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### *Disaster Insurance Past, Present, & Future with Hannah Perls, Carolyn Kousky, & Sean Hecht May 5, 2023*

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Hannah Perls: Welcome to CleanLaw from the Environmental and Energy Law Program at Harvard Law School. I'm Hannah Perls, a senior staff attorney at EELP, and today I am thrilled to be speaking with two incredible guests. Dr. Carolyn Kousky is the associate vice president for economics and policy at the Environmental Defense Fund, and former director of the University of Pennsylvania's Wharton Risk Center, and Sean Hecht, who is the managing attorney of Earth Justice's California Regional Office and former co-executive director of the Emmett Institute on Climate Change and the Environment at UCLA School of Law.

In this episode, I speak with Carolyn and Sean about the past, present, and future of disaster insurance, including the role that governments can play in helping design insurance markets that not only redistribute climate related risk, but can help mitigate that risk in an effective and equitable way. I should also note that both Carolyn and Sean are just speaking for themselves and not on behalf of their current or former organizations.

Carolyn and Sean, thank you so much for being on CleanLaw.

Dr. Carolyn Kousky: Thanks for having me.

Sean Hecht: Yes, thank you.

Hannah: Well, before we dive in, I want to make sure our listeners have a sense of who you are and the incredible work that you've done. Carolyn, if we can start with you. For the past 15 years, you have spearheaded groundbreaking economics and policy research, investigating this intersection of disaster insurance and community resilience, and I think most exciting proposing more inclusive insurance models. So can you talk a bit about your professional journey and what personally drew you to focus on disaster insurance?

Carolyn: Sure. I never intended to start thinking about disaster insurance, and then it just stuck. It started when I was a PhD student and I was just getting started on my dissertation when Hurricane Katrina hit, and I got drawn into some research that was looking at the role wetlands could play in reducing storm surge. I had originally intended to focus my work on thinking about this concept of ecosystem services or the benefits that people get from nature, and so, that's one of them, storm mitigation. But I got really deeply interested quite quickly as that response was



unfolding in our federal disaster programs, in recovery and preparedness and how we could do it better given all the real challenges and heartbreaking stories we saw come out of Hurricane Katrina. So that ended up leading into some work on the Flood Insurance Program. And it seems, once I started thinking about it, I couldn't stop because here I am years later.

But you can also see, over that timeframe, how quickly climate extremes and their economic impacts have really come to be integrated into our public discourse because 15 years ago when I was first starting to think about this, the topic felt pretty niche, but now insurance challenges are a daily topic of conversation in many parts of the country. I'm thinking about places like Louisiana, and Florida, and Texas, and California that are really struggling right now and how to make those markets work well for people in a time of climate stress.

Over the years, I've looked at many aspects of risk transfer markets, things like why this is hard for the private sector, how we can design our public sector programs better, the role insurance plays in recovery, and more recently, how to improve our insurance system to, as you alluded, to improve equity in recovery to better support risk reduction in adaptation, and very recently, the role of insurance in supporting the energy transition. So that's my trajectory. Most recently, I summarized a lot of this in my book, *Understanding Disaster Insurance*, that came out last fall.

Hannah: Great. And I will gladly pitch that book. It is fantastic. It is, I think, a personally fascinating read.

Carolyn: Thank you.

Hannah: So we can throw a link to the book in the show notes for our listeners. But of course Sean, I want to pivot to you, you are an attorney and a legal scholar, and your work has focused on both legal and policy tools to help build community resilience, and that includes, of course, the role of the insurance sector. But that said, you've also worked on a really broad range of legal matters having previously served in the California Department of Justice before, of course, joining the Emmett Institute. So I'm curious how you decided to ultimately pursue a career in environmental law, and of course this particular focus on disaster insurance.

Sean: Yes, thank you for the question. I am, as you suggest, really a generalist within environmental law. I've had a career where I've worked on a lot of different types of issues, from working on the Clean Air Act to the Endangered Species Act and species preservation, to environmental justice in communities. And also, for the last 15 years or so, a focus on various aspects of community resilience. And it's an area that I found after organizing a conference actually at UCLA maybe more than 15 years ago on climate adaptation. At that time, there were very few people in the legal community and certainly in the legal scholar community who were really focused on adaptation and resilience building, and there wasn't a lot of sense of what that even meant to have legal engagement and legal tools that related to those questions.



