LEWIS GILBERT: Let's see. Resilience. The Institute on the Environment is pleased to partner with IAS because as I have thought about cross departmental institutes at the University of Minnesota, the IAS is the closest to having a mission analogous to the Institute on the Environment. In particular, each of us is charged with addressing complex problems that span a wide range of disciplines at certainly departments, often colleges as well.

And while the Institute for Advanced Studies has their roots in the humanities and the Institute on the Environment has our roots in the natural sciences, we'll say, certainly the kinds of challenges that we're each trying to address-- in particular those related to the relationship between humans and the planet, be that engineering, be that spiritual responses or art-- are complex and multi-faceted. And so it's always a pleasure to work with IAS on these topics.

In the Institute on the Environment, we're trying to create a world where people and planet prosper together. That world will be in the future, or in some cases we're doing better on that than we were 20 or 30 years ago, in other cases, maybe not so well. But the future is a thing that one of the things about the future that has changed in recent history is that it's no longer something that happens to humans, it's something that humans create.

So we've moved past the time when human numbers, human technological prowess, human understanding were such that we were more or less subject to the whims of the natural systems of the planet. We now do things that change how those natural systems work. And we then have a responsibility and an opportunity to create a better future for humans on Earth.

I think about the aggregate quality of life on Earth. Usually I say the aggregate quality of human life on Earth, and we can argue about that little nuance. But today we're going to talk about we have three distinguished panelists who will talk about the ability of human systems and natural systems to function under stress and under change. And I'm looking forward to hearing their comments. And with that I will throw it to Jennifer, who has some announcements and other things.

JENNIFER GUNN: Thanks. Hi I'm Jennifer Gunn. I'm the director of the Institute for Advanced Study, and we are thrilled to be here on the St. Paul campus. The [? INE, ?] as Lewis said, is our peer and our partner, and we're always happy to be working together. And actually, we would like to be on the beautiful St. Paul campus and with the [? INE ?] even if it weren't for the fact that the NFL

exiled us from our normal space.

I'm going to make a few announcements and then introduce our panelists for today. I think Lewis kind of summed up what this event really is about what it means. And so I just want to make a couple of announcements. So for any graduate students here in the social sciences and humanities, we are part of the University of Minnesota has a program sponsored by the Social Science Research Council and funded by the Mellon Foundation on dissertation proposal development. And applications for that program for this year are due on Friday, February 9th at noon. There's a lot more information and the application form itself can be found on the IAS website.

Next Thursday we will also be traveling. We will be in Heller hall on the West Bank. We're planning on hitting every bank this month. And we're partnering with the history department and several others to bring Frederick Knight, the chair of the history department at Morehouse College, who will be talking about the third moment of the sun, black elders and generational politics in early America.

And so finally, let me turn to the fun part of today, which is introducing our panelists. And our format it's going to be this. Each panelist will talk about seven minutes or so. They'll kind of talk among themselves about questions their presentations have raised for each other, and then we'll open it up to the audience. So it's very audience-friendly and interactive. Don't feel like you have to hold back if somebody is making a point after the presentations that you really want to get in on, so to speak.

So our first speaker will be Kate Knuth, who's the Chief Resilience Officer for the city of Minneapolis where she works on citywide resilience building efforts as part of Minneapolis' partnership with 100 resilient cities. And this is a Rockefeller Foundation program. She's a very familiar face in this room, because she previously ran the [? borias ?] environmental leadership program here at [? INE, ?] and she's a citizen member of the Minnesota environmental quality board and has served three terms in the Minnesota house of representatives from 2007 to 2013. She's currently pursuing her PhD in Conservation Sciences in the college of food, agriculture, and natural sciences here at the University of Minnesota.

Clarissa Slotterback assumed the role of associate dean of the Humphrey School of Public Affairs this past June, where she has been a faculty member since 2004. And as an associate

professor in urban and regional planning, her research and teaching is focused on stakeholder engagement and decision making related to environmental land use and transportation planning. And she has a particular interest in how stakeholders perceive impacts and use information in making decisions, focusing on impact assessment, collaborative decision making, and sustainability planning approaches. She served as director of the Humphrey School's master of urban and regional planning program from 2010 to 2014. And I'm sure you'll hear more about her other work with resilient communities.

And Roopali Phadke, last but not least, is a professor of environmental studies at Macalester College. She has a PhD in environmental studies from UC Santa Cruz, and her research and teaching sit at the nexus of environmental studies, international development, and science and technology studies. Her interests lie in the democratization of science and technology decision making and the hybridization of technical expertise and local knowledge. Her current research focuses on private and public development of water and energy resources. So I will turn this over to our panel.

KATE KNUTH: All right, thank you for the introduction. So we're going to go down the line of the panel, starting on this side. I'm Kate Knuth, as Jennifer said, the resilience officer for the city of Minneapolis. The first chief science officer in Minneapolis. We now have two in Minnesota. St. Paul just last week announced council member for a couple more weeks, Russ Stark, is going to be stepping down and then assuming the role of chief resilience officer in the city of St. Paul, which is really exciting. We're getting together on the green line tomorrow to talk about our respective roles, which I'm looking forward to.

So in framing my remarks, I'll get to the chief resilience officer work kind of in the middle and to the end. But I realize I actually have thought about resilience for quite a while. As was mentioned, I'm a PhD candidate here in conservation sciences, and I use resilience theory as kind of the basis of how I developed my research. And I studied deliberate transformations, and groups that I argue do that effectively, and what is it about them that makes them effective.

And what that came from is the realization that resilience is fundamentally about change. And it's about how do we adapt to the systems we're in or transform to handle what's happening if we can no longer adapt? And there's a whole body of lots of theoretical work-- faces of attraction, and stability, planes-- stuff that I don't think is going to be super useful for today, but we can go into if you're interested. And it's I think quite exciting to be working in that space in

the early hours of the morning when I write my dissertation, and also in the space of this kind of newer work, which is how do we practically apply this kind of nuanced thinking about change and the idea that change is happening more, faster, and in more complicated in ways that are challenging us as people and the systems we have developed in ways that I think show that our systems are not at the point they need to be to be handling this kind of change that's either going to happen to us or that we need to do gracefully. Sort of the interplay between the two.

So I bring that up because I think resilience is an exciting space to be working in because it is kind of making this bridge from a lot of deep, and theoretical, and intellectual thinking moving into literally the people who now have the title chief resilience officer. And the grad students in the room, I joke with Lewis, who used to be my boss when I worked here at [? INE, ?] I have a job now with a title that literally didn't exist when I started my PhD. So I didn't even know this was a possibility of something you could do, and that's kind of, I think, indicative of this kind of space and the work happening in this space that-- I mean, granted, I'm a long term PhD student. But longer than you may like. So with that caveat, in the course of a degree, someone didn't even know this was a possibility until it came up towards the end.

And in Minneapolis, and then also more broadly as we think about the practice of resilience, and particularly city resilience or urban resilience, I think people around the world have kind of been intuitively doing this work. And it's now starting to have a name. And it's when working especially the way we do with 100 Resilient Cities, we take a very broad perspective on it. So the definition we use is how do we make sure that our city survives, adapt, and thrives in the face of the ongoing stresses of our time and the potential big shocks?

