

CLIMATE INSURANCE WORKING GROUP MEETING | JULY 22, 2020
DRAFT MINUTES, TO BE CONSIDERED AT THE NEXT WORKING GROUP MEETING
MEETING MINUTES | JULY 22, 2020

Participants:

Commissioner Ricardo Lara | California Department of Insurance
Alice C. Hill (Chair) | Senior Fellow for Climate Change Policy at the Council on Foreign Relations
Carolyn Kousky (Vice-Chair) | Executive Director, Risk Management and Decision Processes Center, Wharton School of the University of Pennsylvania
Butch Bacani | United Nations, Principles for Sustainable Insurance Initiative
Kathy Baughman McLeod | Director, Adrienne Arsht-Rockefeller Foundation Resilience Center at the Atlantic Council
Sona Mohnot | Senior Policy Analyst and Program Manager at the Greenlining Institute
Michelle Passero | Climate Change Program Director, The Nature Conservancy
Lloyd Dixon | Senior Economist at the RAND Corporation and Director of RAND's Center for Catastrophic Risk Management and Compensation
Louis Blumberg | Principal of Blumberg West Consulting
Rex Frazier | President, Personal Insurance Federation of California
Raghuvver Vinukollu | Natural Catastrophe Solutions Manager, Munich Re
Serena Sowers | Vice President, Public Sector Solutions North America, Swiss Re
Jorge Ramos | Associate Director, Jasper Ridge Biological Preserve, Stanford University
Michael Lynes | Audubon Society Director of Public Policy
Starla Yeh | Director, Policy Analysis Group, Climate and Clean Energy Program

Welcome and Approval of May 21-22 Meeting Minutes

Deputy Commissioner Peterson introduced himself, welcomed the working group and described for members of the public where they could find the meeting agenda and accompanying presentation materials on the public website of the California Department of Insurance ("the Department"). He took roll and turned the meeting over to Chair Alice Hill.

Chair Hill welcomed everyone to the meeting and revisited the working group's goals, asserting the importance of honoring the intent of the legislation that created the working group and ultimately providing recommendations to Commissioner Lara and the Department on improved methods of addressing climate change and insurance, including the important role of nature-based solutions. Chair Hill shared that the working group has an exciting opportunity to learn more about parametric insurance solutions and hear more from the peril subgroups regarding their progress and recommendations. The working group will next meet in August to refine their work and consider potential pilot projects; that meeting is tentatively scheduled for August 21. Also, the working group will receive a schedule for how to proceed between this meeting and completion of the working group's report.

Chair Hill advised the first order of business is to approve the minutes from the May 20-21 meeting.

Member Baughman-McLeod moved to approve the minutes.

Member Passero seconded the motion.

Chair Hill called for a vote. There was no opposition, abstention, or discussion. The minutes were approved.

Chair Hill then turned the meeting over to Commissioner Ricardo Lara.

Commissioner Lara thanked the working group for their important work. Specifically, Commissioner Lara thanked Vice-Chair Kousky and Member Sowers for their presentation at the last meeting and for fostering an excellent discussion, describing their presentation as fascinating and thought-provoking. He stated that their presentation raised the bar of understanding within the group as to what insurance can and cannot do, and what types of innovative approaches have been used with parametric products.

Commissioner Lara also shared that the National Association of Insurance Commissioners (NAIC) has very recently established an executive level task force on climate risk and resilience. He elaborated that there is a changing perspective that the NAIC must be a part of the conversation at national and global levels and provide policy recommendations. He is proud that the NAIC is moving in this direction, with the support of Commissioners from all regions of the nation. Commissioner Lara emphasized that all regions, regardless of political affiliation, appreciate the need to focus on solutions and innovative products.

Commissioner Lara shared he looks forward to continuing to work together towards their goals and that he is excited to communicate the working group's recommendations within the state, as well as nationally through the NAIC, and internationally through the United Nations and the Sustainable Insurance Forum. Commissioner Lara thanked Chair Hill for her leadership and again thanked the working group for their work.

Chair Hill thanked Commissioner Lara, agreeing that it was exciting to hear about actual progress regarding climate risk and resilience. She stated that Commissioner Lara and state of California are helping others to see that there is a way forward.

