

USGCRP Listening Session Live Transcript

Session Theme: Global Change and Transportation/Infrastructure

Session Date: 8 December 2021

>> Greetings, everybody. I am a professor in the Center for health and the global environment at the University of Washington. On behalf of the USGCRP, I welcome you to this listening session on global change issues with a special focus on transportation and infrastructure related challenges and opportunities. Through USGCRP, agencies coordinate climate and Global change research and use the results to create tools and assessments to help people make decisions in the context of ongoing global change. Throughout this session and others in the five-part series, we are connecting more directly with users and researchers who are building on and applying global change information and tools in their work in gathering insights and information that the USGCRP can consider as it plans the implementation of its work over the coming decade. In these sessions, we are welcoming staff from USGCRP agencies that comprise USGCRP. Particular thanks to Mike Kuperberg, the director of USGCRP for joining the session. Members of the National academies committee to advise the USGCRP, of which I'm a member. And all of you, researchers who are engaging in building and applying the types of knowledge and tools that USGCRP is charged with developing and supporting. We recognize this is a national academies event on topics critical and important to all of us, and we are trying the stupid approach for providing input and engagement to support USGCRP in its work. We are looking forward to your insights and your enthusiasm. In today's session we have a series of speakers who will provide remarks, all of whom expressed interest in contributing when registering for this session. After the registered speakers have completed their contributions, we will, time permitting, provide the option for others to make additional comments. Representatives from the USGCRP and the committee to advise the USGCRP for attending and listening mode only. Thank you for joining us and we look forward to hearing from you over the next 90 minutes. The start I would like to acknowledge that while we today are gathered virtually, the national academies is physically house on the traditionally end of the Nacotchtank people past and present we honor with gratitude the land itself and the people who have stewarded it through the generations. We honor and respect enduring relationship that exists between these people and the nation in this land. We thank them for the resilience of protecting this land and aspire to uphold our responsibilities to their example. We also acknowledge that our understanding of transportation and infrastructure and global change issues are closely related to an informed by indigenous and local knowledge and experience. And that many native communities are on the front line of impacts from changes. I personally am joining you from Seattle, Washington, which is on the traditional lands of the coastal people. I and other members of the committee to advise the USGCRP are looking forward to the sessions to connect directly with users and researchers who are using and applying global change information in their work. As part of our regular meeting throughout the year, we provide this and other opportunities to engage with and hear from broad audiences to inform this important work. You can see the goals of listening session. They are to gather useful, actionable information for USGCRP for implementation of its work. Make connections and expand group of researchers and users were directly engaging with the USGCRP and its work. Recognize connections across researchers, users, and themes of USGCRP work and products. Inform potential future engagement mechanisms and opportunities, including forums approaches and participants for such engagement. We are seeking input today on how USGCRP may implement its work to better understand and address global change issues. You do not need to be familiar with USGCRP to provide input. We are specifically seeking to connect with a broader audience in these sessions. If you're unfamiliar with the USGCRP, we hope you had a chance to view the introduction video on our events pages. Before the session, I would encourage you to view it afterwards. In preparing for this listening sessions, USGCRP requested input and insight on the following themes to inform the implementation of its strategic priorities and activities. First, diversity, equity, and inclusion.

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What actions should be prioritized to fully incorporate these values in research, community engagement, and workplace development. How do we implement them? Second, advancing science. What are the priority gaps and foundational science methods that require enhanced long-term investments. Use inspired research. How do we ensure the USGCRP science and products are driven by and connected to users. Including, for example, improved use of consultation, collaboration, translation, dissemination, informing climate services, socioeconomic science integration. Finally, socioeconomic science integration. What are the priorities for integrating social science into our programs and to inform critical decisions. Particularly helpful would be feedback on ideas for emerging large-scale scientific questions related to global change and/or responses, including those where interagency collaboration will be critical. Specific knowledge on how science is or is not being used to inform societal response to global change and why, and knowledge, gaps, and obstacles to implementing scientific tools or knowledge. To ensure that all have time to speak, we will hold all of the speakers to a five minute limit. Next slide, please. The USGCRP is seeking public comment for the perspective for its national global change research plan 2022 to 2031. You can see the link here on the slide. The opportunity to provide comments runs through January 11, 2022. You can find this link by going to the USGCRP review and comment system. This is an open call. All comments must be input via the USGCRP review and comment system by midnight Eastern time on January 11, 2022 for consideration. For more information on this call for comment, please see the Federal Register notice or visit the USGCRP website. While these listening sessions may help inform the development or implementation of the strategic plan, individual feedback on the perspective should be submitted to the public comment mechanism. In support of the fifth national climate assessment, USGCRP and national climate change assessment authors will host a series of workshops in January and February to solicit feedback on climate change - related issues that are important to the public. The information gathered in these workshops will help the authors decide what subjects to cover and once again see the USGCRP website for details on these workshops.

