grown up with certain kinds of health effects, poor quality housing, maybe in a school district that provides less resources. And so that affects the overall life chances of that particular child, and so on and so forth. Right, that has huge multi generational equity implications. So when you apply climate change onto that there's a certain directionality, there's a certain direction in which these negative impacts and risks are experienced, and those who are maybe just broadly, maybe abstractly stuck in a cycle of poverty, for example, over generations, we're going to see very different capacities than a child that grew up in a somewhat more wealthy, maybe middle upper middle class suburb. And so that's really what we're talking about. It's how do we think about the procedures and processes of decision making participation, that bridge that divide that achievement divide that opportunity divide that we've seen across the country? And with the divide being exacerbated with climate change? And so that's for climate equity? That's a great question.

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Doug Parsons 36:31

So would you say there's a disconnect between the idealist of climate equity to the reality of actual planning in the real world? And what does that look like? How do you interpret that this idea of what would be ideal climate equity, and you should have explained it there. But like, I guess that disconnect, too, is, I think some people who think they're a practitioner of it, but not necessarily there. Maybe they know the rhetoric of it, but they're not necessarily a good practitioner of it.

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Dr. Eric Chu 36:57

I think there is a slight disconnect with how we talk about climate equity and justice with what's being done on the ground. A lot of it may be unintentional, actually, I think fundamentally, one big problem that we need to solve for ourselves is What is the vision? What is the ultimate goal? What does it climate justice, it actually look like? What do we want it to be? What are the characteristics? What do we build? What kinds of jobs? What kinds of communities do we want? What kinds of landscapes do we want, we haven't had a really good conversation about what that future looks like a lot of this is really, you can explain it with sort of the arguments and sort

of political differences that we're seeing in the world today, especially in our country, but also just as a community, not even thinking about the government, as people, we haven't had a solid conversation, or understanding of what a climate change future should be. And so without a goal, it's really hard to agree on the mechanisms through which to realize that goal. And so we have a lot of people talking about what that future ought to look like, sort of conceptually, in more abstract senses. Is it a society that's racially just as a society where we value certain kinds of ideas and knowledge systems? Is that a society where, what I mean, the list goes on and on. And so there is a lot of talking philosophically about what that future ought to be like, but nothing super concrete. I mean, it's so how are we going to build cities in response to that philosophy? How, what do we want our landscapes to look like? What kinds of jobs are we looking at? What kinds of schooling what kinds of education? What kinds of care? Are we looking at? What you see, and a lot of folks who are writing equity and justice oriented plans is front loading that more philosophic, philosophical discussion of what what are the principles and priorities of a just society, but not really putting a stake in the ground to say, alright, this is the kind of economy this is the kind of arrangement of neighborhoods This is the kind of human relationships that that climate just future actually entails? Some cities do, but we certainly don't have agreement on any of this. Some cities are much more advanced in thinking about this than others. There you see the disconnect. Just going back to your original question is, there's a lot of visioning and aspirations. But we don't agree on the goal. I mean, eventually, what's the eventual goal? And so what happens then, is that when folks are writing their adaptation, resilience plans that are equity and justice focused, they fall back on the very traditional equity planning thing, including more historically and currently marginalized populations in their outreach and their participation mechanisms. Considering sort of housing, public housing, affordable housing, putting in more maybe public transportation, active transportation things, thinking about social determinants of health and how different kinds of exposures to pollutants and toxins are distributed across the landscape, according to income, etc, all that super, super important stuff, but it's tools that we already have. People are know that people people are some of these places are already doing that. And there's no intelligent conversation about how do we move these tools, existing tools, some of these are great tools, how do we move these tools forward in a way that helps us to realize whatever future that we envision for ourselves. And so that's, I think that's fundamentally the disconnect. You're you're mentioning,

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Doug Parsons 40:51

okay, I want to explore this more. So when people in some climates or goals regularly default to the concept of equity without any justification, or explanation of the complex trade offs, are they doing disservice to social and climate justice movements? And has you know, some of these terms climate equity, climate justice, have, they just become buzzwords

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Dr. Eric Chu 41:08

all over the world? Or just in some places?