Chair Hill then turned to the meeting over to Member Bacani.

United Nations Sustainable Development Goals, including recap of UNEP Principles of Sustainable Insurance and Swiss Re event

Member Bacani dropped from the call but immediately returned. Member Bacani shared that the United Nations Environment Programme's Principles for Sustainable Insurance

gathered with stakeholders at the World Economic Forum and deliberated on an initiative for insurance goals. They discussed insurance products and solutions to achieve the global goals of the UNEP-PSI.

Member Bacani advised that, at an event with Swiss Re last week, approximately 700 participants representing more than 60 countries convened to announced the initiative. The idea is to identify global insurance goals that further sustainability issues, including climate, that harness insurance products and solutions at the global level and a roadmap and target at the insurance company level. Early ideas shared include insuring “x” number of 230 million small farmers with agriculture insurance by 2030 and the provision of health insurance by 2030. This is relevant to this working group. Additional targets they are looking at include national ecosystems, increasing insurance coverage for protected areas or sites by “x,” or “x” number of sites by 2030. Knowing there have been adaptation initiatives already, they are thinking about whether globally carbon portfolios can be reduced by a certain percentage by 2030. The UN and insurance industry are working together to pursue a global agenda. In a survey of insurers and reinsurers on what they believe to be the most important relevant goal for insurance industry in next 10 years, responses included climate action, health and wellbeing, sustainable cities and infrastructure. When surveyed regarding what industry perceives to be the most promising business opportunities, the primary response was agriculture followed by property, and then ecosystems.

Member Bacani remarked that the working group discussing the importance of protecting ecosystems and nature-based solutions is very insightful because, ultimately, innovative, scaled solutions are needed. What the working group develops for California would be a major contribution at the global level.

Chair Hill thanked Member Bacani for sharing this exciting news and, after congratulating him on that remarkable progress, turned the meeting to the recommendations of the subgroups.

Discussion: Subgroup recommendations

Extreme Heat Subgroup

Member Blumberg briefly reviewed the recommendations that the Extreme Heat Subgroup made at the May 20-21 meeting and advised the group would present three additional recommendations today. Member Sowers would present first, then Member Baughman-McLeod, and he will present the final recommendation.

Member Sowers advised that the subgroup seeks to develop a recommendation that responds to the issues and needs that vulnerability communities experience as a result of extreme heat exposure. The impacts of extreme heat worsen with prolonged exposure and the subgroup is extremely concerned about what that means for individual health conditions and the economy surrounding those individuals. As the cost

to individual health increases, the costs to the health care system increase so there is ultimately both a personal and a financial impact.

Consequently, the subgroup recommends focusing on mechanisms for early intervention rather than reactive post-event solutions. In working to identify early intervention points that can access large groups of vulnerable populations, the subgroup began asking, “What role can insurance play in providing financing mechanisms to enable that intervention?” They asked, “How can community centers be incentivized early on in the extreme heat event to provide services to communities to lower the impact of extreme heat over time?” Member Sowers emphasized that if the intervention occurs early enough, the extreme heat impact can be reduced significantly—so how can insurance play a role in that? The subgroup honed in on hospitals as an enabler for providing early intervention, specifically for uninsured and underinsured populations, and recommend using hospitals as a place to explore and pilot ideas. Public hospitals, in particular, often experience a surge of patients who waited too long to seek care and have, therefore, already started experiencing the onset of extreme heat impacts to their health. The subgroup seeks to identify how cities and publicly owned hospitals can be incentivized to provide care early on to mediate the full impact of heat events.

Another option is to cover hospitals for underinsured care, focusing on the Medicaid population. The next step would be to work with hospitals to hone in on their specific needs and losses to determine how to make the mechanism work.

The subgroup recommends that Commissioner Lara considers 1-3 pilot projects in urban locations to test out risk transfer solutions and how to best meet the needs of vulnerable communities and incentivize care.

Chair Hill voiced concerned about the resilience of the hospitals and facilities themselves and their exposure to the impacts of the peril. Chair Hill suggested considering additional or alternative locations. If the recommendation sends more people to hospitals, it must be confirmed that the hospitals are in a position to offer a safe place to receive care. In Florida, hospitals were inadequate to deal with extreme events. She thanked the subgroup for their excellent work.