, Please. We are committed to fostering inclusive environment where all participants can participate fully in atmosphere likely that's free of harassment based on any identity-based factors. Please remember to report misconduct anywhere to Steven at his email address there and take a look at the national academies policy on preventing discrimination, harassment and bullying on the event page. With that, Steven, over to you.

>> Thank you. I appreciate that overview and welcome. Today, we are in a regular Zoom meeting which at this point is likely familiar to all of you who are participating. We ask that you keep your video and audio off during the session until the end when we are going to be asking for and inviting contributions from anyone who is participating today. Through these listening sessions we have a couple of modes to hear from you and for you to interact with each other. For the rest of this session, we will hear from participants who indicated during registration and interest in providing oral remarks on global change related issues. The first set of speakers were the first ones to indicate during registration interest in providing oral remarks. Time remaining we will have additional speakers from the audience and those interested today to provide additional remarks. One of the aims of these listening sessions is to better understand the landscape of people and organizations engaged with issues that are affected by or connected to global change. Time permitting, we will also invite you at the end of the session, all of you, the option to provide us with brief descriptions verbally or in the chat of how your work intersects with global change issues to inform that understanding. In this Thin platform, you have the option of

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renaming herself. These provide us with your full name so that we can better understand who is here in this Zoom room. In parallel to the oral remarks, we have the Zoom chat available, and we are inviting the speakers to provide key points from their contributions in the chat, and we welcome similar contributions from anyone in the audience. We are looking for your thoughts, recommendations, and guidance to USGCRP rather than questions. As Kristie noticed the USGCRP and the committee to advise the USGCRP are in listening mode today. So please add your thoughts and contributions to the chat window. We will also have closed captioning available throughout the session. That live transcript is available through the button named live transcript in the Zoom menubar at the bottom of your screen. If you have any issues with this platform, please send a chat to the host or an email to Rob Greenaway whose email is listed here. Next slide, please. I do want to note that this session is recorded for future reference. We are trying to grab information and insights and we are using those reporting for reference as we compile those inputs. Recordings and other outputs will be available to the public access file for this event, and may be posted publicly on the event page. With that, I would like to invite Mike Kuperberg to come on and give his welcome on behalf of USGCRP.

>> Thank you. And Mike, thanks and welcome to the group gathered here. This is our fifth and final listening session. They have been amazing. We have heard from a number of unique and different perspectives, which is exactly what we were looking for through these listening sessions and we very much appreciate it and we very much look forward to tonight's session as well. I am the executive director of the U.S. global change research program or USGCRP or GC RP as it sometimes conquer USGCRP is managed by the subcommittee on Global change research, which consists of representatives from 13 federal agencies that make up the program. You can think of the subcommittee has a Board of Directors for USGCRP. I'm here today representing the 13 agencies, and we collectively want you to know that we are serious about our legislative mandate that tells us to assist the nation and the world to understand, assess, predict, and respond to human induced and natural processes of global change. On behalf of the USGCRP, thank you for your interest, for your time, and for sharing your expertise. It's important for you to know that your input will be heard and considered as we draft and implement a new 10 year strategic plan for the USGCRP. In addition to staff from the national academies there are a number of federal agency representatives, as well as staff from the USGCRP national coordination office here with us today. They will be listening carefully and taking notes that will inform our discussions in writing of the new plan. The new plan will be completed late next year. Between now and then, you can comment on a prospectus that is a high-level annotated outline of the plan. The prospectus was released on Monday. So timely timing here. In the full draft of the plan will be released for public comment and for review by this national academy's committee in the middle of 2022. So please take advantage of these opportunities to comment on both the prospectus and the full draft plan. So finally, and again, on behalf of the USGCRP, our sincere thanks to you for taking the time to speak to us today and our thanks to the committee to advise USGCRP and the staff from the national academies for organizing these listening sessions. I want to call out Kristie Ebi, Steven Stichter, Amanda from the national academies. In my sincere thanks to Katie Rees and Julie Morris from the USGCRP for their roles in making all this possible. We look forward to your comments and suggestions and we will be listening carefully. Thank you.