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Doug Parsons 41:11

Let's talk the US, you know, or, you know, he may have been some the listen, and part of what we're not even acknowledging here. And I do have a question related to this is like, there's

some cities and some states where this is where they're having those discussions and other states, they're not even bringing it up. And so the notion that it's some sort of universal debate that's happening out there, no, it's happening. And very, we talked previously, you know, I went to national adaptation forum and climate equity was a major, major theme there. And so the these pockets of groups are having this discussion, but it still doesn't mean that it's not just becoming a buzzword.

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Dr. Eric Chu 41:41

Oh, well, I totally hear you. And I think there may be pros and cons to a buzzword approach to climate equity. The pro is that it becomes something that can be quickly communicated. In more academic terms. It's a fast policy, it's something that people are aware, it's something conceptually, it's in somebody's brain, at least it's tangible. And it's easily communicated across, right. We're living in a world right now, where equity, justice, not just in climate, but in all various sectors of life are, we read about in the news, and we people learn about it. And so connecting climate change to that, with the help of really, really good communicators is happening, right? It might not be happening everywhere, but it's, at least in folks, we're working in this field. That is happening, as you mentioned, the National Adaptation forum that there is a lot of exchange of ideas and knowledge on this. And it's happening very quickly. I mean, the pivot to talk about climate equity as something that's very central, you know, does that change happen very, very quickly, within a timeframe of just a couple of years? It's because maybe 10 years ago, this was not at all something that folks were talking about, they're much more concerned about, how do we mainstream adaptation into infrastructure and service delivery, et cetera, et cetera, right? The pivot to equity has happened very quickly, in a very forceful way. And so that's probably a pro in the sense that, all right, there's there's a lot of people who are aware of this. However, the cons, there's a lot of cons. The con then becomes, is this real? Is this actually happening? Do they actually are are they actually connecting the rhetoric of equity with what's being done in their own localities? Or are they just doing what they were doing anyways, and putting an equity spin to it, not saying I'm not accusing anyone? I'm just saying that that's a possibility, is that locality or county writing more about equity? Because that will get them more money, which is fine. I mean, it's an incentive? Or are they doing equity for maybe more nefarious reasons they want to create aura of more equity to attract the certain kinds of people who want to live in that particular kind of setting? Again, not accusing any place of doing that, but that's a possibility. I don't know. I think I'm in the middle in the sense that I think there's a lot of need to talk about climate equity, especially in our world that we're going to see more degrees of temperature change over the next 50 100 years more centimeters inches of silver, I think equity becomes very central to the discussion and how we prioritize the interventions and how we think about trade offs and how we think about costs and benefits of certain interventions that we're thinking about. But at the same time, there's this question of whether or not it's real, whether or not equity, how do we measure it? How do we benchmark it? How do we evaluate whether or not we're actually doing something equitably? Those kinds of questions to hold that

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Doug Parsons 44:32

thought about measuring as I went, I'm going to come to that because I think that's an interesting development that's happening out there, but I this is gonna be a popular position but in but you are in the thick of adaptation planning, obviously, and are some groups hijacking

the emerging adaptation sector to push broader equity issues and so it'd be we've talked about this before too it's like alright, adaptation is basically climate equity and is Do you sense that's happening are you see signs of that