And what I saw in the symposium that I organized then was people who were really kind of struggling with being among a very small number of people who were starting to focus on those questions. And at that symposium, there was a speaker named Evan Mills who was one of the few people working at the intersection of climate change and insurance. He's not a lawyer, he's a scientist. And his work really intrigued me because it seemed to me at the time that there were very few people acknowledging and understanding the deep relationship between the insurance sector and the really, really large financial risk that climate change was posing.

And so, digging into that a little bit, I discovered that there was literally nobody in the legal scholar community who had been writing on that exact topic and that in the policy world, there were a few specialty journals where there were folks who were writing about it, but it was a very specialized, as Carolyn said, kind of a niche area at the time. And as I dug into it more, I realized that if one is thinking about climate resilience and adaptation, that insurance and insurance-type products and insurance-type governmental schemes are very much part of the picture, both because of the incentives that insurance provides for people to behave in different ways that might be adaptive or maladaptive because of the incentives that the insurance industry itself has to mitigate risk. And I began to just dig into the area and wrote an article about it about 15 years ago that then kind of got me thinking about it ever since. So that's really my relationship to the work.

Being here in California, of course, we've seen wildfires in unprecedented places, on unprecedented scales, and that has created a policy environment here in California where insurance is more and more relevant. And then we also have coastal risks in California. And the relationship of insurance to those risks is quite a bit more complex, but it's still very much there. And so, as I started to think more about coastal regulation and regulation of development in wildfire prone areas, that came together with the insurance part of my own work.

Hannah:

Great. And you both, I think, emphasized through your introductions this broader question I was going to ask you, which is, why does this matter? Why should environmental lawyers and policy makers care about disaster insurance? Because, again, it's not necessarily something you'd come across if you are an Endangered Species Act person, for example. So, Sean, you mentioned the incentives and in particular the incentives that insurance can provide to industry to mitigate risk. You both also alluded to both the escalating and intersecting risks that we're seeing from disasters. So, Sean, earthquakes, flooding, wildfires, all in California, all happening at an increasing scale and frequency.

So I wanted to just hone in on that a little bit more and ask you about what is the role that you see insurance playing both in individual's lives as we try to figure out what it's like to live in this climate changed world. But then, also, Carolyn, to your point where you're talking about climate change, even as a tool to mitigate greenhouse gases to address climate itself. I think those are pieces that you're uniquely attuned to. So maybe, Carolyn, we could start with you just about why disaster insurance can matter to community resilience and in particular individuals.



Carolyn:

Yeah, sure. I think this begins with a recognition and understanding that all of these climate perils impose enormous and wide-ranging costs on households. So you see in the news the enormous property damage to homes, possessions, vehicles, the Costco, well beyond that too, things like emergency and preparedness supplies, evacuation expenses, temporary living. If people can't be in their home for a period of time, there could be health impacts, additional care for vulnerable family members, and the cost of cleaning up debris. If the power's out, you might have to get generators and fuel. If the transportation network's down, you have higher commuting costs. And if businesses are impacted, you might lose income. So really, this list goes on and on and I think makes clear that disaster events are really financial shocks for households.

So then the question is, how do people pay for them? And most households simply have insufficient liquid savings to cover the expenses outright, and that's more severe for lower income households. Research has also shown it's more of a problem for households of color. Disaster loans are typically our first line of defense, what the government offers to disaster victims. But lower income households often can be locked out of access to credit altogether because they don't meet certain repayment metrics or additional debt is just going to make them more financially precarious. And then, this is probably a whole other conversation, but the other source of funding you might turn to is disaster aid. And we know that federal disaster aid is essentially too limited or too delayed or too difficult to access.

So if you can't get savings loans or federal aid, that's why insurance is so important to cover these huge financial shocks. And we know from a bunch of research that insurance helps people recover better, recover faster, they're more likely to rebuild, they're less likely to report unmet funding needs, but those who need insurance the most because they don't have access to any of those other sources are also those least able to afford it. And that's the real challenge I see right now because we also know that without the resources to recover to get safe housing again, households can engage in types of coping mechanisms that can either have negative impacts in the short or long term or limit their ability to build wealth.

So we see things like, without insurance, people having to defer medical expenses or fall behind on bills or drain their retirement savings. And research finds that after severe disasters, credit scores can go down, mortgage delinquencies can go up, bankruptcies can go up, and all of that is, of course, worse for households that are financially constrained. And research also shows in communities of color. So insurance can play this really important role, and yet it's also hard to get for the people who need it most.

Hannah:

And we're definitely going to touch on those equity issues later on in this episode, and more specifically how we might address those proactively. But Sean, I wanted to quickly ask you to talk a bit about the flip side of the benefits of insurance, and in particular what you alluded to with the incentives and in an ideal world, what can insurance accomplish on the incentive side?