Member Sowers agreed that Chair Hill raised an important point and shared that the subgroup had discussed it at length. The COVID-19 experience has brought up key issues regarding the health care system that must be considered. The process to develop the pilot is key. Alternative or secondary locations may be utilized to play an early intervention role; it may not be necessary for the hospital to be the physical location.

Chair Hill agreed this is potentially an excellent way to expand surge capacity, provided the alternative locations are resilient. Chair Hill turned to Member Baughman-McLeod to review the next recommendation.

Member Baughman-McLeod shared that she was pleased to be meeting with the working group again and congratulated Commissioner Lara for his exciting progress with the NAIC. Member Baughman-McLeod shared that the second proposal is to build, adapt, or combine the efforts of existing risk pools in California into a single risk pool and identified that there is definitely potential for peril overlap with this recommendation. For the purpose of illustrating the proposal, she discussed how this idea could work with extreme heat. Referencing other examples of successful risk pools, including the Caribbean Risk Information System (CRIS) and the Southeast Asia Disaster Risk Insurance Facility (SEADRIF), Member Baughman-McLeod explained that when looking at potential for leveraging risk pools, there is work to be done in identifying what is most feasible under existing mandates.

Counties could opt into risk pools to better fit their needs. Agricultural workers or the agricultural economy could be protected. There could be a parametric pre-event trigger. The subgroup located the example of a Red Cross climate center that worked on a product that was pre-event financing, relief money or philanthropic response that triggered with a certain heat level. Whether for health/life, business interruption or property and casualty, products would have different triggers that consider the heat index and humidity levels for people in a specific location. Someone in San Francisco might experience health stress at 90 degrees whereas someone in Bakersfield might reach health stress at 98 degrees. The idea is to create a product that is triggered, and intervening relief is administered, in advance of any negative impact to an individual's health. This could mean rescue teams that go door to door in vulnerable populations, or utilities not cutting off for nonpayment under certain conditions. Significant data must be collected and tested. The bigger point is to pool risk and create access to more affordable coverage.

Chair Hill thanked Member Baughman McLeod and commented that the prospect of broad coverage through risk pooling for one of the most certain perils is exciting.

Commissioner Lara shared that the Los Angeles Times ran an article that day that identified extreme heat as a greater threat than COVID-19 (<https://www.latimes.com/california/story/2020-07-22/sweltering-heat-and-coronavirus-threatens-inland-empire-homeless-and-shelters>).

Chair Hill thanked Commissioner Lara for identifying that resource.

Member Baughman-McLeod commented that the lack of natural areas is significantly impactful in Los Angeles, specifically the lack of tree canopy. This presents an opportunity to invest in urban forests—create funds to invest in nature-based solutions to cool surfaces and improve air quality. This would add capitol and increase the ability to transfer risk.

Member Sowers agreed, citing a data point that identifies the difference in the lifespan of urban trees versus natural trees, something like 13 years versus 70 years, and raised the question of what that means for urban communities. What is the effect of having to

replace trees more frequently? How might these essential natural resources be protected?

Vice-Chair Kousky echoed the importance of linking urban greening and circled back to the idea of a public fund. She observed the enormous potential of cross-cutting issues across perils, and the enormous value of these emerging solutions. Getting dollars to the appropriate place quickly is fantastic but demand and the cost of risk transfer must be grappled with. For the purpose of the report, the subgroups should consider how much does it actually cost and how much are costs exceeded. It is important not to assume that transferring risk is cost effective.

Member Baughman-McLeod agreed and suggested the working group adopt this approach, likening insurance to breakfast—an important part of a balanced diet but just one in a range of solutions.

Chair Hill turned the working group's focus to Member Blumberg, to present the Extreme Heat Subgroup's third recommendation.