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Dr. Eric Chu 44:59

you Yes, but I'm not necessarily interpreting that as a negative thing. One can make a good argument that adaptation in the past has been pretty siloed. It's not necessarily saying it's a better good or bad thing, but the siloing of adaptation in offices of sustainability in the certain kinds of infrastructure sectors, it could be interpreted as a problem, because the point about adaptation is to build maybe systems resilience, if I can use that word, sort of communicate across the different agencies in a city, for example, and to plan for sea level rise, heat precipitation in a more holistic way that ties together not just the Office of Sustainability, but also housing, health, food, nutrition, AG, transportation, et cetera, et cetera, et cetera. And so historically, there has been a need to expand the definitions, while the connections at least have adaptation into other spaces. And so you sort of see that happening, we're seeing a lot more conversations about CO benefits, adaptation, mitigation, co benefits, adaptation, mitigation, sustainability co benefits. And now we're talking about mitigation, adaptation, nature, natural capital, benefits, ecosystems and all that, I don't necessarily see that as a bad thing per se, because you're just broadening the tent of what it is, the definition of it and who it's catering to. It becomes a challenge when adaptation gets lost in in this. I mean, fundamentally, adaptation is about intention, right? It's about thinking proactively about future climate scenarios, and translating whatever climate scenario you're looking at, into proactive planning steps to deal with future changes. And so when you have an overly co benefits way of thinking about adaptation, there is risk. I'm not saying this always is the case. But there is a risk that you dilute that original definition of what adaptation is, it could be one way that we see that diluting happening is the future orientation of adaptation gets lost. And it becomes very much about fixing past problems, not saying it's a bad thing, per se, but it loses the inherent definition of what adaptation is right? Adaptation, kind of with adaptation mitigation, for example, you take CO benefits, you come up with a program, for example, that deals with energy poverty, you're talking about the communities living in housing developments that are not well insulated, or don't have a lot of disposable income to pay for additional heating and cooling services. And so that they aren't able to benefit from those. And that leads to a lot of risk, especially when there is heat island or cold snaps and visit they live in non insulated, not well, insulated places, et cetera, et cetera, like energy poverty. So you call that adaptation because it's of efforts to deal with those who are living in situations where there's poor insulation and have to make use of community cooling centers, heat shelters, etc, etc. So you put in programs to weatherize buildings. Great. Call the adaptation mitigation. But it's weatherizing buildings for events that we're seeing now, I'm not saying that those are good or bad, but you're seeing weatherization, 400 degree days, 110 degree days, five days in a row, they can manage. And so one can argue that if you're doing that kind of weatherization program, it's EQAFE. Obviously, it's equity. It's climate change, adaptations, mitigation. Alright. But if you really dig into that, you're like, oh, did this program actually plan for the fact that this area in the state will go from five days of 100 degree plus? Or maybe day? Or maybe another metric is it's going to be not dipping below 80 degrees at night? For five days? To 12? And does that bump to 12 days by 2050 2060 2070? And does that actually affect questions of, for example, should we actually be building in that area? Should we actually have communities living in this type of housing, in terms of construction technology in terms of ventilation? In a sort of classic weatherization program example? You're not really talking about those questions of the future of should we actually living in these types of buildings? Should we actually living in

this area? It could be that when you're considering these future scenarios and trends, that this weatherization example would still work, but it's not always the case. Right? And so that's maybe an example of where when you're combining adaptation or mitigation in this particular way, the future orientation of adaptation loses out a little bit. Then the question becomes, is it still a rational thing? I mean, it's weatherization is very tangy. Well, there's money in it. People need it right now. So maybe that's a low hanging fruit, quote unquote, right? You see a lot of public agencies talking about low hanging fruit that's just came from a webinar, where they talk about low hanging fruit. And that's exactly what it is. Whereas they're skirting, the more difficult conversations around Wall Street people live here in the first place. That was

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Doug Parsons 50:20

a great example of actually something specific on the ground where the equity plays into that. And I guess I'm just more apt that there's a lot of empty rhetoric out there. And I think we're at that phase of like, let's tick off the box. I earnestly believe in the answer to why but it's just like, it seems like these groups are just kind of talking past each other. And we're kind of I just came to me, it reminded me when I worked in Australia, for I was there for three and a half years, and I was working with a lot of rural and natural resource groups. And at the beginning of each meeting, the person leading the meeting would acknowledge the traditional owners of that land, which when I first heard this, I thought, This is so cool. I can't I mean, these are rural people imagine being at a farm bureau meeting, and they're like, Well, you acknowledge the traditional, maybe they do that in some places, but it's so rare. But then after I kept hearing that, and I'd be in some city, and everyone there was just white and nothing to do with average. And they'd still do that was like ticking that box off. And it wasn't necessarily the outcomes of those meetings relating to sort of an improvement for Aboriginal and I kind of feel that some of our meetings around climate equity have hit that stage. And again, not knocking the concept of let's do this, right. But it's there's just one upmanship kind of going on out there with that without, and I'm going somewhere with this, how do we make sure that we're seeing this sort of applied ways, and I want you to talk about resilience metrics.