>> I really appreciate the introduction. And now, we would like to hear from you. In the chat, we have a list of the order of speakers. He will each have five minutes and I look forward to your insights we are

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going to start with Jay Inslee and there will be a meeting time are coming up in a moment to let you know how much time you have.

>> Thank you for having me. This is James Li. I'm a transportation professional and management and engineering. Working in the field for over 20 years and having some experience with the national academies of science as such I would like to put my two cents into the following high-level including use inspired research and socioeconomic science integration. If I may, transparency would be the one word to summarize my comments to this thing of socioeconomic science integration and accountability would be the word to summarize my comments to use inspired research. According to a.s. CE, America's infrastructure scores a C- in 2021. 43 percent of our roadways and poor or mediocre conditions. A number that has remained stagnant over the past several years. On the other hand, transportation was accountable for 29 percent of GHG emission in 2019. Our 84 percent of those admissions came from surface transportation. With this background, to my knowledge, they are research addressing a lot of those issues. However, it seems amazingly difficult to implement as recommendations for addressing the real-world challenges. Transportation automation and electrification could be given as examples. We need a quantitative and meaningful way on holding public agencies accountable to ensure that USGCRP signs and products are connected to users. One of the goals of holding public agencies accountable could be eliminating unnecessary and accountable managements to ensure that projects and their products are better driven by and connected to users. Therefore, accountability is my work. To the theme of use inspired research. To the theme of socioeconomic science integration, I am also curious on what the answers could be due date to suggestive questions. They are what are the priorities for integrating socioeconomic sciences into our program. How should USGCRP better incorporate the science into our program to improve our ability to inform decisions. Transparency came to my mind after reviewing the website regarding this section and even transparency on how this committee will be helpful in addressing the two suggested questions. In terms of transportation/infrastructure, someone who could understand as well as someone who could implement the products in the committee would be helpful to the integration. Transparency two days socioeconomic science integration and accountability to this thing of use inspired research would be my humble input. And that will conclude my comments. Thank you for your attention.

>> We very much appreciate that.

>> Thank you very much. My remarks pertain to the listening session on energy. Minnesota has required all investor-owned utilities to achieve certain outcomes and energy savings. For both electricity and natural gas customers for the past 40 years. Fresh energy became aware that many under resourced households today 40 years later are paying a much higher percentage of their income than our higher income households we found information request with utilities to see what energy savings programs they run that focus on under resourced households. The information demonstrated that utilities had under invested in energy efficiency for under resourced or low income households utilities agreed with fresh energy. 100 percent of utilities supported the passage of a Minnesota policy that requires utilities to invest up to 300 percent more than helping under resourced households save energy. Other states should do the same investigation to ensure that their low income households have effective energy savings programs. Available from their utilities. I will put my bullet points in the chapter. Thank you so much.

>> Thank you. I really appreciate that and thank you for giving us back some time. We will use that at the end for questions. We move on to Ryan at the International code Council.