Sean:

Yes, and this relates very much to what Carolyn was just saying. The thing about insurance is that, typically, insurance is priced in a way that then spreads the risk around to a wide range of individuals and companies, and that when the premiums for that insurance are set, they are often set in a way that then is priced to match the amount of risk that's being taken. I mean, imagine like people's automobile insurance premiums, if you get into more accidents, if statistically you're likely to get into accidents, in theory, your premiums should be higher, and then that reflects the increased risk. The challenge of that, of course, is that when things are priced to risk in the disaster and climate world, you end up with exactly the kinds of inequities that Carolyn was talking about.

But when insurance is priced to reflect the risk, that also provides a set of incentives to adapt to climate change. The pricing of insurance reflecting, "oh, this home is likely to be washed out in a flood or very particularly vulnerable to wildfire," that ought to give incentives to build differently and to live differently in ways that would be more resilient to climate change, where, in theory, we might not be building new housing in areas that are particularly prone to disasters, or we would be taking steps to harden those homes to make them more fire resistant, in ways that are better for the residents there.

But again, there's a real tension between that and the equity concerns that Carolyn mentions because once you start pricing insurance to reflect the risk, you end up in situations where people may be even less likely to afford the insurance who already live there. And that's a real conundrum. But the resilience-building aspects of insurance are still very much there, at least in some cases. It can be a lever to really potentially drive choices into choices that are more adaptive because the financial cost could be reflected in the insurance cost.

Hannah:

And I want to make one thing explicit that we've been dancing around. Sean, you said it, that insurance spreads the risk around, but of course it does not reduce risk. And Carolyn, you actually mentioned this. And so, Carolyn's a real superhero because she testified before the Senate this morning and is now on a podcast with us today. But in that testimony, you talk about how the best way to lower insurance prices is actually to lower risk, which insurance cannot do in and of itself. And by the way, we'll link to that testimony in our show notes as well. But Sean, I really quickly wanted to ask if you could speak explicitly about that piece where insurance is a risk transfer tool but it might not inherently reduce the risk itself, and what are the pros and cons of that approach?

Sean:

Yes, I mean, of course insurance can't reduce the physical risk. I mean, someone pays the cost when things get destroyed that people rely on, whether that's infrastructure or whether it's people's homes or whatever. Those costs don't disappear. And so, risk reduction is absolutely essential, and the mechanism of insurance has relatively little to say about that. And in fact, insurance as an industry and as a practice is really agnostic to the amount of risk. What matters to insurers and to insurability is more the predictability of the risk than anything else. And so, insurance can only do so much. Even in the ideal state, it's going to be limited in what



it can accomplish as a tool for addressing these types of challenges. What insurance does do, though, is it creates great incentives where it can to reduce the unpredictability of risk, what we might think of as the uncertainty around the risk itself, and also the possibility of really catastrophic outcomes because those types of outcomes make it much harder to even do that risk spreading.

And so, insurance companies themselves, the ones that hold a lot of the risk, have quite an incentive to try to push society towards managing risks in a way that make risks less chaotic to the extent that that's possible. But it's absolutely true that insurance is not going to ever itself reduce the risk that society faces. At most, it's going to spread that risk around. It might provide incentives to reduce uncertainty around risk, and it might, in some cases, create incentives to do risk mitigation because insurers don't want to be paying out claims if they can avoid it. And avoiding risk is a way that insurers can avoid having to pay claims ultimately. So there's some alignment there, but not as much alignment as you might hope between insurance and actual risk reduction.

Hannah: Now we're going to add another layer on top of that, which is ensuring disasters and the unique challenges that that poses. And Carolyn, you've written a lot about this, but maybe you could quickly just explain what is it that makes a particular risk "insurable" versus uninsurable? Another way to think about it is just, why is disaster insurance so hard to get right?

Carolyn: Yeah, I think that's an important question, and I'm going to pull on a couple themes that Sean has already mentioned and brought up when he was speaking. The foundation of insurance is risk pooling. So risk pooling is sharing risks within a group. So in the simplest form, you can think of a group of people getting together, everyone making small regular contributions to a fund. Something bad happens to someone, they get to use the fund to cover their losses. And formalizing that is essentially what insurance is. The regular contributions, your premium, that you make every year, and when something bad happens, you get your claim payment. And that works because bundling together independent risks is enormously powerful and is what has built the modern insurance industry.