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Dr. Eric Chu 51:37

And I think your example is great in terms of Overland acknowledgement, it's acknowledgement, recognizing past inequalities is one thing. Having those who have experience and authority are in the position to tell their stories, in situations of making decisions that affect their own lives. That sort of the additional part of recognition. I think, in your story, Doug, it's people, maybe I'm just maybe repurposing your words incorrectly. But middle class folks have a certain kind of ethnic racial background, talking about recognizing land on behalf of people that were already displaced in or erased from the landscape is one thing, it's it's good. I mean, it's, you're recognizing that we do that here at UC Davis, for example, we have lead acknowledgement statements plastered all over the campus, and a lot of us choose to include it in our syllabi and and talk about it. And so that's good. I think that's a good start. But I think what is more consequential than is all right, when we're talking about adaptation risks, talking about future impacts on the land, we need to bring those people back into the conversation and actually have them take authority and give them authority and give them agency to discuss what their communities what they want to need for themselves. And so that's something sort of next to what we see. I mean, again, I'm talking about indigenous communities without being a member of indigenous tribe here, but just a hypothetical

example. Rather than talking on behalf of some other community. Why don't you just include members representations of that community into the discussion? So that's seems like an easy thing to do. But it's more rare than you think. And maybe some of these, there's a couple barriers, right? A lot of these, I'm just taking indigenous tribal communities as an example, maybe they get asked way too many times to do these kinds of things. And they've maybe just experienced this as a bandaid, a PR thing, rather than it's real participation, real kind of deep. inclusiveness can be a possibility. I'm just example here. But I think in terms of the resilience metric, there's there's a difference between just talking about historic or current inequalities and talking on behalf of someone versus counting somebody in right, including these people in a sort of participatory way. And then there's something next and there's something that's much more deep about, okay, so let's do sort of efforts that are centered on those interests, do efforts that are respectful of those norms and interests and some offline connection between policy and planning with those interests? I know I'm working on very really vague terminology here, because we're not seeing many of those examples. So I can't really give you any specifics of how it's done. Until the day that we manage to figure out that we're still operating on this sort of vague level. A lot of it is because there's been a lot of distrust and trauma over the past, especially in how public agencies have done outreach tried to include historically sort of marginalized, currently marginalized community indigenous communities in the past and so there's a lot of distrust and so there's increasingly a lot of research out there as that's says, well before you get to that really deep level of working with communities, doing more participatory action stuff, doing all that there needs to be a little bit of reconciliation and healing that needs to happen because of the distrust. And that's probably it. That's that's as, as tangible as I can give you. And I think some cities are doing that I've seen, I think Boston, maybe San Antonio, Houston, very, very specific places, not an exhaustive list. And so if listeners they're doing it, great, fantastic. But there's this sort of reconciliation, rehabilitation effort that needs to happen first, before that kind of really proper, significant movement from just speaking on behalf of people, counting them in to something that maybe is more deeper and more consequential.

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Doug Parsons 55:48

We could easily have another episode just around this issue. I find it fascinating and even how it's developing. But I got to wrap things up with you relatively soon. I want to keep you forever. I just have a couple more questions than these are, I think, easier ones to kind of get through. You're an academic, your professor, you keep up with the literature and the adaptation space, but you its effects, especially since you're actually working with external groups trying to apply the work that you're doing, how do you stay caught up in the adaptation space? And outside of just the academic circles? Do you feel like there's certain resources that you'd like to stay abreast of? Are there meetings you go to how do you feel like you've got your pulse on the adaptation world?

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Dr. Eric Chu 56:26

Well, to be very honest, I don't feel like I do have my hand on the pulse of adaptation.

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Doug Parsons 56:32

Okay. Well, that's a good answer. I that's a useful answer.