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>> Great. I am Ryan Vice President of innovation at the cocounsel. Cocounsel develops building code serves as a basis for building design, construction and operations and maintenance requirements and all 50 states most federal agencies and even internationally. Buildings are an essential part of communities in the economy providing shelter for residents and supporting the function of businesses the provision of healthcare, education, and government. Including many of the sectors examined in the national climate assessment and other USGCRP and federal agency activities. Building codes provide criteria to ensure that occupants are protected from hazards reasonably expected over the lifetime of the structure. The congressionally established national Institute of building sciences found that the regular adoption enforcement of building codes provides an \$11 benefit for every one dollar spent. While today's codes play a valuable role in public safety and resilience, it is becoming increasingly obvious that the hazards buildings will face into the future are different than those anticipated in the past. Currently, building codes use historic data as a basis for design requirement. There are issues underway to examine how codes can adapt to climate risk including an effort by ICC and collaboration with building code development and research organizations in Canada, Australia and New Zealand to identify common approaches and research needs. The global resiliency dialogue has already released reports on how climate data is currently used in codes and standards and passages for it. Our next step is to develop an international resilience guideline providing a framework for incorporation of risks we highly recommend that the Academy and USGCRP examine these reports help inform the NCA and climate science initiative. One particular finding from our work thus far is a need for our authoritative data at a scale and in a format suitable for use in design architects and engineers and planners and contractors, owners and building managers can rely on. U.S. stakeholders acknowledge that the climate data needs is for more localized models utilize baselines of climate and building scientists and agreed-upon because adoption and enforcement of building codes in the U.S. is localized. Additionally, the need for more resilient structures is very localized, even based on anticipated hazard events that utilize poor scientific looking data. Currently there is a lack of high-quality data at the local scale which is necessary to inform local codes. Participating stakeholders highlighted expanding collaboration across sector experts and increase regulations and incentives were resiliency standards is essential access to increase service lights critical infrastructure and response to the changing climate. The survey responses concluded that uncertainties of projecting future risk have empowered a business as usual mindset, limiting the application of available climate data to proactively incorporate future looking risks into the building codes. There is a sense that climate scientists and the developers of building codes and standards need to agree upon a path and just do it with the anticipation that the future looking science will need to be recalibrated regularly as the codes are updated. To date the national climate assessments have focused on cities in the built environment broadly with only cursory focus on the specific needs of the building sector. He agencies like Noah -- NOAA are beginning to focus on needs and collaboration with standard developers like ICC. Organizing NCA comments and USGCRP activities around the specific needs of the building sector will help drive discussions between climate science and building science researchers and practitioners and outbuilding practitioners express their needs and climate scientists to help meet those needs. They also help advance resilience in all sectors of the economy. Our prior comments to USGCRP provide more detailed recommendations on the need of the building sector including how they respond to the needs of vulnerable populations. We appreciate the opportunity to share our comments and look forward to working further with the climate scientists community to realize climate resilient buildings and communities. Thank you.

>> Really appreciate your comments. We move on.

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>> Thank you so much. I am at Colorado State University. So my work focuses mainly on predicting damage to the built environment infrastructure as well as recovery of communities full of natural disasters. I'm going to kind of break my comment into two pieces. First I will talk about damage and how we go about doing the and talk about how we look at recoveries and what we might need to do. So you will see how my comment will link to other categories that you mentioned. In terms of looking at damage, which is a prerequisite to doing any resilience assessment he will find that most of the work that has been done mainly or primarily focuses on earthquake is a natural disaster, and there's a reason for this. But this lack of information of how they will perform under other disasters not just earthquakes. We try to develop damage but it was estimated at best. The problem is more complicated because we tend to almost ignore multiple hazards original look at the back of the built environment. It is not actually a problem for engineers but it's a problem of accessing data that tells us what is the environment and the community or infrastructure and can we have knowledge of the good to which these buildings were infrastructure were built and do we understand how the physical system was hooked together or not at all of this information is needed for us to be able to predict the damage. When she predict the damage you need to assign this damage to the built environment. If you look across the studies around the country and also outside you will see this is done in a very gross way. The problem is data-driven. We don't have the what it comprises of two assign damages. If you start to look at the resilience analysis, we need to focus on system of systems analysis and this type of approach is generally lacking as well. Sociotechnical models are key to capture the action between the infrastructure and the people who use this infrastructure. These models have gained a little bit of attention and I would say the past 3 to 4 years but to amend this amount of work that needs to be done. It's not just about the structure being damaged or about me understanding of the structure will recover from but you people have access to this infrastructure, what about the people that actually operate the systems. Can they go to work? Have they been injured in an event and for the most part new models are going there. As I mentioned, we need to look in terms of resilience and recovery we need to look at other hazards and that will be very important accounting for supply chain and resilience models is almost nonexistent in this should be a main emphasis which will require the development of a mega supply chain model which also if you look at the literature issues with scaling and so it should be looked upon as how to develop these efficient models. The rule of uncertainty is very important to consider and confined losses in damage and resilience and the subsequent impact of this uncertainty propagation and quantification on the decision-making process. Again, this is some of the things you also don't see in the literature and I'm talking about advances in science, models are used by decision-makers are not -- do not even correlate to what's been done in research at. I think one of the most important things in advancement of science is the role of the lifecycle or how you integrate lifecycle with resilience as an assessment to ensure recovery which is a huge buzzword but also how do you do that while minimizing lifecycle cost related to inspection the last comment I want to say is when we talk about small cities which have their own benefit we must understand that a small city by default is not necessarily a resilient city. And you must also consider how we develop social capital for resilience when you start to automate everything. This is an area of research that has not been touched federally. Thank you.