There are, not to get too technical here, but some mathematical laws that prove that when you combine or pool together independent risks, you get a more stable and predictable loss distribution. And Sean was kind of alluding to this because the challenge is when you don't have that for insurance companies. And so, when you do that, the probability of an extreme outcome is radically reduced, but disasters don't do that because the losses are correlated, which means everybody gets hit at the same time and they can be very severe. And so, that means that when you pool losses together instead, comparing it to auto insurance, if you look at auto insurance claim payments, they're very stable year-to-year. Some different people get in accidents each year, but the overall losses each year to the insurance company, absent radical changes like autonomous driving or something are going to be pretty stable year-to-year. But disasters aren't like that. You get what I think of in my head is



spiky loss distributions. You get years with no disasters and then you get really severe loss years.

And private companies have to manage themselves to a solvency constraint. That basically means they don't want to go bankrupt. And so, when they get those huge disaster losses, they have to have some way to pay all those claims and it's going to be way more than they took in premium that year. So they need other sources of funding. And so, that's when they use reinsurance, they might transfer risk out to the financial markets, they hold very large reserves to cover this type of thing, but all of that costs money. And so, it makes disaster insurance, when it can be provided, more expensive than non-disaster insurance, and for really severe things, not able to be provided at all.

So think about the global pandemic. When businesses around the world all had to shut down at the same time, you couldn't have business interruption insurance for that type of risk. It would simply bankrupt all the insurers in the world. There's not enough capital to cover that type of global systemic loss. But for something like a hurricane, you can make use of broader global diversification, but it's not cheap. And so, that's when you get to this breakdown that can happen in disaster insurance markets, where the price that's profitable for the insurance company to be able to provide that disaster coverage is more than people are willing or able to pay for it.

And that's why we have so many government disaster insurance programs. In fact, I can't think of anywhere in the world where there's a robust private disaster insurance market with a high degree of take-up rate where people buy it. And so, that takes a number of forms. We have our Federal Flood Insurance Program, we have the California Earthquake Authority, we have the California FAIR Plan riding wildfire. We have beach or wind pools in every state. And globally, we have even more models. So that means, when we're talking about disaster insurance right now, we're sort of talking about the private market, but we're also talking about public policy design.

Hannah:

That's a perfect transition because I think the next piece that we want to talk about, we are after all a environmental law podcast. And so, I really want to talk about the state structures and the state authorities that people can exercise to actually construct these markets. So Carolyn, as you talked about these private markets breaking down, and in the beginning you alluded to Louisiana, Florida, Texas, California, this is actively happening. Colorado is likely to start their own program for wildfires later this year. So Sean, I was hoping just to take a step back and walk our listeners through the state authorities that govern insurance and what are the principles or guiding metrics that they use to determine how they build out these programs, how they run these programs, and are there broad authorities or limitations that we should have in mind as we think through how they should be tackling new issues with climate change?

Sean:

Sure. In the United States, we have state insurance regulators who in every state regulate insurance carriers in the market, and it's done at the state level. There's multiple ways in which states have insurance commissioners or insurance



departments that do that regulation. Some of them are elected, some of them are appointed. They're all high level public officials who oversee a department that is designed to make sure that insurers meet certain requirements. And so, thinking about what those requirements are, one obvious one in the United States, or everywhere, is the solvency of insurers. You don't want insurers to go bankrupt.

And part of what Carolyn was alluding to is the possibility that one large correlated event like a hurricane where the correlation in space and time is very, very high between a whole bunch of insurable events or a whole bunch of insurable losses, you then have a solvency risk to that insurer because it has a ton of money from its premiums, but it wasn't necessarily prepared to pay all of that out at one time. And so, insurance regulators are there to make sure that insurers are solvent. And sometimes insurers aren't solvent and fail and policy holders aren't able to get back the money that they put in. And that solvency regulation is a transnational phenomenon for insurance regulation.

Here in the United States, we also regulate a lot for affordability and availability of insurance. It's essentially consumer protection against the possibility that insurers are going to engage in price gouging or what we might commonly call price gouging. And so, insurers are often motivated for various reasons to overcharge premiums if they're not in an unregulated environment, meaning that they price their premiums higher than the risk, they also might try to withdraw their coverage in areas where it's not profitable for them. And part of what an insurance commissioner's job is to make sure that insurance is widely affordable and widely available. And so, their regulatory role includes that piece of what they do.