And so that survive, adapt, and thrive is important. It's not just reactionary, it's about making our city better. It's about working with the most vulnerable and then the idea of both stresses, things like right now, Minneapolis affordable housing, racial disparities, and then potential big shocks like an infrastructure failure or a big storm. And the idea that stresses make our ability to handle any big shock, it reduces our capability of handling those big shocks.

So it's like joke, it's like, do everything and you get a title. That's what you get to do, and your time. And it's this open, ambiguous kind of idea. So part of the challenge of doing this work in the city is just trying to help people understand what it means. And starting with myself, quite frankly. I didn't come in with a real big practical, this is what we're going to do. But kind of an openness to and curiosity about how we're approaching this work.

And so I think that is one of the challenges of developing the practice of resilience work, is that it is such big work and kind of needs to be. Because the challenges and the changes we're working with and trying to create are so big, and systemic, and connected in so many ways. So it's not always the easiest when you're talking with elected policymakers who want to like, what are we really doing? What does that look like? Well, we're doing some research and planning. But we'll get to that part of it.

And so that transitions, I think, to the third part of what have we actually been doing in Minneapolis as we've become part of the 100 Resilient Cities Network. And I think just for your understanding, the 100 Resilient Cities Network, it was really a big play by the Rockefeller Foundation. So on their 100th anniversary, they saw this intersection of several trends. One is urbanization. So more people live in cities. Right now it's about half, by the middle of a century they estimate about 70% of people in the world will live in cities. Globalization, so we are more connected and more interconnected, and faster connected, both with information and with the stuff we use and need to live our lives. And then also climate change.

And so those three things came together around this idea of urban resilience. And so Rockefeller decided to put $100 million into 100 Resilient Cities globally. That does not mean we get $1 million in Minneapolis. That's not how it works. But they have built this platform of cities over three rounds of cities joining in. And as a city, we get funding for a chief resilience officer position, we get support to develop our strategy, we get membership in this network, this community of practice around urban resilience, and we get access to a platform of consultants to help us work on projects.

And the idea is that it's useful work in the city and gets to be embedded and institutionalized into the city. And so if you know anything about Minneapolis city government, or just the city in generally, what we've been doing is a lot of research, and engagement, and kind of planning. And in Minneapolis, we have a weak mayor system. It's different than St. Paul. We have quite a strong council. And we also have a really civically involved group a residents, and lots of ways for them to be involved, lots of nonprofits for them to be involved with, lots of civic organizations, arts organizations.

And so it actually I think is taking quite a while in Minneapolis just to kind of wrap our heads around all of this from a resilience perspective. And so that's really the work we've been doing from the resilience office is what we call a resilience scan of the city. And it's based on

engagement, hearing from people in the community, and one on one meetings, and workshops, and in survey. And also doing research connecting with the amazing professional staff that the city of Minneapolis is blessed to have. I spend an hour with our director of sanitary and surface water sewers, and she's amazing. We're lucky in Minneapolis. Like we're ahead of many, many places in terms of our sewer system, which is great from a resilience perspective.

And so a lot of those kind of one on one conversations with city staff to bring that perspective into the strategy, and then really trying to understand the resilience actions that are already happening in Minneapolis. There are a lot of them. And people don't use the word necessarily, but helping us understand them and then also helping people understand that the work they're doing is already in many ways resilience work.

And so we're kind of in the middle of that. We're not ready to put it out publicly, but hopefully will be soon. And we'll use that to frame specific focus or what we call discovery areas where we'll go deeper in our strategy and work with smaller groups to kind of develop actual initiatives, practical on the ground things we can do.

And the areas that that I'm hearing a lot about in this work-- perhaps not surprising if you pay attention to what's going on publicly-- but affordable housing, economic inclusion, and reducing disparities, particularly along lines of race. Police and community relations, climate change, climate resilience and adaptation, and then also I kind of think of it as civic engagement, strong democracy, and Minneapolis' ability to do big things. We do many great things, but do we do the big things that we really need to do from a resilience perspective? So there are some questions around there. And I'm excited to dive in a little bit more deeply, and that kind of frames the way I'm thinking about this conversation.

CARISSA SLOTTERBACK: Thanks Kate, thanks Jennifer, and Lewis for the introduction. I'm Carissa Slotterback, and I've been here at the University for a while. But newly in an associate dean role at the Humphrey School. But I've been doing research related to resilience and a number of topics over the years. And also, as Lewis mentioned-- or as Jennifer mentioned-- involved with resilient communities project for a number of years.

So I'm going to talk a little bit about some bigger picture perspectives on resilience and ways that they can connect with collaboration, which has been a big focus of my research and the ways that I think about the role of urban planners in the world. And I'm an urban planning

faculty member. And then I'll wrap up by talking a little bit about work we've done with resilient communities project here at the University and with the broader community.

So I think for me, one of the key aspects of resilience as I see it and as I think about ways to advance resilience is through collaboration. So I'm a researcher. I study collaboration. I have brought together collaborations. I've facilitated collaborations. I have evaluated collaborations from a practical perspective and also from a research perspective. So really have seen both through practical work that I've done and through the knowledge that's accumulated around collaboration that it's a key way that we can actually get to greater resilience in communities, greater resilience related to landscapes, and I think especially greater resilience in terms of thinking about the complex nature of environmental and social systems as they come together.

So as you think about environmental issues, especially as they connect with social issues or socioenvironmental issues might be a term you're familiar with, we know that they're really complex. They're complex to understand. I think we as humans, there's good evidence that we can't even possibly come close to understanding them because they are so complex. There are so many things happening. There are so many interactions. They're changing all of the time in ways that we aren't even able to detect. They're complex to manage. There are different perspectives. There are different values. There are different institutions, different organizations. All of that is relevant to the complexity of managing complex socioenvironmental systems.

And we know that there are impacts that are distributed across time, far in the future. Some are seen immediately. Some are seen somewhere in between. And we also know that they're distributed across a wide range of scales. This is a complex, messy, messy space to be able to be working in. But it's also extremely fun and interesting.

And one of the things that I've seen is the opportunity that collaboration brings as a way to get to some extent a handle on this complexity, and I think also represent that complexity in the ways that we make decisions in this complex space. Because collaboration, in a way, captures that complexity and tries to represent it in an organization in a decision making structure and by bringing values, and people, and ideas, and knowledge together in new ways that are creative and I think can lead us to some level of innovation in working in these really complex systems.

There's an urban planning professor at Cleveland State named Sanda Kaufman. And she wrote a book chapter that I keep coming back to called Collaborative Planning, Resilience in Complex Systems. And what she does is looks at scientific understandings of resilience. What are those key components on resilience that were talked about in the introduction? Kate hit on them, as well. And how do they match up with what we know we get out of collaborative processes, processes where people come together across different organizations, across different disciplines, across different values, communities, all of those pieces that we know are reflected in good collaborative practice.

How do those two things come together? And I think the point she makes is that they really match up really, really well. So one of the things that we are looking for in resilience systems is diversity. So we know that forests that have a variety of types of trees species are going to be more resilient to disease, to climate change, to all of those sorts of things. We also want redundancy. We want feedback loops. We want systems that are interconnected in ways that don't create walls, where we can detect change quickly and be responsive to it, and have systems to be able to work within that.