>> Thank you for your comments. I really appreciate this and thank you for Massachusetts Department of transportation.

>> Thank you for having me tonight. I'm kind of freewheeling here. I didn't prepare any comments. I would urge that people research with the U.S. DFT and the Federal Highway administration about the

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activities that they have planned for infrastructure. For background, I am a TRV member of AMR 10 which is protecting our critical infrastructure, and I've been with the mass DFT for 25 years, 26, 27 perhaps now. 15 of it has been with climate change mitigation focusing on carbon sequestration, and in the last 10 years or so, involved with resilience. My focus and resiliency has been mainly on the coast. And the -- by going to the Federal Highway administration, you will learn that they have a very strong program with climate resiliency pilot projects. I have been a member of a couple of those, and what it does for you is it just explains the depth and breadth and width of all the problems throughout the nation. So when it comes to crafting a framework, it comes down to a local level as to what data they are using. For instance, Arizona has the dust storms related to climate change. So they have a strong program in trying to mitigate the problem. Massachusetts, on the coast, has the sealevel rise and storm surge part of it. There's also a precipitation part of it in the central and western part of the state. So it all comes down to the local level as to how things are addressed. Now, define local. For me, it's Massachusetts, but then when it comes to sealevel rise projections, you now can involve Rhode Island and New Hampshire and perhaps even Maine. Now, Massachusetts now has a unified sealevel rise projection and storm surge projection for present day 2030, 2050, 2070. And so the state is using one set of data. But be advised that everyone uses that data differently. For what their functions are. And when it comes to critical infrastructure on the coast, the Massachusetts DOT has its own criteria. But when it comes to buildings, they have their own idea when it comes to criticality. And so when you are talking a national approach, you do have to consider what's going on in other parts of the country. And so joining forces with the American Association of State transportation officials is a good thing. They have guidance on what Federal Highway administration can do. That's my federal funding partner. But U.S. DOT has a broad climate change. I guess you can call it a map for all of its agencies. So the more the this group is aware of when it comes to infrastructure aware of U.S. DOT actions the better, I suspect. That's all I have for now. Thank you.

>> Really appreciate your comments. We now move on to Kim from MIT. The floor is yours. It's great to see you.

>> I just want to second all the things that have been said previously before me and talk about the irony that I'm going to be talking about the date a little bit about Massachusetts and a little bit about Colorado. We have a link geographically to our speakers. So I'm speaking today with two hats. One as a climate change impact and adaptation researcher, providing information and working in that role but more recently have been very much involved as a practitioner on all scales from institutions and how institutions are making decisions investing in climate resilience and that including the MIT campus, cities like the city of Cambridge in Boston and then national as well. Having done work for APA and others. So I went to give a few examples and to hit some of the themes that have happened is the issue is scale. As Tip O'Neill said all politics is local. All climate impact and adaptation are local. The responses to them and the resilience to them are going to be local. So one of the things we learned and I want to push for as we have to work on bottom-up analysis to make national and regional decisions because you may use that we lose a lot and especially we are losing that as we are looking at equity issues and issues on environmental justice. An example of this is if you look at top down and look at flooding in Massachusetts the Charles River has great risk. But what's not known is that there's a dam at the mouth of the river which prevents Cambridge and Boston in land from getting climate impact from storm surges. On the other side which is where in the coastal plains most of the poor lived in that. So infrastructure is particularly linked to disadvantaged populations where the quality of infrastructure that