Member Blumberg thanked Chair Hill and commended the working group's wonderful discussion. He will review the subgroup's recommendation to increase capital through a climate resilience bond. The proposal is for Commissioner Lara to initiate a process that reduces extreme heat in a county or city, mitigating and intervening early on to catalyze new planning taking place in cities that experience extreme heat. Cities would develop a comprehensive suite of actions, including urban greening and expanding a cooling center into a resilience hub in a social community center to build cohesively. A lesson learned with COVID-19 is the importance of early action. This process can serve as a model for other jurisdictions. This recommendation is modeled as an environmental impact bond or a climate resilience bond, based on the DC Water Environmental Impact Bond. The idea is for one single investor to purchase the bond and the purchase agreement includes a risk transfer mechanism. By using the bond instrument, public entities or cities may receive additional funding, expanding its existing budget without paying insurance premiums. Commissioner Lara would convene a consortium, a city would issue a bond to implement action, a single financier purchases the bond which guarantees risk is underwritten, a nonprofit can manage the funding and coordinate the project with the government and a third-party scientific firm. A target area that includes an identified vulnerable population would be selected. Science would estimate the numerical range and level of expected terms. The contract terms would include a contingency fee that identifies who is paid what, under which circumstances. If temperatures are reduced within a specified range the city pays back the investor without contingency fee for bond. If temperatures measure below the specified range, the government would pay the contingency fee for assuming the risk. If temperatures measure above the specified range, the purchaser pays an additional payment to the city. This model offers an additional benefit of building community cohesion and is a financial recommendation that addresses extreme heat before the heat wave occurs.

Deputy Commissioner Peterson asked how the potential reduction in temperature would be measured.

Member Blumberg replied that the city at large would act as the baseline.

Chair Hill thanked the Extreme Heat subgroup for their work and turned to Member Passero, of the Wildfire Subgroup, noting that California recently experienced destructive wildfires in June and July. Chair Hill also indicated that the subgroup would have seven minutes to present each recommendation with time for discussion following each recommendation.

Wildfire Subgroup

Member Passero indicated that the Wildfire Subgroup has developed 12 interrelated recommendations to reduce wildfire risk in insurance. The recommendations largely fall into three categories, including how to best mitigate risk and development in high-risk fire areas. At the last working group meeting, the subgroup discussed fire risk data, mapping, and community. Today, Member Frazier and Member Dixon will present two additional recommendations: Enabling adaptation and increasing wildfire risk affordability.

Member Frazier advised that the subgroup focused on how to react to catastrophic wildfire and ways for a resident to leave an affected community. He discussed how insurance policies may cover replacement of property but not replacement of land, and what happens when a policyholder suffers catastrophic loss and considers where they should rebuild or move. Policyholders experience impediments when they want to move regions where the cost for a comparable home differs from the cost to rebuild their home on their existing property. The subgroup recommends Commissioner Lara develop ways to eliminate these impediments in order to allow for adaptive relocation. There will be a resulting rate increase but this is worth the trade-off of policyholders having the ability to relocate where they want to with a higher payout than they can receive now. Vacated properties could be restored to a more natural risk buffer. Examples to illustrate how this could work are the properties surrounding the Paradise community serving as a buffer to reduce fire risk, as well as California's Brace and Bolt program.

Chair Hill thanked Member Frazier for presenting the subgroup's recommendation and remarked that land use is a challenge. She suggested that the state of California might work with FEMA to coordinate in buyout program in mutual recognition of the value of restoring higher risk areas to more natural conditions.

Deputy Commissioner Peterson agreed this is a very thoughtful approach that aligns interests. The details are important but this is a very interesting approach.

Chair Hill elaborated that FEMA is under pressure to be more successful with buyouts—it could be an opportunity. She shared that the working group would move to hearing

presentations from guests, RISCO and AXA, before returning to the Wildfire Subgroup. She turned the meeting over to Jorge Ramos to share about the guest presenters, whose work is relevant to what the working group is doing to generally frame their approach and identify commonalities.

Discussion: Nature-based solutions and subgroup progress on integration

Restoration Insurance Service Company (RISCO)

Climate Finance Lab

Science of nature-based solutions

Deputy Commissioner Peterson referenced the availability of accompanying documents on the Department's Climate Insurance webpage, and turned the meeting over to Member Ramos.

Member Ramos introduced three guests, Romas Garbaliuskas, Allie Goldstein, and Shyla Raghav.