We want to match to scale. We know that resilience is about systems, and systems understanding, and systems interactions. And in many cases we don't have systems that matched to that complex scale. They're not at the appropriate geographic scale, they're not able to think into the future in terms of the impacts that might be seen further down the line, for example. We want anticipation. We want systems that can identify entities within systems, institutions that govern or manage systems that can detect those small changes and be responsive fairly quickly in order to respond to something.

And I think resilience also requires us to overcome the tragedy of the commons. And you probably all have sort of heard that term of tragedy of the commons. I think what resilience asks us to do is understand the nature of the commons, the ways that we all come together, and the need to be able to interact with each other in a much more productive way, understand the needs that each of us has and ways that we can work together in order to manage that commons, work in that commons, live in that commons, and be supported by that commons, too, in a more effective way.

So if you put those pieces-- diversity, redundancy, matching to scale, anticipation, and overcoming tragedy of the commons-- those characteristics of resilience and put them side by side with the characteristics of strong collaboration, effective ways that we're bringing together

people, I think you see a really strong match. And you see a strong argument for more collaborative approaches to decision making, more collaborative approaches to management, to governance, to ways that we come together as a means of advancing that type of resilience.

So think about how does collaboration get us to diversity. Well, one of the things we know about great collaborations is they bring together people from different perspectives, they bring together people with different types of knowledge, knowledge that comes from their experience. Living on the land. Interacting with natural resources, for example, in an environmental context. We might bring together people of different disciplines. People trained related to water, and air, and wildlife, and social systems. Bringing them all together and valuing the unique knowledge that they have and the ways that they can help understand the complexity that we're dealing with.

Diversity of experience. Diversity of race, ethnicity, and cultural context that drive deep innate understandings of how people see these systems, and live in them, and experience them. Collaboration also creates redundant systems. Collaboratives are naturally distributed. If you have that kind of representation across different organizations, across different disciplines, across different communities, you have a distributed system where you have entities that are connected to each other but also distributed in a way that you can identify changes, that you can be responsive, that you can come together in smaller groups, and a collaborative that persists over time, even once you get past a sort of formal collaboration.

You also have the ability to match to scale. So if you look at complex environmental and social systems that are basically everything that we're interacting with every day, we know that those systems don't align very well with the boundaries of the city of Minneapolis, for example, or the state of Minnesota, or the Minnehaha Creek Watershed district, or any of those jurisdictions. We know that jurisdictions are overlapping. And most importantly, they're not really aligning with the system that we're trying to work in, and manage, and make better decisions about, and actually get to be more resilient.

So when we look at collaborations, we can be intentional about having representation related to different organizations, related to different types of expertise. We can better match to the scale of the issues, the problems, and the complexity that we're working in. I think we also with collaboration get to anticipation. And that sort of goes to that redundancy piece that I was talking about with s distributed group of experts, with a distributed group who are familiar with

what's happening on the ground in a variety of communities, in a variety of contexts, we have that ability to detect at a finer scale changes that are happening, to triangulate that information, and then bring that back to a collaborative to be able to make a stronger decision.

And then I think overcoming the tragedy of the commons, which is that other piece of resilience. Collaboration and interaction that happens when people come together I think has the ability to highlight common interests. When we are coming together and sharing, reflecting on why it is that we perceive the commons in this particular way, our community in this particular way, the unique understandings that our discipline brings to us. To be able to share that allows us to reflect. It allows us to change in many cases. It allows us to learn, and I think most importantly, respect the places where other people are coming from and value all of the knowledge, all of the experience that exists to be able to make better decisions and advance resilience.

I think my own experience working in collaboration as a practitioner, as an urban planner early in my career, as a researcher related to agriculture and water quality, working on endangered species, and recreation, and urban planning issues in Las Vegas when it was growing like crazy early on in my career, and work that I've done more recently here at the University looking at university community collaboration, I think what I've seen when we have effective collaboration is that ability to get to more resilient systems. I have seen evidence, I have experienced this in myself as a collaborator. I've also experienced it as someone who is facilitating these kinds of collaborative groups.

I see trust. I see it emerging. I see people talking in ways that suggest that there is greater trust in each other, greater trust in a process and the ability to work towards something that's bigger than themselves. I think I've seen very clearly growing confidence in a process and growing confidence in the effectiveness of collaboration and getting to an outcome that's bigger than any individual.

I've seen robust relationships that come from even brief collaborations that persist, and exist, and continue to advance the positive impacts of collaboration. I think, again, you get a chance to learn about yourself and think about, well, why again do I think in this way? Why is this person thinking in a different way? What about their own experience, where they're from, their religious orientation, their cultural context? How is it that they have arrived at their particular perspective and how did I get to mine? And how we realize that there are common values? I think we have the ability to generate new knowledge just by simply coming together. It's not

just additive, but I think the ability to have a new perspective that didn't exist before. And I think the ability to sort of realize that there's more in common than we might have experienced before.

Related to Resilient Communities Project, which again, I'll just sort of wrap up on that piece, this is a university community collaboration. And we called it Resilient Communities Project, one, because we were sort of transitioning practically out of the sustainability buzz word, and wanted something a little bit different. But what we saw is a need for greater resilience, ways to enhance that in communities. I don't think we talked about this intentionally at the beginning, but I think it's also a way of creating greater resilience within universities.

In order to create this program that connects the University of Minnesota with one Minnesota community each year on projects that relate to resilience and sustainability, we are connecting across the university. We're positioning a variety of classes, a variety of departments, a variety of disciplines to bring their knowledge together and matching it with the aspirations of communities around resilience and sustainability.

We have the ability to help communities think about changes that they're experiencing related to infrastructure, related to demographics, related to climate change, related to their changing economy, related to education, and public safety, and a variety of issues that are really, really important to them. They're thinking about what resilience means to them. We're able to connect the university in ways that it hasn't been connected before and really think about the more resilient system that we can achieve if communities and the university are working together. So that's it. I can say more later.

ROOPALI PHADKE: Is it working? OK. Good afternoon, everyone. Thank you for the invitation to be here, to our hosts. And so exciting to be on a panel of women who work on resiliency. We share interests in collaboration, and how collaboration can benefit strong democracy. I have been theorizing for a while that resiliency is women's work. I see it when I offer a course, and all I have is women who show up in the classroom. So I'm actually really excited to see that there's a dozen men among us today. So I think it's a really wonderful sign that maybe things are moving.

So that's a separate subject about women, about climate work, and resiliency work being women's work. I know we will have a chance for some conversation and some questions. But I'm really curious on a Thursday afternoon when you could be on the zip line across the

Mississippi that you are here to talk about resiliency. So just out of that curiosity, how many of you are working on resiliency in your research? Just a show of hands. How many of you are students studying resiliency? Well, we're all students forever. But how many of you see yourselves as community practitioners?

So we come here with lots of different intentions, I think, and different understandings of that term. I think I probably fit in all of those categories when I think about my interest in this subject. So I'm a political scientist. I think a lot about power dynamics around communities, around public policy decisions. I think I share with my fellow panelists an interest in thinking about how we do resiliency better and the status quo of that.

My work is on public engagement, public participation in the context of controversial decision making around climate energy issues. And I wanted to just share with you some of my own definitions for what resiliency means, how I have come to understand it, and times where I've tried to put it into practice, but also some of the things that I've been trying to be cautious about or red flags I see in their resiliency discourse that might be a good jumping off point for our conversation.