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is being used is generally in the so as we look at these things we have to take a look at that just not at the highest level but at the detail level. We look at infrastructure it is greatly impacted by extremes. The extreme events that we have and we're dealing with right now in the climate world a false sense of -- a false decision as we look at that. We're trying to look at our climate models to estimate things like the hundred year storm were for the city of Cambridge it's eight inches but 94 percent confidence interval is between six and 11 inches. Natalie we have small observation extreme events were most of the damages coming. We have to do a lot of research in the climate science and a sense of certainty in our predictions when we don't even have great certainty and our current -- women look at infrastructure what we have seen is that most of the cost we're finding is not in the rebuilding of these infrastructures directly and we do not have very good ways of estimating both engineering wise technically and more importantly in the economics of doing that and this is particularly during the electric sector as we move alongside. And finally one of the things we seen as most infrastructure systems are linked so we have to work together to seal the transport system is connected to the electric system and then we need research on how decisions are made. How is risk and entered generation and values taken place in a different culture and the different groups within our nation. So with that, I thank you for your time and look forward to the next generation of this document.

>> Thank you very much. We move on. From the University of Oklahoma.

>> And Dean, you are very close. You are exact. Thank you for this opportunity. Infrastructure is a truly global issue. All countries in the world need good transportation. Need transportation. To go to school. Like hurricanes, flooding, fires, and so on and so forth. It is also a really huge investment and need in order to address some of these issues that we have been discussing here. In the U.S. also, we see that the funding in what they development leads are far greater than our associates. We just essentially had that investment and jobs act in which transportation is part of the so there are reasons like aging infrastructure and we are talking about the climate extremes, climate change that it's a much bigger problem and we are seeing we need to do it for 500 years instead of 100. Whether we talk about rehabilitation, how do we actually -- what do we do in terms of science in terms of technology we can actually use it's also we spent 3 billion annually in Oklahoma taxpayers have spent similar amounts for vacant repair costs we do have to address this one way or another in terms of resiliency we talked quite a lot in climate change and so how do we ask this. So I personally work in the pavement area so he said this is one of the most important things. But we do not consider that if they do you cannot prevent planning so how do I access the infrastructure and what tools do we need (unintelligible) Cinderella advancement of technology and tools we need a new generation of workforce that is instrumental into what we do going forward and we have seen a lot of people leaving and how do you replace that? We talked about diversity. That cannot be an add-on thing. It has to be a fundamental element and policy going forward but I think there's a lot of opportunity we need to look at and how do we make it TT how do we share things. What methods do we have so we do not reinvent so it has to be at all levels, locally, regionally, nationally, and globally. So this is a very interesting topic and I'm really interested in this. The focus is climate adapted transportation. I'm really excited about the opportunity and it's good to be challenging but we can do it together. Thank you.

>> Stephen, you wanted to jump in?

>> I wanted to give a heads up we will have opportunity for additional comments after we have warmer speaker and we will be inviting others. If people have an interest in making a comment along these lines

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of global change issues, please raise your hand and we will use that as the next section. Thank you. Back to you.

>> And Bruce, you are our last formal speaker. Chris McCarl who is apparently at MIT. It's good to see you. I still you see -- I see you still have the rock is in your background.

>> I don't think I'm at MIT unless I'm lost I met Texas A&M. And I'm an economist that's a picture of where my house is where I was up to about a week ago. But anyhow, I have been working on agricultural adaptation to climate change were a number of years. A few years ago, we tried to take a look at transportation adjustments and generally we found three things across this body of water. We see agriculture is already adapting to climate change and so is land-use and livestock. It's moving north and up in elevation and that means east of the Rockies it's moving north and west and west of the Rockies attends to be moving north and east. The distances and a lot of crops have been 150 to 200 miles with, we think, about half of this due to climate change. In cases this replaces lower yielding crops with higher yielding corn replacing wheat, which generates about three times the volume to be moved, and that needs more roads, bridges, rail and facilities. We also see a reliance less on the Mississippi river barge system as we move into the Dakotas with more of the grain going out on trains to the East and West Coast. We also see shifts in a number of other crops like cotton in livestock and land use shifts with land moving out of cropping and into livestock in the Southwest and other areas like that and always has infrastructure implications. With that I will stop talking.