Now, it's important also to note that everywhere in the United States there are insurance carriers who are not part of the regulated market. The carriers that are part of the regulated market are typically called admitted carriers, and there's a ton of those companies around. But if one can't find insurance in the admitted market, or if one has a type of risk that is very complex to ensure, there are always other companies typically called surplus insurers that will be able to come in and provide insurance with a lot of disclaimers. This company is not regulated like the other companies are by the California Department of Insurance. And getting that type of insurance comes with some benefits. You can sometimes ensure risks that otherwise might be very hard to ensure, but it also comes with some downsides because you don't have the same level of regulation and the insurance might not be priced in the same way that admitted insurance is. But it's a fairly common thing, especially among businesses, but also just in the community at large, for people to purchase surplus insurance.

Then, the other piece of this that's important to note is that insurers themselves will offload their risk to reinsurers. This insurer that insures my house or my car typically is not going to hold all that risk themselves, but they will buy an insurance policy essentially from a very large company that's called a reinsurer. And sometimes those reinsurers are also surplus insurers, but it's the reinsurers that really hold the massive amount of the risk rather than the first line insurers. And that's a very





important dynamic because those reinsurers aren't subject to the same regulation. They have a different set of incentives, but interestingly, those incentives really align towards addressing the risk more than the first line insurance companies do.

If I have a homeowner's insurance policy with a one-year term and then that insurer contracts with a reinsurer to insure that risk, who's going to care about the risk that my house is going to be devastated in a wildfire, it's really the reinsurer that cares about that risk in the aggregate. And so, that's a really important dynamic as well. But it's also true that particularly when you think about equity and when you think about resilience at the house by house and community by community level, that the first line insurers are very important. And so, insurance commissioners do have a role to play in helping insurers to address and motivating insurers to address climate risks.

Hannah:

That's really helpful and obviously a very complex ecosystem of actors, both private and public. There was one other piece I wanted to flag, Sean, in what you were saying. We obviously have this state structure that can impose regulations on certain carriers. And then, the one piece I wanted to mention, and Carolyn, I think you flagged this in your book, in the US we have a different system where the local government is actually often the one that's most responsible for land use regulations. So when we think about insurance as a means to transfer risk, some would argue the best way to mitigate that risk is through local land use regulations, but of course that's up to each local government. And there is this tension between regulations that might mitigate risk, might prohibit development in risky areas, but also local government's dependence on the tax base.

So Carolyn, maybe I could push this over to you to just talk a bit about that tension and maybe some of the other limitations inside insurance policy, the inherent qualities of insurance policies that make it difficult to adapt to climate change or communicate climate risk using these traditional tools.

Carolyn:

Yeah, it's a good question. And some of the best ways we have to lower the risk of these disasters are things like land use and building codes. And like you said, those are often local decisions. There's not a federal lever into those, although we try with things like the Flood Insurance Program, and some minimum land use requirements, but there is a bit of a disconnect, and maybe you might want to say a perverse incentive, that local governments permit development make land use decisions and they get all the tax revenue, but if a disaster comes, they don't bear any of those costs. Those costs are paid by the property owners or paid by the federal government. We pay a lot in disaster relief and recovery. And so, there is that tension that the people making the decisions aren't the ones bearing the cost, right? An economist would tell you right away, you're not going to get the best decisions when you have that kind of disconnect happening.

That's not the only place. As you alluded to, where there's maybe misaligned incentives around this topic, to come back home to insurance policies themselves, we have this fundamental challenge that you pay into your insurance company hoping you're going to get a claims payout when a disaster comes. And yet, at that



moment, to make the claims payout, every dollar they pay you is a dollar less profit for the company. So there's also this inherent tension in the structure of insurance companies about the payout around claims. And if you look at things like complaints that people lodge with their department of insurance, they're almost all about the claims process, not getting what they think is a fair payout, it taking too long. And many people have called attention to this tension.

And there's interestingly, a fairly new insurance company now that's tried to build its entire model on undoing that tension. It's called Lemonade. And they're structured around a new model where you pay in and you're put in a group with other policy holders who want to support the same charity you want to support. They take off a set amount for running the company. And anything they don't pay in claims or reinsurance, they donate to the charity so that when they're trying to decide whether to give you a dollar in claims or not, it's not changing their underlying profit or how much they're taking home at the end of the year. So they're trying to undo that perverse incentive there, but they don't ensure disasters. They haven't solved this challenge of the very severe catastrophic risk. So there's a lot of interesting innovations, I think, to help undo some of these, but we haven't gotten the entire ecosystem operating smoothly yet.