Shyla Raghav shared that she was delighted to be there on behalf of Conservation International (CI), which is based in Arlington, Virginia, but works on an international basis, including the Philippines, South Africa, and Brazil, to secure the benefits that nature provides to humanity. Assessing material risk is part of that process. In working with the UN in global-level policymaking, she's identified that localized and private sector solutions are important; technological innovations to develop and quantify natural benefits and how it all intersects is important. Giving investors tools to assess risk and developing positive instruments to keep at risk areas restored is important. This work cannot operate project by project so CI is interested in tapping into a broader pool of investment. They have been piloting the Restoration Insurance Service Company (RISCO) in the Philippines.

Allie Goldstein shared she is an associate scientist at Conservation International and is happy to take part in the working group's meeting.

Romas Garbaliuskas, of CI's Finance Division, discussed the trend of bringing private sector money into conservation finance. In CI's work, the biggest opportunity is carbon and carbon credits products. However, there are other types of benefits that can be monetized. CI has been looking at coastal resilience, specifically, at sustainable finance mechanisms for financing in nature. RISCO will work to accelerate that end. RISCO was presented to the Climate Finance Lab two years ago for consideration as an acceleration program and was selected.

Member Baughman-McLeod shared that she happened to be voting as a proxy for someone at Bank of America when RISCO was considered by the Climate Finance Lab and voted for RISCO to be selected.

Romas Garbaliuskas thanked Member Baughman-McLeod for her support and remarked that he was also glad that she is involved in the California Climate Insurance Working Group as she is certainly an expert in this subject matter. He resumed discussing the nine-month acceleration RISCO received because it demonstrated it met the various criteria of the Climate Finance Lab, including that it is innovative and able to be replicated. RISCO invests in conservation and restoration in a financially sustainable way. Revenues are generated by the sale of carbon credits and insurance-based payments which offer more than enough to pay for the cost of conservation and restoration of activities. RISCO is a social enterprise that manages site based projects and helps with repayment of investors.

Allie Goldstein discussed the two-phase site selection of the Philippines. There was an initial review at the national level looking for carbon credit potential and bio mass in the soil.

There was then analysis at the municipal level which involved Filipino industry associations. Detailed information on risk reduction and the associated financial value was needed to work with the insurance sector, to produce site-level modeling. In terms of public engagement there is a general understanding of the benefits mangroves provide, communities that maintain mangroves fair better than those that don't. However, some businesses, such as hotels, view mangroves as eye sores. There is potential to change that perception through communication.

Member Ramos asserted that CI works to resolve issues at the community level.

Member Lynes shared that he has been considering the example of mangroves and is curious how they might be applied to approach flood management in central valley and along the coast. It seems, perhaps, that the scale is different, in terms of loss of life and damage to property.

Romas Garbaliuskas asserted that risk is always bespoke and must be large enough to justify a complex financial structure.

Allie Goldstein cited the statistic that every kilo of mangrove can reduce risk by one meter. To achieve that risk reduction benefit, there must be a large area under conservation available. Studies following Hurricane Harvey and Sandy indicated that damage was better or worse depending on the presence of tidal wetlands. It is possible to make calculations regarding potential risk reduction. The scale may differ depending on the area of land that is available or required.

Chair Hill thanked the presenters and indicated the working group would like to reach out if there are any follow-up questions. She found the presenter's accomplishments exciting and suggested that there is much to be learned from them in how to do better work. Chair Hill recommended a ten-minute break followed by the presentation from AXA.

Deputy Commissioner Peterson thanked the presenters for sharing information about RISCO with the Working Group and congratulated them on their work—he finds there is potential for broader application in front-end work. He noted the importance of thinking about the effects of the wetlands that no longer exist in California. Deputy Commissioner agreed the working group should briefly break following checking for public comment.

Chair Hill asked the moderator to check for public comment. There was none. She asked the working group to return in ten minutes.

Existing Parametric Insurance Approaches offered by Insurers

Deputy Commissioner welcomed the working group back from the break and referenced the second document included in pdfs on the Department's website for any public participants calling in. He thanked presenters Karina Whalley and Dr Christelle Castet for presenting to the working group and turned the meeting over to them.