>> Apologies for putting you in MIT I was given a master sheet that said you were at MIT.

>> I think you are probably everywhere but the University of Washington. I sometimes say am a visiting professor.

>> We appreciate your comments in the floor is now open. We have Dave with his hand up. Dave? You are still on mute.

>> Thank you. Can you hear me now?

>> Yes.

>> Okay. I apologize. I don't have video on this machine. I started a graduate program and urban planning at UCLA and it was pretty clear being a climate person it was more useful. I grew up at 6333 E. Elliott St. directly across the street from the Alameda's that California Edison sold off to applied energy systems. That power plant was rebuilt and was re-pallet it hadn't been entirely rebuilt. It's a critical piece of infrastructure no matter he was asking and where it is colocated with the transportation infrastructure and so there's a lot of interstate transmission. It's kind of a problem. It's a problem in terms of what we need in terms of climate stabilization and 10, 20, 30 year time frames. These are the time frames for my generation that matter. I have to start thinking now about things like should I move to Toulouse and just not have Long Beach problems anymore? Or should I move to on tango. My cousin has been putting up panels all over the North Island of New Zealand. The specific thing for this USGCRP listening session I would like to press upon all of you is going to be occurring. It's a moving corridor which here in Long Beach is an issue. We are handling it. We have now a lot of 10 and 24 hour problems. From here all the way to the Midwest is extremely important for the development of smart bridge and one of the problems that we've had in California the past 10 years is overall just system. It kind of centralized the grid and kind of the wrong way. It's our growth over the past 100 years, specifically from municipal dependence on oil and coal has kind of made it much harder for my generation, frankly, to

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think about realistic alternatives in time. So things like offshore wind or inner title that are mitigated and annotated. You know, we are kind of behind the ball on it. We have the breakwater but we're going to have to do things with the thumbs island. And a lot of these discussions, frankly, take place mostly kind of late night with few people attending. So it's hard to try and explain to people who are younger than me -- I mean, that's why I went to grad school, right? Why they should even care and how they should fall. And along with a lot of the climate disinformation, I mean, I wish everyone had time to attend things like this just to listen to everyone else. It's really enlightening and I appreciate everyone's participation. But for people in my generation, you are putting a lot of lists on us that we are not prepared for and we shouldn't have had anything and that question of intergenerational equity stripped of all the other systems if you want to think in those terms, race, class, whatever they are. That's Long Beach City Hall city clerk's office is back storage where we have 10 OpenWindows for utility bill collection. That's an example of what we devote our resources to. Anyway, Dede thank you for listening.

>> Thank you very much for adding your perspective. Does anyone else want to add any comments? I see in the chat something from Christopher. Your hand is up. The floor is yours.

>> Good afternoon. I am Dede I've been looking at client resistant for probably the last 10 years. Looking for the resilience interventions and I want to contribute it's to endorse some of what was said before and just talk about the importance of the adaptation in building the capacity for the adaptation request spent a lot of time and effort in developing the if we want to address some of these issues of systematic racism, traditional inequities and so on. Another thing I would like to see is that we start by not forgetting the issues of climate adaptation we need to recognize that they are overlapping intersectional issues and as our urban planning focus needs to take into consideration the solons that helps us to not only mitigate but also look at these decisions that are not integrated. From an assistant perspective it's most important and we need to engage more widely our stakeholders and to continue to engage in discussions like this but we need to find these as we talk about inclusion and engagement in the urban planning agenda to find this in the whole concepts and also to put in our lens the need to also be more inclusive in the way we develop the worst cases and our places to make sure that we could build and I also wanted to put on the record to take care and also recognize the limitations of our climate models. I think that we don't spend enough time also expressing -- we tend to place a lot of confidence on times two into these models. Not to say that these models do not have value. They do have value and significance we have to continue to research and we also have to be mindful to take care to not overstretch the limitations of these models and tools and techniques and approaches. So we need to be mindful in respect to how we approach to that. The other thing I wanted to say is not only a matter of technology. The human enabled systems also managed. So and how these gaps are managed to make sure that people -- even though the concepts on how these things are defined, and all of these things, what you really mean by these things? It may mean also taking into consideration the context. The other thing I wanted to also say to you is we need to appreciate not looking at development in a vacuum in terms of buildings and spaces. In human side and remember at the end of the day cities and places are really about people and the interaction and the resilience will also be dependent on the social infrastructure. So I just wanted to say that. You know, we need to move from this in terms of how we develop our spaces. Thank you. Sorry about that.