So I think the classic definition of resiliency is our ability to spring back, or to be restored, or to recover in the face of most often acute stresses and shocks, right? And we can use that term to think about individual resiliency, how we as individuals respond to shocks and stresses. I have three children. We often talk about resilient children. We talk about resilient kids who in the face of change can show up to school every day. We talk about resilient children whose homes are constantly shifting can show up to do their work. It's a term we use all the time.

We also think about resilient communities. The term has come up already as communities were able to bounce back from shocks and stresses. We need only think back a couple of months to the onslaught of hurricanes. And we talked about which communities were able to jump back and bounce back, and which ones weren't. And I want to actually return to that with the example of Puerto Rico towards the end my notes today.

But we also think about material systems and resiliency, the resiliency of the electricity grid, of the transportation system in moments of shocks and stress. And my interest is really thinking about the individual and the community, but the space in between the connections they're in, and then also how we think of the role of the public, the cities, the state in helping support those individual and community aspects of resiliency.

So I want to acknowledge and really have us think about the fact that what makes a person resilient might be entirely different than what makes a community resilient. My resiliency as an individual may rest on who I know, and my resources, and my background, and the history of my lineage, my family, the things that privilege me compared to someone else. That may also be at work for a community, but there may be very different things that create community resiliency.

But I also think that there's a strong connection between what makes an individual resilient and what makes a community resilient. And I'm interested in working in that space in between. And so to do so, I found it really helpful to think about the idea of social cohesion. What makes us cohere as communities and families, and how do we continue to build and sustain that cohesion? And often that's about the kinds of networks that we're a part of as individuals and as in communities.

So just to give an example from some of my own research and work, I was part of a really wonderful collaboration, to borrow your term, over the last four years with the city of St. Paul working in partnership with the Science Museum of Minnesota, my colleagues at Macalester College through some grant funding we had.

And what we are really interested in is thinking about this question of resilience. Actually our project was called, Ready and Resilient, which turns out to also be the slogan for the army, which I didn't know when I proposed the project. But that project was really thinking about what are the barriers to resiliency, and what are the barriers for public engagement.

And we really came to this concept of social cohesion and realizing that the communities that we know historically and very much in our contemporary moment that can cope with stresses and shocks are the most socially cohere. And how do you build that? And how do you take inventory of that? And so we through our grant resources did a series of workshops in the city of St. Paul. And some of you participated either as members of our workshops, or as presenters at our workshops. And what we were trying to do was help neighborhoods, districts inventory their assets, their skill sets, but also know what questions they had and what resources that they felt they needed to help build those social networks and social cohesion.

We discovered some really interesting things about what makes one neighborhood within a city different than another. We also learned a lot about issues of trust and these historical legacy issues that created mistrust that needed to be overcome. So I was really excited this

past year to work in the city of Minneapolis to take some of the research that we'd done in St. Paul and take it across the river and work in some communities in Minneapolis. And one of the things that we had the ability to do in St. Paul which hasn't happened yet in Minneapolis was to use the findings from our research to launch a community resilience fund.

I was so happy to see Trudy. Trudy was the recipient of one of these small grants in the Hamlin neighborhood. And what we found is that very small amounts of seed funding invested in residents' ideas can help build social cohesion. It really takes some time, so very little in terms of financial support, although it can take a lot of other kinds of supports in order to build that. And when I heard that Russ Stark was appointed as chief resiliency officer, I shot off an email really quick that said, where can I show up and how can we continue our social cohesion, or what we called a community resiliency fund in St. Paul? Because I think it was possible to do so much great work through those resources.

So let me maybe shift, I have just a couple of minutes left, to thinking about some of my concerns with the word resiliency. And I think, Kate, you led us off with that thinking about how resiliency has maybe these phases of thinking of moving from survival, to adaptation, to thriving. And we see this in scholarly work on resiliency, I certainly see it in practice, that there can be a really important backlash to resiliency work. And I think it's very similar to what happened when we talked about sustainability all the time.

And by definition, resiliency is about restoring to a steady state. And in a lot of the communities that are most vulnerable, particularly to climate issues and extreme weather, they don't want to return to the steady state. That's not what this is about. It's about mobility. It's about moving beyond that status quo that found themselves in stress. And I think we really have to think carefully about when we use that word resiliency that we're not talking about that. And that we're being careful to think about who's it good for. And that, I think, is an important part of the partnership building is really thinking about does resiliency as a framework benefit everyone, and when it doesn't benefit some people, how can we ask for their partnership on these kinds of work?

And so I've been thinking about the parallels between sustainability and resiliency, I was reminded about the just sustainability movement that arose to really take back that term and make it do more in the world. And I wonder if we're at the same place with the resiliency, that we need to add an adjective to it. And maybe it's just resiliency, or maybe it's something else. We talk a lot about equity and equitable resiliency to really think about the power dynamics at

work.

And so that really brings me to thinking of being reflexive about the use of resiliency in my own research and thinking. And for those of you who are students or researchers planning projects, I think it makes me think about what does it mean to have a resilience research framework and a resilient method. And how do we think about our own ability to stay resilient in this work alongside mobilizing that word. And as a research method, if we are working in this space of resiliency and resilient planning, how does our research have to really move beyond data to thinking about how people's lives are transformed? How does that become part of our research project? And it I think requires a lot of reflection on how we can do that and do it well. I think I'll stop there.

[APPLAUSE]

KATE KNUTH: Now we talk to each other, right?

[LAUGHTER]

ROOPALI PHADKE: Or we talk with all of you?

KATE KNUTH: I mean, one of the questions that I had, and I really like that framing of looking at collaboration and resilience together and the idea of social cohesion. Because I think my hunch in this work is that if we're going to be really resilient, we need to be capable of making the kinds of collective decisions and progress at the pace and scale that are up to the task of the challenges and changes we're facing. And that's so hard. It's hard.

And I kind of have to ground myself. And I spoke to a student group a couple of days ago, and I was like, we're talking about really hard stuff. And I think it's important to recognize that at the beginning. And so I'm curious in terms of the collaboration, how do people-- it's not easy as well. How do people do it, and keep doing it, and showing up, and showing up through the hard stuff, or maybe it's not working, or maybe there's an annoying person in the other group that you're trying to work with. And really what makes people able to continue to do it? Because I think that sort of culture of collaboration and that ability to actually collaborate is part of what makes a resilient community.

CARISSA Yeah, I think early on as you bring a group together-- and often, I mean, the collaborations I've

SLOTTERBACK: been a part of are usually new. And it's for a reason to solve a problem, or to work on a project, or something like that. It might be stimulated by a grant. Or there's often some reason to come together initially.

But that's never enough to keep people coming together. And I think to be able to early on reveal where there's some sort of common value or common interest. And so to really think about ways that you can get people talking, get people sharing. In one of my first jobs as an urban planner out of graduate school, again, I was working in the Las Vegas region.

The desert tortoise is an endangered species there, and there are like dozens of other endangered species or nearly endangered species that we were working on, as well. There was a collaboration that I was extremely lucky from my perspective to be a part of when I was doing that work. We had 40 or 50 people who came together monthly to work on this implementation plan around endangered species in southern Nevada. You can imagine the range of political interests, the range of jurisdictions that are represented. There's a strong presence of federal government there. There are advocacy groups on all sides. Not just both, there are many, many sides around protecting the tortoise. There are recreation advocacy groups, there are environmental advocacy groups that are relevant. There is a water group there, multiple cities, and there's counties, and federal agencies. And they're all sitting in this room. And they're all there for a reason.