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Dr. Eric Chu 56:36

I perfectly recognize that me sitting in a university campus office, I'm all pretty much always a couple of steps behind practice. There is one thing that I forget who it was one of my early early experiences on the IPCC, I was helping out with the not this kind of the previous assessment cycle. And we were getting questions from decision makers, from national representatives about how on earth do you do a global assessment on adaptation? Because every context, every place, every experience is different? How do you summarize all this into one document? And I obviously had no answer to that, but somebody had an answer was, well, adaptation practice is always ahead of adaptation research, adaptation research is pretty much always a couple of steps behind. And so our job is really to pick up the pieces make sense of what's been done. And a lot of innovation along the creativity will happen on the ground in those who are in the positions to make decisions about what to do what to write about in their plans, and who to interact with on the ground, because they're much more front facing facing frontline communities facing those leaders, elected leaders, and actually having to make consequential decisions. And so me sitting in a privileged position, like you're in the middle of California, my job is to collect the evidence, right. And I do that by talking to those who are working on the frontlines. I do that by creating the networks. I mean, our adaptation center, we have a seminar series, we run events, we do outreach events, where it's very much me going out and listening to folks about what they're doing. It's not really about me talking about resilience metrics. It's not really me lecturing folks about the history of equity planning in the US. It's not really lecturing about ecosystem resilience, I can I do that in the classroom. But I certainly do not do that to those practitioners on the ground. My effort really is centered on learning from the experience that's being currently done on the ground, and really seeing my role as the one who's trying to collect the knowledge, because so much is happening, a lot of turnover, as you know, sometimes leadership changes, that knowledge and information has to land somewhere. And if I have the ability and capacity to do that, I'm very happy to do that, to be that person. And so that's really my role. I'm not at the forefront of much right, I'm, I'm really there to support the good work that's happening on the ground today. And of course, I'll offer some advice, technical advice, maybe thoughts on the pros and cons of different things because maybe I have a much more cross sectional view. Sometimes a policymaker decision maker knows their own town, their own city really, really well inside out internal politics, everything, but they don't really have a good sense of what other cities are doing. And maybe to facilitate that learning across cities or learning across counties and states. I can do that. Right? Because I I'm the one who's collecting the information. While I'm out of many people who are collecting that information. I can sort of start build that community of learning, not saying that practitioners don't do that anyways, but I sort of helping out with maybe a much more researchy end side of things, maybe just to end here. I'm not at the forefront of much and my goal is to really feed experiences, practices that people are testing out in To the research machine and where they can evaluate pros and cons, benefits and barriers and trade offs and constraints. And then the output is some kind of insight that hopefully practitioners can use to say, all right to reflect a bit on what they're doing, because I'm essentially trying to tell the stories of planners and policymakers and community leaders who are working on the ground and telling their stories in a way that may be relevant to others who are sharing the same battles and sharing the same responsibilities.

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Doug Parsons 1:00:30

All right, last question. I asked this of all my guests if you could recommend one person to come on this podcast, who would it be? Oh, that's

D Dr. Eric Chu 1:00:37

great question. I would be really interested in hearing a podcast between you and Deborah Roberts, Debra Roberts, was one of the co chairs of this current IPCC cycle. Debra Roberts is from South Africa, somebody who's I really, really respect him. She was the chief, she is the chief resilience officer of the city of Durban in South Africa, and has been participating in environmental sustainability, climate resilience work in Durban since many, many 25 years ago, she was elected and chosen to be the vice chair of this super human level, scientific jargony place like the IPCC, somebody who's a practitioner on the ground, and as a woman, also from South Africa, and managed to navigate all of this and succeed in producing all of this. And I'd be really interested in hearing her story and her experiences and her reflections of what it was like to be a practitioner operating in this very academic kind of high level space and to just to see what it's like. And maybe there's learning there when we're talking about representation and inclusion in decision making. I mean, I can't think of anybody who has really embodied that more than somebody like Deborah Roberts. Hopefully, she can speak about adaptation in the US as well. I know she does a lot of learning and communications across different borders. But I'd be interested to hear from Deborah Robertson to learn from her.

D Doug Parsons 1:02:08

Fascinating, great recommendations. Appreciate this. Okay, Eric, this has been a real pleasure talking with you. I love talking to academics, because we can just drill down into these issues. And you you are doing some really exciting work important work there in California. And thanks for coming on the podcast.

D Dr. Eric Chu 1:02:21

Thanks. Thanks, doc. Thanks for having me.