Sean:

So one way of addressing the challenges that Carolyn is talking about is a concept called parametric insurance. And the idea behind parametric insurance is that when some condition is met in the world, say a certain temperature is reached in a particular place or there's a fire within a certain geographic area, that everyone who meets that parameter gets a payout from it without any fighting over whether they have actually experienced damages. And that does a lot to streamline the claims process because the idea there is that there's an objective measure by which there is a determination whether somebody is entitled to a payment.

Now, the obvious challenge of that is the reality that there will be some people who get paid who have no losses, and there will be some people perhaps who have losses who don't get paid. That's typically called basis risk in the insurance industry, and it makes parametric insurance not a perfect solution. But what parametric insurance can do in certain situations is to cut away some of the challenges of fighting over claims and create a much more streamlined process. But again, there will still be individuals who either potentially get a windfall or who don't get compensated for risks that have materialized for them.

The one other thing I should probably note is that because of some of the insurability challenges that Carolyn has mentioned, we have areas which have been deemed completely uninsurable by insurance companies, in some cases for many decades. And so, flood risk in the United States is only very rarely underwritten by admitted carriers. It's not included in the typical homeowners or renters insurance plan at all. And I think this is a little known fact.

You hear a lot about the ways in which coastal flooding might impact insurance premiums. I see a lot of this written in popular news and other items. And private



insurance does not pay for insuring against floods. And in fact, in hurricane prone areas, this creates an interesting dynamic where the claims made to insurers always cite that there's wind damage because that is insurable and insured, but if an insurer can show that it's flood damage, then they don't have to pay the claim because flood is excluded.

And so, the federal government has stepped in with its own national Flood Insurance Program, which Carolyn has studied in quite a bit of detail, that has stepped in to provide some measure of insurance in that market from the federal government. But that program itself is a very complicated program, has been very widely criticized. I should say, as I mentioned before, there are surplus carriers. And you can go to a surplus carrier to get flood insurance underwritten, and there are wealthy homeowners who do exactly that and don't participate in the national program. But it's just worth noting that there are whole classes of risks that we don't ensure that was also true of earthquake insurance in California, which is why the California Earthquake Authority was created.

Hannah:

Maybe I can piggyback off that because I think as we're looking ahead and thinking about what happens to households and in particular low-income households, households of color that Carolyn mentioned are in general more prone to disaster risks, in general are least able to adapt to those risks or have assets that allow them to bounce back as quickly. And yet we have these disasters that occur with increasing frequency. And the tendency it seems is for private insurers to narrow the scope of the policies they offer or withdraw completely from markets as solvency becomes unachievable in these spaces. And it seems the default is for states to step in, but we're now seeing crises happen in Florida, in Texas, in Louisiana.

And so, for me, and I don't know the answer, which is why I asked you two to come on the podcast and tell us the answer, what happens now? Do we anticipate that states are going to continue to step in? How can those programs be designed so that the risks don't fall back to taxpayers? Is that married with mitigation actions? Is there an ecosystem of solutions we should be thinking about? How do you see the future of disaster insurance at this stage?

Carolyn:

I'll throw out a few thoughts. As you both mentioned now, as climate risks are starting to increase, so these extreme weather-related events are changing in frequency or severity, that's stressing certain insurance markets, and we are seeing bankruptcies in places like Southern Louisiana, and Florida, and Texas. When that happens, what you see is exactly what you both mentioned, a shift from risk from the private sector to the public sector. So we see in California, this is a great example. After the wildfires in 2017 and 2018, there was some pullback from the private sector in high wildfire risk areas. And so, then you see an increase in people having to go to the state FAIR plan to get wildfire coverage. And you also see that in states like Louisiana and Florida. In Florida, the state insurance provider, Florida Citizens, is now the largest provider of insurance in the state with over a million policies.



So you see this shift into the public sector, which then raises these questions about the fiscal soundness of these programs. What happens when a big event stresses them? How do we fund them? A lot of them are currently funded through ex-post funding models. So insurance is technically funded ex-ante. You pay your premium ahead of time, so insurers have the resources to pay your claim. These programs tend to be funded after the fact, which means they issue debt, they issue a bond to pay their claims and then assess people after the fact. We need to stress test some of these programs to figure out how well that's going to work in a big event or many big events and what that means for state finances and for the need for federal intervention. So that's one thing.