And that's because they have a connection to the land and some way that they interact with this land they might manage it. They might use it for recreation of all different types, including off highway vehicles and things like that. They have a connection to what the land produces, the land produces water. The land has a connection to their history and their family that settled in this place, and connects to the community that's so important to them.

And even though they had extremely divergent views across the entire spectrum, you had a connection to the land and the physical space that was part of this community. And is so unique, and so amazing, and so impacted in all kinds of ways here. And to be able to reveal that, and make that connection, and create space to talk about all of those ways that land is valued, and used, and productive for lots of reasons was, I think, really, really important to keep people coming back. Whether it's a horticulturalist working for the Bureau of Land Management to an off-highway vehicle advocate who rolled in in his jacked up car with tons of stickers saying all kinds of offensive things about governments, and liberals, and turtles, and all kinds of things.

They keep coming back. And they're there because of their connection to the land. And they're arguing around a table, or they're chatting at lunch. And they're interacting in the same room, and they might disagree with each other fundamentally, they have a reason to be there to connect or to protect their interests related to the land, whatever that is. And if nothing else happens, they understand themselves in the bigger context. So to me that was just really, really powerful to be able to see that happen. Now I totally forgot the question that led to that. I was reminiscing back to the old days. But it's amazing to have this happen in front of you.

KATE KNUTH: What I'm hearing from you say is this importance of identifying this shared interest. And in this group it was the land. And to be honest, one of the things that I'm nervous about as I kind of lead this work in Minneapolis, and I don't do it like-- I see myself as a convener, and a connector, and a facilitator, and a resource broker. That's a narrative reflector more than creator. And I think one of the things challenging our democracy right now and our resilience, I think the health of our democracy is one of the things I'm most worried about from a resilience perspective. Is that we increasingly find it difficult to see what those shared interests are.

And sometimes that's because I have all sorts of reasons why I think that the disparities in wealth generally also along racial lines, the histories of distrust of government, the intentional sowing of doubt and of basically trying to undermine all of our truth brokering institutions. And so this shared interest as people in a place, or in a state, or in a region, or even as a country, that's really increasingly difficult. And so that's one of the challenges I see in resilience work.

CARISSA SLOTTERBACK: So how do you start even within the city organization? So Rockefeller's invested in these city resilience officers. And one way to characterize that tactic is they're now embedding someone in a city. And in some cases they're coming from outside, in some cases not. But how even within that organization, and St. Paul looks different than Minneapolis, and every city is different. But how even in that organization can you think about collaboration and ways to recognize what are the common values among these people who are distributed across disciplines, and departments, and tenure, and politics, and all of this. To start there as a way to harness all of that power and all of those resources and all of the connections that they bring and the ways that can reach out to the broader community.

KATE KNUTH: I think Roopali has been doing that a bit in St. Paul. Not necessarily in city government itself, but in the broader community.

ROOPALI This conversation brings up a question for me, and I'm really curious to ask you both about it.

PHADKE: Is that so much of how we measure ourselves particularly as urban communities is based on a set of indicators that we've inherited about job creation, about crime, about other things. And I'm curious how we might measure resilience in a way that makes people want to keep working on it. And I wonder if you've thought about that and what those might be.

And clearly it could be the same indicators we already use. You pointed out that increased safety can be a form of resilience. But I wonder if there are other indicators out there that we can be looking to. And for example, in collaboration or partnerships, how do we count those, or how do we find the things to count that make meaning out of this?

FEMALE SPEAKER: Can I add to that? It seems to me that it goes back to the point you were making, Roopali, about resilience being about restoration through some idea of the status quo. And those indicators and measures are also having some reference in that. So the world we have lost, the past that was better in in some way, shape, or form. And it strikes me that part of the challenge in building social coherence, and thinking about what should be our measures is that cities are changing all the time. So it's not like it would ever be possible to return to a status quo, because the conditions are never the same. So in thinking about those kinds of how are we going to assess ourselves and where we are, and [? results. ?]

KATE KNUTH: Well, and I think I'm pretty clear, I don't want to restore some sort of past. I think I'm much more interested in transformational changing in key areas that help us be adaptive at the broadest scale. So 100 years ago, or 80 years ago in the city of Minneapolis, if you were a black person, or a Jewish person, or Asian person, you couldn't buy properties in many areas. And if you could, you couldn't get a loan from the federal government. Because the areas that they allowed you to buy were red lined.

I mean, there's great work with the mapping prejudice project, which I'm sure you know about. But we see the legacy of that both in the segregation of our city, where our investments in terms of how highways tore up certain communities once they were segregated, and then also looking at things like sewer infrastructure or even our emergency sirens I've heard talked about not being as high level in certain parts of the city. And they were working on all of these things, or have completed many of these things. And so I think understanding that legacy and looking forward to heal that is really important.

In terms of indicator, I haven't totally thought about this. But how many people do you interact with in your neighborhood on a monthly basis? You know, my neighborhood now has the first

Sunday of the month, except for this year month of the Super Bowl, we meet at our local brewery. We didn't have a brewery a year or two ago, and now we have one, and now we meet there once a month. And then that's a resilience practice for my little Bryn Mawr area 7 neighborhood.

And you know we could ask people about that in our residence survey, perhaps. Like how many times do you interact? Do you know where to go if there is some sort of emergency? What are the information sources you trust? This is one I think I'm really interested in trying to understand better is when we have emergencies, information moves like that. And it comes in our phones, and Twitter, or god forbid, a message in error about-- or not better that it's in error, about a nuclear attack. Better in error, but it's like, those 30 minutes were terrifying for millions of people.

And so what are the communication lines that are trusted in different parts of our community? Because there isn't one. There is not one source of information that's trusted, and that's a challenge. Something we need to be thinking about. But in terms of measures, I think asking about people's connections, understanding where they get information, those are two that I'm interested in. And also that we have plans for keeping our infrastructure up. That's like a very basic one. Do our pipes, and our streets, and our electrical systems-- are we keeping them up?

CARISSA SLOTTERBACK: One thing I'm thinking about, and this may be a bigger question for the audience, and the other panelists, as well, is when it's so big and it's so complex, how do you find your place in that and feel like you're doing something? I mean, even as I sit here and sort of describe the things I'm doing, I'm like totally missing a whole bunch of stuff. It's not good enough.

I mean, when it's so big and there are so many things, and it's so interconnected, and so historically connected, and so complex, and not even understandable, how do you practice in this space and feel satisfied, feel good about yourself, know that you're having an impact? I don't always know. I mean, sometimes I get a sense that on a small thing, there is an impact there. So I would love to know how you guys reconcile that, or any of you. Or how you're thinking about it maybe as students who are thinking about working in this area.

ROOPALI PHADKE: Give a very quick response, and I'm curious what others say, too. And maybe I am-- maybe not everyone shares this sentiment. But this past year after the 2016 federal and state elections I think has forced me to really look at where I want to put my energy personally.

There have been so many marches that I could be going to every day. And so I think this really brings up this sort of self-resiliency, as well.