D Doug Parsons 1:02:27

Okay, adapters. That's a wrap. Thanks to Eric for joining the podcast. I love talking to academics doing adaptation research. I thought it was interesting that Eric thinks the researchers are basically two steps behind the adaptation practitioners. I do think that's true. But I sense that's shifting as we see more universities getting to the climate resilience area. Many of my listeners, myself included started in areas doing environmental and conservation work and shifted into adaptation. Most of us don't have college training and adaptation because it didn't exist. And as you've heard from Eric, it barely does today, because universities are not investing in program design. Hopefully that will change in the coming years. I also enjoy talking about climate equity and environmental justice, the adaptation space has become ground zero for a lot of climate equity rhetoric, but not necessarily a source of on the ground examples. I know it's still early days and some of these larger funding pots like the Inflation Reduction Act still need to get out to local communities, then hopefully, we'll see more

examples. But for the moment, it seems like more empty rhetoric than actual policy. There are a lot of planners and practitioners who would like to see concrete ways to equitably adapt to climate change. I hope the adaptation sector that supports climate justice and equity planning understands this and not focus so much on these communities needs to speak the proper lingo they have jobs do which go beyond preaching to the choir, definitely check out some of Eric's work, we've only scratched the surface. Okay, listeners often reached out to me expressing that they have recently discovered the podcast within the last year or so and that means they have missed out on some great content from earlier episodes. To help remedy this I will be exploring the archives and sharing past episodes. In episode 144. I spoke with Dr. Kelly Turner, an assistant professor of urban planning and geography at the UCLA Luskin School of Public Affairs in the episode titled extreme heat governance and regulation, or lack of it, some of the topics covered the need to create governance and regulation around extreme heat decoupling disaster heatwave response to long term planning how can social media amplify disaster messaging the pros and cons of cool pavements? And should we name heat waves we also heard about some innovative street art using reflecting paint and an episode 143. The majestic sky islands in the desert southwest tales of adaptation border walls and the elusive Jaguar the sky island Alliance joined the pod where we learned about adaptation and conservation in the desert southwest we heard about the unique sky island ecosystems along the US Mexican border. We also learned how the landscape is adapting to climate change and the negative impacts of the border wall on wildlife and the ecology of the region. I actually visit the southern border wall with Sky islands staff to see firsthand what's happening there. Definitely checked is out the links are in the show notes. All right, are you looking for an innovative way to share your climate adaptation work with the world you feel like your webinars and white papers are falling flat, then it's time to consider sponsoring a whole episode of American apps by sponsoring episode you'll have a chance to share your adaptation story with climate professionals from all over the globe and the best part you will get to work with me personally to identify the experts that represent the amazing work you're doing. Some of my previous partners included NRDC, University of Pennsylvania Wharton, World Wildlife Fund, UCLA, Harvard, MIT, and various corporate clients by sponsoring a podcast you'll have the opportunity to share your story with my listeners who represent some of the most influential people in the adaptation space. And unlike a white paper or conference presentation, podcasts have a long shelf life and will continue to reach new audiences long after their initial release. foundations can also benefit from sponsoring an episode by highlighting the adaptation and resilience work of their foundation or their grantees don't miss out on the chance to get your message out to the world budget in a podcast for your next communication strategy and see the impact it has on your outreach efforts. Definitely check out my website Americanapps.org to learn more. Okay, on that note, do you want to inspire your audience with real life stories of climate adaptation? Look no further I'm available to speak at your public or corporate event and share my experiences in this exciting field with by engaging keynote presentations, I'll weave together stories from the American apps podcast and my own experiences to motivate inspire your audience. Don't miss out on this opportunity to learn about climate adaptation in a fun and informative way to book me as a speaker, simply visit america.org and get in touch. Okay, finally, as the host of American apps, I love to connect with my listeners and hear your thoughts on the show. Whether you want to say hello or have an idea for guests you'd like to hear from I'm all ears. Your feedback helps me improve the show and sometimes even leads exciting new opportunities. So don't be shy. Drop me a line at himAmerica@daps@gmail.com And let's chat. Okay, adapters Keep up the great work. I'll see you next time.