Karina Whalley shared that AXA launched a parametrics team in an effort to address the bigger picture of climate risk by incorporating climate change analysis in their work. The parametrics insurance team works with clients to identify relevant perils, appropriate data providers, and historical losses, then analyzes the data to choose an appropriate way to structure a payout mechanism. Thresholds and exit points of indemnity programs are selected and the payout function links the hazards to the perils. For example, wind speed can be linked to risks on the ground. Payouts can occur in just a few days. As part of a risk pool, the Tongan government received payment four days after being struck by a cyclone. Paying out money quickly can reduce the total amount of money needed to make a policyholder whole.

Karina Whalley discussed the advantages and drawbacks to various types of models and how they work best for different perils. She discussed specifically how different models and parametric products might work with the perils for which the working group is developing recommendations.

In considering storm risk and flooding, one can anticipate an atmospheric river when clouds come onto mountain regions causing flooding. There are different flood models that use satellite imagery, optical, and radar technology. Digital terrain models show what has flooded and what has not. A downside to digital terrain models is that they don't work well for flash floods. Clouds block the ability to see the terrain. Similarly, digital terrain models do not work well in urban areas because waves are reflected off the building, creating noise interference which prevents being able to see what is going on. A hydrological model can create an interrelated map of flooding but has the downside that it is time consuming to run the model after the data. However, once it's set up, it is straight forward. The last option is having the homeowner install a measuring instrument onto the property to indicate water height level in the event of a flood.

One of AXA's best products applies well to wildfire. It is based on satellite imagery which can model exposure and identify the extent of burnt areas by counting at pixel- or hex-level; payout is based on that count. It is very straightforward.

For extreme heat, a parametric structure offered to city would probably use weather stations to measure the heat index and count the number of days that meet threshold temperatures. A predetermined number of days at a threshold temperature triggers payout to the city. Cities may not currently be incentivized to prepare for and respond to heat waves. Increasing modeling in this space and expanding services would be beneficial.

Deputy Commissioner Peterson asked Kharina Whalley to expand on flood or fire products for homeowners versus businesses versus the public sector and whether any products exist that apply for all situations.

Kharina Whalley advised that AXA's products typically focus on corporations. Individual coverage is limited and but might apply in an agricultural context; for example, a group of farmers may seek coverage together. Wildfire coverage is better positioned to offer coverage for larger areas because of resolution capabilities. However, new satellites from the European Space Agency are lending to the ability to offer coverage for smaller areas.

Dr Christelle Castet shared that covering a whole community is challenging but installing devices that measure water height can help. Water level height can also act as a trigger for coastal flooding.

Deputy Commissioner Peterson commented on the ability to bridge insurance and nature-based risk reduction and the ever-expanding building in natural environments.

Christal agreed that natural surroundings must be taken into consideration.

Kharina Whalley concluded that nature-based solutions and cost/benefit analysis are essential in climate adaptation studies. AXA and The Nature Conservancy are working on this together.

Chair Hill asked the group if there were any questions for the AXA presenters. There were none.

Chair Hill thanked Kharina Whalley and Christelle Castet for their excellent presentation to the working group. She then turned the working group's attention to resuming the recommendations presented by the Wildfire Subgroup.

Member Dixon discussed how moving to risk-based premiums can be difficult for low-income policy holders and argued that reducing rates for all consumers, as opposed to just those who need it, is a poor approach. The subgroup recommends Commissioner Lara work to develop a subsidy program, available only to qualifying homeowners in

high-risk wildfire areas and developed through input from a wide range of stakeholders. Potential elements to include in such a subsidy program would include the homeowner meeting certain cutoffs or requirements and homeowner eligibility being available only as long as the homeowner lived at the high-risk residence. A formula that might be used to determine eligibility could use a ratio of principle, interest, property tax, and policyholder income. An option could be that the subsidy is triggered once the ratio is over 30% or 40%. The program might also offer mitigation loans or grant programs to reduce premiums.

Chair Hill noted the value of focusing on how the most vulnerable communities might be helped and sought questions from the working group. There were none. Chair Hill then turned the meeting over to Member Vinukollu.

Flood and Sea Level Rise Subgroup

Member Vinukollu shared that he would present the Flood and Sea Level Rise Subgroup's first two recommendations and would then turn the meeting over to Vice-Chair Kousky to present their third recommendation.