So how do you decide the issue that's most important to you, and what do you do when that issue maybe doesn't align with what you've spent your professional work doing in that moment. And I'm struck by this past year. I am an immigrant. The politics of immigration have hit me really hard in this past year. And I found that even though vocationally I spent all my time thinking about climate and energy , that was not my biggest issue this past year. And it was driving me to new places, and new actions, and new communities and that made me think about this. And how do we invest our time in ways that we find meaningful and impactful? And how do we think about that in the short term, in the urgency of the moment, and over the arc of perhaps our careers, or our time as residents of a community? I guess it's more a comment than a question.

KATE KNUTH: I have had that exact same experience in the past year. So in addition to having this big change federally and the state level, I have a small child. She's 16 months old now. And I took on a big new job, and I'm trying to write a dissertation. It's like, OK, what do I really care about right now? And I don't do a lot of things that people ask of me that I used to just say yes to many things. And I think that's important. And it's very important from a resilience perspective personally, and about your contribution in the world.

But flipping that to the opposite scale, and this comes from my research on groups doing deliberate transformation. Part of the challenge is saying, OK, I have to do what I think is important and focus. But the challenge you are talking about, Carissa, I think, is how is that enough? How is that enough for the things that we really need to do together? And I think the power of groups that are working on transforming society is that it becomes enough because we're all working together on this thing. And together we can be enough, or together we can have faith that will be enough.

And I think in our culture broadly in the United States, we have such an individualistic culture. And our civic and political culture, I think, over the last few decades has moved even more towards individualistic and away from more of a communitarian focus. And frankly, in academia we have quite an individualistic culture. That's how we're trained as students and getting the grades, and then writing a dissertation, your own individual contribution to knowledge. And then, OK, we can work on some collaborations.

To be able to hook into this bigger group that's together can be enough I think is something that I have recognized is quite powerful that I didn't really understand until the last-- turns out setting something in a dissertation makes you hopefully learn something new or realize something you didn't before. And that's, I think, one of the biggest things I've been learning. Who's doing questions? Who's picking? We have a bunch of hands.

MICHAEL RUSSELL: Let me go ahead and ask a question. What's this on? Let me see. OK, you can hear me? All right Michael Russell, St. Anthony Park. Was a soil scientist here at USDA. But what I find is that doing things on our own to reduce our energy footprint and live a more sustainable life is important, but what is energizing is to work in community through the community council. And that's something that students can do. You can join your neighborhood association or community council and put in a few hours a month to actually affect change there.

And another way is through the transition town movement. Macalester is just starting one. There are several in Minneapolis and a few in St. Paul. And the transition town is a holistic way to work with your neighbors on reducing your input and your footprint, but also building a stronger community. In our council, we have an equity committee. For the first time two years ago, we started an equity committee in St. Anthony Park. And if you think about St. Anthony Park, usually you think about North St. Anthony Park. Lots of very expensive single family homes.

60% of our residents are renters and 38% of our residents have household incomes less than $35,000 a year. Some of those are students, a lot of those aren't. So we now focus on that. And to see the world through the frames of equity and climate changes, that's a really important change in how we see the world as we live it. We just don't talk to the people we know. If we talk to people we don't know and sort of try to build trust, that can really help. So I think doing something individually is important so that you're a model. And then doing something in community at whatever level you're really comfortable with, you can actually affect change.

KELLY: I have a question. So my name is Kelly, I'm a researcher here at the natural capital [? project. ?] I have two questions that are closely connected, so I'll appreciate your answers. First is, I'm new to the concept of resilience. And so my first question is, what's the difference between human well being and resilience? Because I see-- for instance, you mention Puerto Rico. I feel like a lot of that bouncing back really traces back to the level of human well being that Puerto Rico had in the first place.

So that's my first question, then probably why we need a resilience concept in the first place. And the second is for our guest from Macalester-- I think, I'm sorry, I was late so I don't remember your name. Is thinking, you mentioned that you're an immigrant. So I wanted to ask you is how do you reconcile thinking of resilience here in a Western country as opposed to resilience in the global [? south? ?] And I think that also traces back to how we think of human well-being and resilience. So I'm thinking these two questions, very connected. Thank you.

ROOPALI PHADKE: Do we take some more, or--

JENNIFER GUNN: Why don't you give us an answer, then we'll take some more.

ROOPALI PHADKE: Yeah, those are great questions. Thank you for them. So I think of resilience as a category that is beyond human well-being in that it integrates our sense of ecosystem, of the non-human, the human in this very intricate web. So I think that's one differentiator and sees the interconnections. So human well-being rests on the resilience of our ecosystem sometimes, even more than maybe some of our social institutions. So thinking about it, my public health friends talk about the One Health model as being that which is trying to bring together the ecosystem, non-human and human elements together, and thinking about resiliency. And so I think that's one differentiator.

But I think you hit on a really important point. Are communities and nations that have very high standards of living that could be measured across indicators, are they inherently resilient? I think we can draw on lots of examples where they aren't for lots of different reasons. And so I think this brings up this question about how do we measure resiliency, how do we see the vulnerabilities in our systems that maybe force us to look beyond the more conventional or orthodox ways of understanding well-being across, as many of you mentioned, time and scale as well.

So the other question you asked is about reconciling or maybe thinking about the local and global dimensions of the concept of resiliency. So I think this is a struggle, because I think it's very self-defined. A community defines its sense of resiliency. And I think you would get very different definitions wherever you are placing that exercise around the world. So I'm not sure that I have one answer for that. I certainly have had the chance in my lifetime to be in many communities that felt resilient that don't look anything like our community here.

And so instead of thinking about what gives that meaning in which conditions, and to your human well-being concept, one that you might consider looking at in the literature is the idea of sustainable livelihoods, which I think gets at, I think, what you're kind of struggling with, or that tension. That literature, which is pretty expansive, talks about how sustaining one's livelihood is the ability to overcome shocks and stresses, acute and chronic, as well as thinking about the resource base upon which we build our livelihoods. I think one thing to look at.

May I make a really quick comment. So maybe there are others of you who are new to Minnesota. I have lived here now for 13 years. When I introduce myself, I still say I'm new here. But it's the longest place I've ever lived in my life. And that's actually one thing that I've been struggling with as I think about resilient communities. What is it about some communities that I've lived in that have felt like home right away, and others which are so hard to break into culturally. And how does that reduce our sense of resiliency? What is it about living in a place where this is, again, the longest place I've lived. I've raised three children in this community. And yet there are still many days where I am nervous about knocking on my neighbor's door if they don't know me, because I know they're not going to open the door.

So those are challenges that I think we need to face as a communities here. And our neighborhoods are changing, the demographics of our cities are changing. But still, when we think about what it means to live in St. Paul or to live in Minnesota, I don't know that those definitions have changed enough to be flexible and incorporate all of the new people. And really, technically I'm not new. But I still feel really new.

KATE KNUTH: I think this is interesting, because this is something I've done numerous one on one conversations around Minneapolis just trying to build relationships and get a lot of different perspectives. And one of the things I've heard that I've actually really appreciate is that people, one of the things they most value about Minneapolis is immigrants and new Americans. But I also think we're challenged by-- one of the things we need to get better at is welcoming and integrating new Americans.