To come back though to the point that we've mentioned several times now, the best way to fix these systems is to just address the underlying risk. The costs have to go somewhere and be paid by someone unless you're actually lowering the risk. And that's the hard work we are talking about regarding land use and building codes. We know how to build safer. For example, the Institute for Business and Home Safety has a standard called fortified standard. And fortified homes are the homes when you see those pictures sometimes after hurricanes where every building is blown down except two, those are the fortified homes, and yet we're not building that consistently. It's only required in building code, I think, in Alabama. So there's lots we need to do to build better and to move people out of high risk areas. But fitting all these puzzle pieces together is really tricky. And right now we have a lot of partial solutions and band-aid solutions and not the holistic picture yet.

Sean:

And I'll just add to that that the public insurance programs that states have developed have their own solvency issues. It's not an answer to the risk spreading problem to put this on the state because when the state takes on the risk pool, the state has the same set of challenges. And so, you often end up with the risk that state taxpayers are going to end up subsidizing the risk that their state risk pools have taken on. We've seen those challenges, particularly in the Gulf Coast. We could imagine those challenges appearing in California depending on how risks materialize with homes that are insured under the FAIR plan. That doesn't solve the problem. It just spreads the risk in a different way when there's a public program that takes over that insurance role.

Now, it might be that there's value to making sure that people are not unable to go back to their homes in those types of situations. And we might see programs like the National Flood Insurance Program as important social welfare programs and not as insurance programs. And if we did, maybe it would be okay to think about subsidizing those programs. But if we are thinking about them conceptually as insurance, they don't work any differently or any more effectively than the private sector.

Hannah:

I really appreciate that distinction. Like if we ask the public programs to be solvent when we know the private market is not solvent, we're setting ourselves up for disappointment. And so, I think this pivots into the equity question, which I promise we would come back to. I think, Sean, you called it a really hard conundrum, which is fair, and you'd mentioned subsidies. And we know that while many people are unable



to afford insurance, the counter-argument to that is that it increases something called moral hazard. And so, I really want to dig into this question of moral hazard and balance that against this question of subsidies and how do we make insurance accessible and affordable such that low income households are able to access it and therefore recover after a disaster more readily.

So maybe to start, and this is to either of you, could you just quickly explain what moral hazard means and how do we balance that idea against this notion that insurance should really be accessible and affordable to everybody?

Carolyn:

Moral hazard is an economic term that refers to the idea that if you know that your risk is taken care of financially, you'll engage in riskier behavior. So when we're talking about insurance, it's the idea that if you know that if something bad happens, you're going to get paid out, you might not be as safe as you would be otherwise. So with auto insurance, maybe you drive more recklessly or you don't do the tune-ups you need for your car. Or with disasters, if you think you're going to get your home rebuilt, you don't mitigate your home in a way that would help lower the risk.

And so, the concern is, to come back to some things that Sean was talking about earlier, if we don't price appropriately for the current risk that we're facing, that creates this disincentive to invest in loss reduction. And that's really important to keep in mind. And when we suppress prices, we create distortions in housing markets, in mortgage markets, and we can create difficulties in people's ability to even understand the risks they face.

That said, and this is the tension we've been talking about this whole episode, is that that makes this really important financial protection of insurance sometimes just unavailable to lower income households that can't afford it. And the policy solutions that have been suggested out of that are to not suppress rates across the board, which is what we've done historically in all of these programs and in all of these markets. And instead, target reductions in premiums in a means tested way at low-income households who actually need the financial benefit of that, and to pay for that with general tax revenue, not cross subsidies within an insurance program. And so, that could provide access to insurance for people who need it, just like any other federal safety net program, and yet maintain the important price signals. So that's been proposed for the Flood Insurance Program, but has yet to be enacted by Congress.

My last point on that was that there's very little reason to believe that moral hazard is going to be a very large problem with that limited population. So a lot of low income households are in risky areas or unsafe housing because they're trapped there and they don't have the funds to mitigate and they don't have the funds to move somewhere else. So I think we can be much less concerned about moral hazard when it's attached to this means tested approach than when it's attached to across the board rate suppression.



Sean:

And I'll just add to that that the availability of federal disaster aid under the Stafford Act and other types of aid creates its own type of moral hazard if you're thinking about it through that framework that's really independent of the insurance system. And I don't see people clamoring to get rid of disaster aid under the Stafford Act, nor necessarily should they be. But the insurance side of it seems odd for folks to be focusing on the insurance side of that question. And I'll just note again that our insurance commissioners at the state level regulate for affordability in part.