Member Vinukollu discussed the contextual significance of the 1861-1862 great California flood event which resulted in the affected region being underwater for more than forty days for up to 300 miles inland. Agriculture and livelihoods were greatly impacted as well, not just property. In today's modern era, that continued water level would be devastating. California must consider the impact of this kind of catastrophic event to its infrastructure. To draw attention to this potential impact, the first recommendation is that the state could pilot a vulnerability analysis for the region impacted by the Great California Flood of 1861/1862. This could draw attention to possible impacts and necessary mitigation measures. The vulnerability analysis could be instrumental in setting building standards for new construction. Scenarios are sometimes useful communication strategies. Multiple scenarios could be used to explore issues of social equity issues in regards to flood.

The second recommendation is to increase the take-up rate for flood insurance. Member Vinukollu feels personally connected to this recommendation because insurance is a key measure of resilience to natural disaster for a community. As of 2019, only 230,000 homes, approximately, are insured by the National Flood Insurance Program (NFIP). Though additional homeowners may be insured through the private flood market, the NFIP take-up rate representing only 2% of homes overall. Not all of California's homes are at risk but a significant portion are. A recent New York Times article stated that there are more than a million homes in special flood hazard areas in California.

Vice-Chair Kousky advised that many local governments have taken steps on their own—Syracuse and Portland, for example. North Carolina helps to cover the cost of

flood policy and could serve as model for how states can set up an affordability program. Many people need insurance but most cannot afford it.

Vice-Chair Kousky shared that the third recommendation is for the Department to support innovative pilot programs, new models that are currently just ideas on paper.

Member Vinukollu suggesting using CAT modeling to look into risk; specifically, use a CAT model to pilot community insurance and, next, focus on nature-based solutions.

Member Lynes suggested looking at a forest resilience bond, or using some kind of bond to take the heat issues. This could also apply in the flood realm. There is a lot of public interest in the flood plan. People are looking at projects. There are existing elements the working group could plug into.

Deputy Commissioner Peterson remarked that the Wildfire Subgroup's North Carolina example is very interesting. He wondered if, more generally, would it be possible to combine an affordability program with wildfire and flood or would that just complicate things? Affordability seems like a really tough issue to manage; coming up with a way to make insurance affordable is a big challenge.

Member Dixon shared that one problem is having different policies for different risk. A potential solution could be for a household to apply for a policy to cover its overall insurance load, a policy that measures the total burden for that household.

Chair Kousky envisioned several different models that could apply here. In considering public sector assistance, eligibility criteria could be determined and mapped onto vulnerable communities. Public/private assistance with a new product like bringing micro-insurance to the United States that one could think of as a multi-peril product.

Chair Hill asked for any other questions.

Deputy Commissioner Peterson raised that Colorado has a tax credit program and is trying to subsidize those preventative measures. He is not sure if there is an income threshold. Deputy Commissioner Peterson asked if just providing assistance to help with the cost of premiums could be an approach. In the bigger bubble of affordability, can action be taken regarding how people can pay for insurance?

Member Dixon shared that funding mitigation to reduce costs is difficult.

Member Blumberg suggested collaborating with the state's building code commission regarding building codes and the use of appropriate of materials as they relate to flood and fire.

Chair Hill suggested expanding this recommendation to specifically include the commissioner working with national-level organizations or the International Code Council (ICC) regarding building codes.

Deputy Commissioner Peterson thanked Chair Hill for that specific recommendation, remarking that, within the space of the state's work on resilience, building codes and insurance are rarely incorporated. Trying to insert insurance and building codes makes sense moving forward.

Chair Hill agreed, noting that the importance of the working group's report noting the big ideas and key levers for driving progress in building resiliency.

Deputy Commissioner Peterson asked the moderator to check for public comment. There was none.

Chair Hill advised the working group would turn to Deputy Commissioner Peterson for an update from the Department.

DRAFT

Update from California Department of Insurance

Deputy Commissioner Peterson reviewed the information that Member Bacani and Commissioner Lara shared with the group earlier regarding the United Nations Sustainable Development Goals and the UNEP Principles of Sustainable Insurance and Swiss Re event. He touched on the presentation the working group heard from the Governor's Office of Planning and Research (OPR) and that if there were follow up questions, OPR had expressed willingness to be an information resource. In addition, Deputy Commissioner shared information about the Department's new database of insurance products related to climate mitigation and resilience.