>> Does a very good reminders. Really appreciate it. Does anyone else want to provide a perspective? Or a comet? If not I will turn it over to Steven for the next steps.

USGCRP Listening Session Live Transcript

Session Theme: Global Change and Transportation/Infrastructure

Session Date: 8 December 2021

>> Before we close out since we have some extra time as I said at the beginning one of the things we're trying to figure out is to better understand with these sessions is what is the landscape of people who are engaged in global change work. As users or researchers and also recognizing that researchers are users and producers as well. We would be interested in hearing from you and contributions of what your role is and just how you engaged in global change related work. If anybody is willing to give a couple of sentences about your role and where you engage with these issues. Or provide that information in the chat. We welcome that as well. And you are welcome just to turn on your video. All right. We are not getting much of a response there but we will have opportunities and surveys that we will follow up with you and take those opportunities both to provide us with information about these sessions and our call for input. So with that, Chris, if you would provide a closing remark on behalf of the committee and then I will invite Virginia from USGCRP to provide their comments as well.

>> Think it appeared on behalf of the committee to advise US Global change research program we really appreciate all of your input. This was a highly informative session. It will be very useful, I'm sure, as a strategic plan is further developed over the course of 2022. As we stated at the beginning, please do provide comments on the draft prospectus until January 11 and then look forward to the fully articulated strategic plan for comments sort of midyear. We encourage further engagement both with this and USGCRP. There's lots of opportunities on the website and we appreciate your time, your expertise and your insights. Thank you very much. Virginia, over to you.

>> Thank you. It's very interesting. I am with U.S. geological survey which is the Department of Interior which is one of the 13 agencies that is a member and has been since 1990 and you've got another couple of members on the line listening today that is preparing the strategic plan and I also noticed several of the committee members in addition to Chris, the committee to advise the USGCRP have also been listening to these. Novel comments. It's harder to talk in five minutes than it is to give a full-blown presentation of everything you were thinking and worried about if you had more time. So the preparation went into the comments today, I just really appreciate. If you were able to work and not five minutes points that you want to make I encourage you to submit written comments through January 11 at the USGCRP website. There will be a transcription of everything that was said today in the high-level takeaways will be provided to the committee and to the steering committee that is actually directing this strategic plan. Thank you to Chris and Stephen and Amber and all of the Academy -- to staff for helping arrange this. Appreciate it very much. Aunt April. -- And April.

>> Thank you. We appreciate your presence here. We appreciate all of the agency and staff who have joined us today. So today is the last of our five of these pilots engagement sessions. This was a new approach that we were trying to provide, a different kind of input and connection between USGCRP and those who are engaged in these very important issues. Just a couple of next steps. We will follow up with registrants with an email that will include -- one provides further input opportunity for USGCRP and input for us on the evaluation sessions. After the listening sessions, we will be posting materials and I see the question in the chat that inputs that were provided to the chat will also be available on the event page for the session. Within the next couple of days on this session we will also be posting a recording pleasing recording of the session. Finally, these inputs are all going to be available for USGCRP and the committee as they consider their work forum about the development of the strategic plan but also how this work is implemented going forward. So thank you all for joining us at this and potentially multiple sessions, and we look forward to digging into the comments and the insights that you provided in these sessions. So thank you and have a good night.