And so, part of this challenge is the suppression of rates that results from regulation that's designed to guard against price gouging by insurers. And that also is a very challenging dynamic because I think nobody wants to see a situation in which insurers are able to set prices in ways that make things unaffordable to people or that just boost the profits of insurers. And at the same time, the suppression of insurance pricing, as Carolyn said, has really contributed to the challenge of managing these risks because people are incentivized and subsidized essentially to move into areas and remain in areas that are, in the long term, not viable to live in.

Hannah:

And I think this is something that both of you have written about, but at least creating the structures that enable people who do want to move efficiently and effectively. So if people do want to engage in a buyout program, for example, making sure that those funds are available, making sure that we account for racial inequities and how homes are valued. I should also flag as we're talking about who lives in high risk areas, we of course know that redlining and other racist policies have driven certain people to live in these areas to start with. So as we think about how do we integrate equity into public programs, a lot of that is in response to overtly racist public policies in the past. So there is a parallel response there that needs to happen.

Before we close out, I just wanted to close up specifically this conversation on equity. Carolyn, you worked on a report with CERES about inclusive insurance. And I thought it was really helpful to think not just about the affordability component, which of course is the first thing that comes to mind, but other ways that we should think about integrating equity into insurance programs. So you talk about indirect discrimination and differential impacts in underwriting and claims processing, but also increased disclosure and making sure that people know what they're getting into when they're buying a home. And then, of course, making sure that this insurance will cover those disaster needs that you flagged in the beginning.

I want to end on a hopeful note to the extent that we can. So whether it's on equity and inclusive insurance models or just something that gives you hope as you think about the problems that we're currently facing, I would love just to hear from both of you, what is the thing that makes you excited or gives you hope that we can solve this problem?

Carolyn:

I guess the thing that gives me hope is how many smart and enthusiastic minds are thinking about this right now. And people are recognizing these challenges and recognizing how deep and interconnected they are and really starting to do that hard thought work of how we put together some comprehensive approaches, not just for



today and the near term, but like Sean was talking about, thinking out decades about where this risk is going.

And climate, I find is challenging because it's not like we're going to a new normal. You hear that phrase and then we're going to be there. We are on a path of ever-increasing risk for the foreseeable future. I mean, we have sea level rise and temperature change locked in for our lifetimes and our kids lifetimes. And so, we can't just build to some new standard and solve it. We have to be thinking about how we live in this new world of escalating risks. And I think there's a lot of interesting emerging solutions that are exciting. I don't think any of them are silver bullets, but I don't think this is a problem that can have silver bullets. I think this is a problem where there's lots of small positive changes and ideas that are going to mesh together into some better climate risk management approach.

Sean:

Yeah, I'll echo that. Here in California, I see very, very dedicated smart folks at our California Coastal Commission, at CAL FIRE, at the California Department of Insurance who are really tackling these issues and really thinking hard and engaging with local governments, and local government officials who are starting to understand better what these risks really are. If I look at what the policy landscape looked like 15 years ago, I see just an incredible change, incredible recognition over that time of what the risks are and why we need to address them and why we need to address them on both short and medium and long-term time scales, and the role of both the public and private sectors in doing that. And we see it also in the insurance sector itself, where there were just a few large reinsurers that were talking about climate change 15 years ago, and that's just not true anymore.

And again, we've been talking a lot about resilience, but I also see on the energy transition side of it, which we really haven't talked about, some real reason for optimism, seeing insurance and the insurance sector really understanding what some of the existential risks are of continuing fossil fuel use for decades and decades to come and making insurance decisions, really business decisions that reflect the reality of that risk. And so, all of that makes me optimistic that we're going to start to see change and that we are seeing change for the better.

And then, lastly, here in California, we've seen a really dramatic change in the environment at the insurance regulator level, where there's a real focus over the last few years on climate in terms of requiring disclosures from insurers, of the risks that they insure, the risks that they invest in. And also, as of the last couple of years, a real focus on trying to solve the issue of how does insurance stay affordable and available and yet at the same time start to address climate risk and give people incentives to really engage in mitigation. It's a challenging thing to do that, but at least I've seen some really positive steps in that direction.

Hannah:

That's great. And we can link to the California Insurance Commission's latest sustainable insurance roadmap that lays out those different goals, including mitigating climate risk and reducing greenhouse gas emissions, which struck me as a really extraordinary thing for an insurance plan to do, but was very exciting to see. So



we'll throw that in the show notes as well. But I really just want to thank you both, not just for being on CleanLaw, but for the work you do. And really appreciate you taking the time, so thank you so much.

Sean: Thank you. It's a pleasure to talk with you.

Carolyn: Thanks for the invitation to be here.

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