And I don't mean that is like change and become like the culture here, but change and reflect the culture here and also let's make our culture here reflect and improve it, get even better by having the diversity and the different perspectives that new Minnesotans bring. Because I don't think this is necessarily a conversation about immigrants everywhere, it's not. There's a lot of fear in immigrant communities as well. But I have really appreciated the positive appreciation of immigrants here, at least in Minneapolis. And that's something I do want to

say, because it's not necessarily that appreciation, and that welcome, and that interest in understanding and becoming community isn't always expressed.

At the same time, I totally hear you, it's hard to connect. And I lived in Norway for a year, which is I think where some of this part of our culture comes from, Scandinavia. And I found it extremely hard to get-- and I was like, I'm tall, I'm white, I speak Norwegian. Why can't I connect? I mean, I spoke not amazing Norwegian. And I think we have some of that cultural legacy here that we need to be aware of.

FEMALE SPEAKER: Thank you all for a really interesting panel and for the work you do. Carissa, you talked about the tragedy of the commons. And I think that's a real central issue here. And I think you kind of touched on ways to approach bringing people together and educating them about what that is when you talked about your experience in Nevada. But I was wondering whether all of you could talk a little more about that. Like how do you-- short of finding a way to put an economic value, and maybe that is what we have to do, on these things that are currently just considered common and not thought about to get us to a more sustainable and resilient community.

CARISSA SLOTTERBACK: I'll just jump in and just kind of add one piece around educating them about-- I think more about educating each other. And that happens by the sharing of perspectives, the bringing people together who understand land in different ways, who use it in different ways. And I think to truly get at that commons piece, you do need that sort of sharing and coming together rather than a sort of telling someone something. It's a telling to each other, yeah. Thank you, though, and I'll let you guys jump in.

ROOPALI PHADKE: Sure, I can jump in. Yeah, I was interested that you raised the tragedy of the commons, and I was sort of reflecting on that, too, so I'm glad this question came up. And that I'm really comfortable about talking about the commons, but I'm really uncomfortable about talking about the tragedy of the commons as a term because of all that's linked and associated with that. So for me when I hear that term, my mind instantly goes to Garrett Hardin, the central author and thesis around the tragedy of the commons. And thinking of this idea of these individuals interested in their self-- self-interested individuals drawing upon a common that is limited. And how that gave rise to two decades of scholarship and political action that's linked to population planning programs, and we can just keep unraveling this idea. I think we're all familiar with it.

And so the tragedy of the commons to me is kind of a hornet's nest. So what I'm interest in, how do we lift the commons out of that and maybe not think in terms of the tragedy piece. And what about the commons can we use in a new way with new framings that we can all attach to. So what are the commons that are meaningful to us? Is it the air that we breathe, the water that we drink, that around which we have shared self-interest, without thinking about the tragedy part. And I think for me it's the phrase itself. It's one that it's just-- it's a visceral reaction.

KATE KNUTH: And kind of building on that, we often when we think about the commons, we think about air, and water, and land. And I have this hope, that question I started thinking about one of our challenges in Minneapolis, is the city itself a commons as a place of culture, and commerce, and activity, and coming together, and kind of diversity interacting. And frankly right now, the commons of our city, if we can think of that way, is becoming inaccessible to more and more people who cannot afford to live there, who can not necessarily afford to travel and get around there. And especially in certain racial groups, can't afford to live there, getting displaced.

And how do we as a city make sure that we are a place where people from all backgrounds can be part of our commons of the city? I think there is a value that a city offers that's different than some other places that I think people should have access to. And not only a subset of people should have access to. So that's not really a tragedy, [INAUDIBLE] it's a how do we interact with a commons who has power in decision making who can actually be part of it, who feels like they are part of it.

Again, the tragedy of the commons sounds like an individualistic frame trying to make it more of a collective frame, where it's more about-- I want to think of it more as how do we make the commons just work? At least when I think about the city itself in that way. Those are totally ideas I haven't articulated before, so little risky to do that on a panel. But I guess that's what universities are for.

FEMALE SPEAKER: Just a question about-- back to struggling about the definition of resilience. Because I came here with the idea that when we're talking about resiliency and resilient communities, we're talking about ecosystems. But I've heard so many affordable housing, and resilient livelihoods, and so many different discussion, [? resilient ?] children. But when you're all talking about resilience, what is the definition of resilience that you're all talking about?

KATE KNUTH: 100 Resilient Cities has a definition that we're using at least for now. We'll probably change it

as we go through this process. How do we make sure that people, institutions, groups survive, adapt, and thrive in the face of the big shocks and stresses. Yes, changing climate, and globalization, and a federal government that's changing immigration policies so many people in our community are unsafe, and feel unsafe, and don't patronize businesses. So now they've lost a good chunk of their business. That makes our city less resilient.

I've struggled with this as I've tried to work in this space. And I think it's important-- it's helpful for me to know, to understand that the ideas of resilience come out of several intellectual traditions. So you have this kind of resilience in ecosystems, which is really important. And when you talk about socioecological systems, that's where a lot of that thinking comes out of. You have resilience in more engineering, which is more kind of like a hardening, to make sure that something doesn't break. And that's another tradition of it. I think in psychology, the individual resilience of kids are-- there's other traditions you can probably identify, as well. It's a very evocative word, and it can be challenging to work with because of that, but I think also productive.

FEMALE SPEAKER: So are you-- as the director of resiliency in the city of Minneapolis, it seems like you have a really big job. You're in charge of everything.

KATE KNUTH: Working with everything, but I don't think of it as in charge of at all.

FEMALE SPEAKER: Useful to expand that definition so--

KATE KNUTH: I think it's useful to start with quite an expansive definition and then important and necessary to start-- I see this process as kind of a funneling of what really matters for our resilience now. So in a year, I'll be talking about more specifics for sure. But I do think it's useful to have that broad-- because part of the challenge is we have come from the fact that we try to look at problems and solutions in silos, and in disciplines. And look at the committees we have with the legislature on health, and on the environment, and on commerce, and you know, these things that need to interact if we're really going to get at the root of some of the challenges we have. That, I think, is one of the useful things of resilience is it creates a way to work together in the broader systems.

ROOPALI PHADKE: I think you raised a great point, though. I mean, part of its power is that it's very flexible. You have three people who I think mostly identify as social scientists. That's the realm that we work in. If you had three ecologists, we would likely be-- it's not that it would be entirely different, but

it might draw on different concepts and traditions in resiliency. And so I think the goal is, how do you bring people with these different frameworks together to construct a concept of resiliency that really is anchored in a place? Because I think it's hard to talk about resilience in the very abstract.

CARISSA SLOTTERBACK: I think for me, thinking about resilience as working at intersections. Intersections of ideas, intersections of places, intersections of disciplines, resilient communities are the intersection of community and university. In these places where there isn't anyone who necessarily has a complete understanding nor a complete responsibility. And I think to be able to think about resilience, I mean, a lot of conceptions of resilience talk about ecosystems and social systems coming together.

And I think to be able to think about what's happening where those two come together, and how you can understand that more deeply, what are the strategies to work within that space and how can a resilience officer, for example-- this new amazing role that now exists-- how are they positioned to be able to work at this intersection? I hadn't really thought about that until right now. But as I think of all the examples that we've talked about, I mean, they are in many cases intersections among people, or organizations, or ideas.