National Association of Insurance Commissioners Climate Risk and Resilience efforts

Deputy Commissioner Peterson also reviewed that the NAIC has created an executive level task force on climate risk and resilience. If there are recommendation to California and other states, this provides a platform to speak on these issues. The working group's recommendations may have an interested audience at the NAIC, and regular meetings provide an opportunity for our recommendations to be adopted by other states.

Discussion: Crossover among risks and metrics of progress

Vice-Chair Kousky reviewed crossover points within risks and metrics of progress, asking what overlaps exist between the recommendations and how can the recommendations could best be integrated in order to benefit multiple perils. Vice-Chair Kousky identified the following points:

1. Mapping Communication
2. Combining Risk Transfer with Risk Reduction (building codes, relocation)
3. Innovation Broadly (parametric, communities)
4. Affordability (insurance and mitigation)
5. Leveraging Public Dollars
6. Pilot Projects

Member Blumberg suggested that all pilot programs should be screened and prioritized.

Deputy Commissioner Peterson raised the value of "bounce back." At the community level, the report should seek to encourage risk reduction. He suggests that, given the extent to which local governments take on debt, there should be a focus on risk reduction at the local level. Also, he would like the report to outline or dedicate a chapter to the discussion on cross-cutting issues and related recommendations.

Chair Hill shared that Americans often don't have the money to evacuate. Renters are left uninsured. Is there more that can be done to help these groups of people? What products are available for those who have the least means and who will suffer the

most? The grave inequality that has been further exposed by COVID-19 is relevant in this space as well.

Member Dixon agreed this point is very important.

Member Ramos agreed and noted that considering access to communication is also key, particular for people who are undocumented or who speak other languages.

Member Blumberg stated that, through the community scale approach, the working group can engage in social equity issues. The Extreme Heat subgroup has particularly focused on reducing impacts to vulnerable populations.

Chair Hill described these thoughts as a fulsome list and thanked the working group for their thought and effort, noting how far they have progressed since the first meeting. The report should prove to be an exciting new entry in what needs to be discussed in California and elsewhere.

Deputy Commissioner Peterson asked the moderator to check for public comment. There was none. He went on to ask the working group if anyone had any prior experience in developing building standards.

Chair Hill responded that she worked with the ICC, as well as with code developers in Canada and Australia, so she has experience with how codes are developed and the accompanying challenges. She expects it would take a decade to create a civil code—the American Society of Civil Engineers has called for a paradigm change in this approach.

Vice-Chair Kousky mentioned that she heard Roy Wright given a presentation wherein she believes he said there is a fire code model that does a good job protecting structures but that very few structures are built to this code. It may be that a new code isn't needed but, rather, that an existing code needs to be applied.

Member Frazier confirmed that little of the existing housing stock is built to the current model codes, which have only been in place since 2008.

Chair Hill added that California has the strongest fire codes.

Deputy Commissioner turned to reviewing key dates. He asked the working group to share their recommendations by August 4, even if it is still in draft form so that he can start to build the overall document. Concurrently, he asked that subgroups continue to meet to refine their recommendations. By August 21, the subgroup should prioritize their recommendations, and identify what deficits need to be filled in, and we will turn our focus to cross cutting issues. He will work with members to build interest in the release of the report. In the meantime, the Department will work on how to feature the report on its public website and how to produce the final report. Several members have

volunteered to help work on the executive summary. Deputy Commissioner Peterson asked if the working group had any questions.

Deputy Commissioner Peterson clarified most subgroups now have several fully developed recommendations and a few draft recommendations.

Deputy Commissioner Peterson asked Chair Hill if she had anything else for the working group.

Chair Hill wanted to add that she hopes that this will be a consensus report and would like for each working group member to add their names. If members want to add their affiliations, that process can be long. Chair Hill would like for the report to reflect the depth and breadth of its authors. She thanked the working group for working through the process telephonically and expressed deep gratitude to Deputy Commissioner Peterson and his staff for putting the process together.

Deputy Commissioner Peterson expressed deep thanks as well, acknowledging what a tough time period the world is in. He appreciates everyone's ideas.

Chair Hill thanked the working group, wishing everyone a great weekend. The working group will meet again in August.