FEMALE SPEAKER: Have you looked at [INAUDIBLE] I'm sorry, does this work? Is it the intersection of risk in a city or the society, that's where you're focusing on?

KATE KNUTH: I think that's a really important part of it. And risk is both about what are the threats, and then what are the vulnerabilities to the threats. And so we need to understand both of those things. And also I think it's helpful for me to think about resilience from the perspective of are we preparing for certain specific kinds of things, like a specific resilience? We need to make sure that our sewer system and water management systems can handle increased rain events. We're going to have more rain at one time. It's coming, we can talk the specifics. But we need to be preparing for that.

So that's a specific thing we need to work on. I think a lot of the things we've been talking about are more of a general resilience. Social cohesion, people having good information. Actually, one of the things I was like, wouldn't it be amazing if everybody in Minneapolis had $500 in the bank? Like that would be a fundamental transformation for our city in terms of resilience, because people could handle something bad happening. And it's like, 40% of people in the United States can't handle a $500 emergency without using credit. And may not

have access to credit. Like that can throw a family into a tailspin. That could be a fundamental shift.

There's one of the most interesting proposals I've read about, this comes out of an academic is an idea of baby bonds as-- the idea is we have such wealth disparity in our country, which makes us less resilient. And it's along lines of race especially based on all sorts of historical reasons. What if we give every baby born in this country a savings account or a bond that they get when they turn 18, and they can use to go to school, start a business, or buy a house. And you can change it depending on what amount of wealth their parents have.

Like, that could fundamentally transform. Because we need sort of a leveling in terms of systems thinking. It's like more the winner keeps getting more. That's one of the traps of systems, and one I think we're in right now in our country. So those are some of the ideas of like general resilience. But I think it's helpful to think of both specific threats, and then also generally being able to handle threats overall.

MALE SPEAKER: So this is a question mostly for Kate Knuth, but I was just curious to know, so this is a new role with the city and you're doing some research. So I was just interested to hear what the kinds of things that you're coming across at the moment in terms of important points of research. And then also what does your meeting with the St. Paul resilience officer. And I understand the met council is working on some resilient stuff. I know they have a vulnerability assessment coming out. But what are some things that are currently being done to integrate resilience efforts across the metro area?

KATE KNUTH: Well, that last question I think one of the things to pay attention to right now is we're in the middle of comp plan time in the Twin Cities. So cities have to do this 10 year comprehensive plan, and they're being updated right now. And there's a lot of work trying to put the value of resilience into those plans. That's a very specific place to look. The met council would be involved with that.

In terms of the research, I mean, I think sounds maybe obvious, but like people in Minneapolis and Minnesota, they do a lot of stuff. Like, our government's active, we're proactively on this 20 year streak in park funding with an equity basis to it. And we're have this plan, we've looked at literally every mile of our 900 miles of sewers, and are prioritizing based on which ones actually need it most now. Really pretty impressive stuff. And there's so many civic groups that you can get involved in of all different kinds.

And so trying to figure out here, I think one of the challenges is how do we capture that and fill in gaps, but even more importantly, get a kind of collective work to something bigger that really is up to the challenges we have. Because I'm not sure all of the good work we're doing is fully up to the challenges we really have. So that's where I am excited about taking this work.

ROOPALI PHADKE: Just a quick comment about the met council, and I have so much respect for the staff of the met council. And I had a group of students that were looking at the resiliency planning at the met council. And one of the things I thought was really fascinating, this is a multi-year project that they have that they're rolling out piece by piece is the challenge of knowing when do we tell people about it? What layers of it do we share with the public at what time for what ends?

And I think that's a really interesting challenge with all of this. At what point is it provisionally enough to go out and get ideas and feedback, and then go back in and create these iterative stages. And again, I have so much respect for this process of the met council, but I know that this was kind of scary about deciding, OK, well maybe we need to wait six more months and get another series of data and another set of maps. And then that's the right time. And so how do we build the trust in the system so that we as citizens can interact with things that are in process without those members of these agencies always feeling like they're going to meet demands that they can't meet and they have to make promises that they can't keep, but instead to have it be that collaborative piece that you were talking about.

FEMALE SPEAKER: I think this question about what is resiliency is really fascinating, and kind of makes your brain hurt in some respects. But Roopali, since you referenced ecology and I'm an ecologist, I feel like I want to throw in my two cents. But resiliency is a concept that's well understood in ecology because you see it, and it's so desirable in terms of promoting function. And we see it expressed well in diverse systems that are healthy.

But I do think that what's spectacular about the concept of resiliency is that it is everything. In the sense that it invites you to think about systems. It's about the connectivity, and it's a desirable quality. It always has been a desirable quality and always will be. And you can see it in things like immigrants are resilient. They have to be resilient by definition. We what resiliency and our children, we want resiliency in our storm water system. So what is the similarity among those things? There are many aspects that are similar among those things.

But I also think it's the moment in time that makes resiliency as a desirable quality important. And that is that we confront a moment in time in which resilience, wherever it's manifest, is

crucial from a climate, from a globalization, from an economic point of view, from a patterns of human migration and demography point of view. It's the stressors and the forces that act upon us that make this desirable quality so crucial now.

And I feel like a key role for us to play in resiliency work is to ask, where do we stand in these desirable quantities and where do we need to be? It's kind of like sustainability in that you don't know what it is, but you know when you're moving in the right direction. And you just want to make it more of that.

FEMALE SPEAKER: Or when it's challenged.

FEMALE SPEAKER: Yeah, or when it's challenged, that's right. When it's under stress. So to me, I'm sort of comfortable with the squishiness as long as it's a thing that we know that why we want it, how to make it, and why it is so important at this moment in time. That's my take, at least. Respond.

[LAUGHTER]

KATE KNUTH: I agree that there's a lot of change happening at big scales and fast. And resilience is all about giving us tools to think about, and respond, and navigate, live and not be completely stressed out and anxious, and not feeling like in control over anything. So I think you're totally right. There's a reason we're talking about it now, because the systems we interact with and we've created are forcing us to. Because of the times we live in, I agree.

CARISSA SLOTTERBACK: I mean, to your point about moving toward it, I think that's what gives you the ability to keep working on it and feel that you're making progress is that you do have a sense that you're moving toward something. And that that allows you to continue working in this space that feels like progress is slow, and you're not addressing all of the complexity. But you're moving toward something, and you are able to see, and experience, and understand that you're moving toward it. And there are positive impacts that are being seen. You, we all. Not just individuals, but communities, and institutions. Us as a university, as researchers, as people.

ROOPALI PHADKE: Yeah. I'm mindful of the time, so I'll be brief.

JENNIFER GUNN: You get the last word.

ROOPALI PHADKE: Oh. I think the reason why resilience is so popular now as a term is because we've seen how brittle our systems are. And every time that hurricane, or that 10 inch rainstorm, or these things happen, we're faced with the brittleness of our systems. And they're human, they're social and ecological. But it's in our face. And sustainability didn't do enough. And it didn't do enough to face that brittle quality of our experience.

JENNIFER GUNN: I want to thank our panelists, thank our host, the [? INE. ?] And [? I ?] will continue next week in Keller Hall at 3:30. It's now [INAUDIBLE] and if you're interested in being on the IAS, list server or mailing list, there's a sign up sheet in the back of the room. Thank you all.

[APPLAUSE]