



Integrated Climate Adaptation and Resiliency Program

Resilience Metrics Work Group Meeting

JANUARY 20, 2021

10:00 AM – 12:00 PM (PDT)



Agenda

Item 1 | Welcome and Roll Call

Item 2 | Discussion on Social, Natural and Built Resilience

Item 3 | General Public Comment

Item 4 | Wrap Up and Meeting Adjourned



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Resilience Metrics

Indicators and metrics to measure CA's progress towards reducing risk and increasing resilience

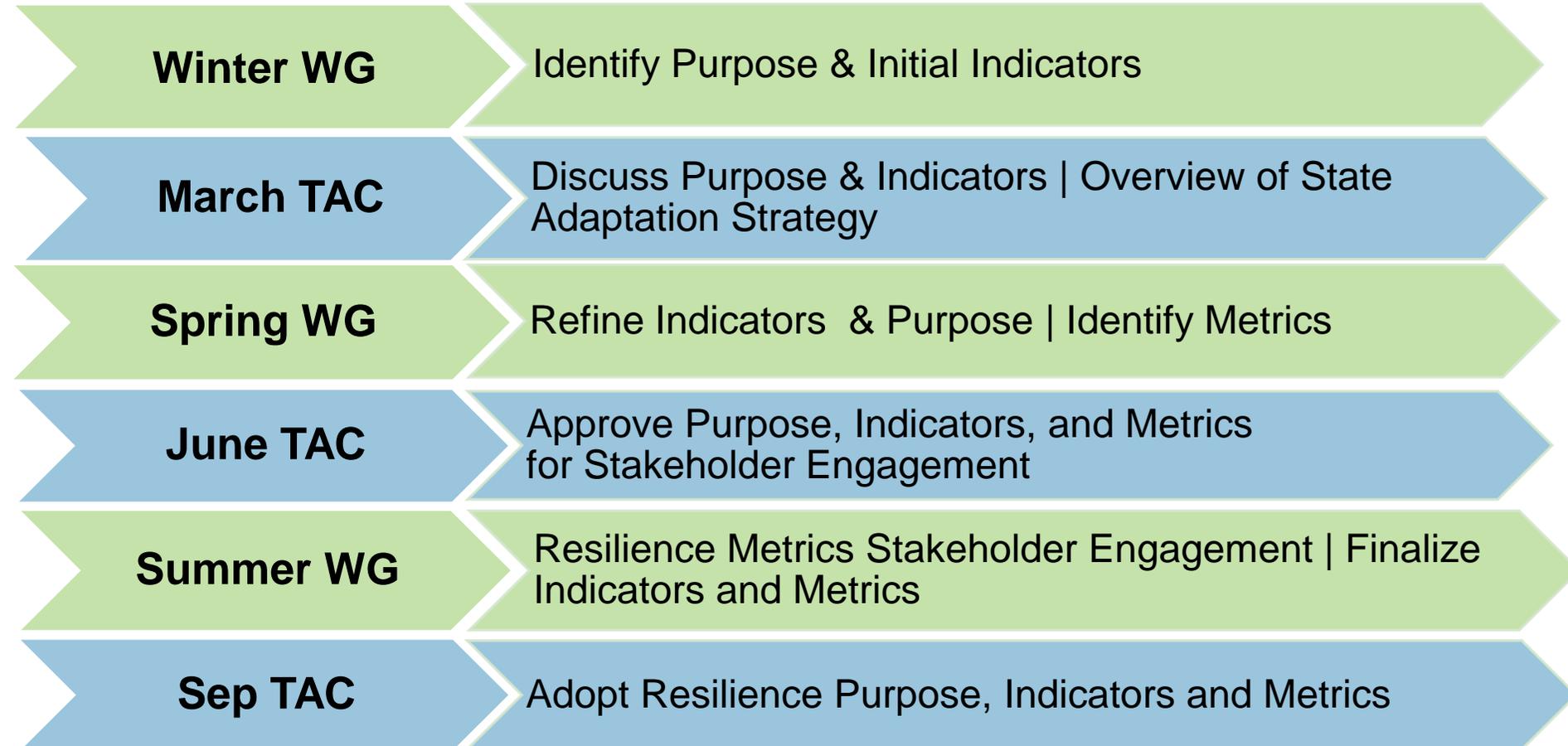
Several Concurrent Processes:

- ICARP TAC Work Group
- IRWG Work Group

- State Adaptation Strategy
- Coordinate w/OEHHA Indicators



Resilience Metrics Timeline





Foundational Definitions

Resilience is the capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.



Foundational Definitions

Climate vulnerability describes the degree to which natural, built, and human systems are at risk of exposure to climate change impacts.

Vulnerable communities experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts. These disproportionate effects are caused by physical (built and environmental), social, political, and/ or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality.



Indicators & Metrics Definitions

Indicators refer to a characteristic used to describe something. An indicator can consist of a process, or a condition.

Metrics - Measuring an Indicator implies the need for a measurement ("**metric**") and then a further need to create or utilize a dataset to monitor that indicator through metrics.

- Outcome-based metrics represent a specific, observable and measurable indicator of an outcome.
- Output-based metrics measure the inputs to a given system and may be used to share progress on an outcome-based metric. These two metrics, taken together, may holistically be thought of as **impacts**.



Systems Focus

Climate Impact	Risk	Sensitivity	Adaptive Capacity
Human and social system	Climate vulnerability describes the degree to which natural, built, and human systems are at risk of exposure to climate change impacts.		
Natural systems			
Built systems			



ICARP Principles

Resilient Natural Systems: "Natural systems adjust and maintain functioning ecosystems in the face of change."

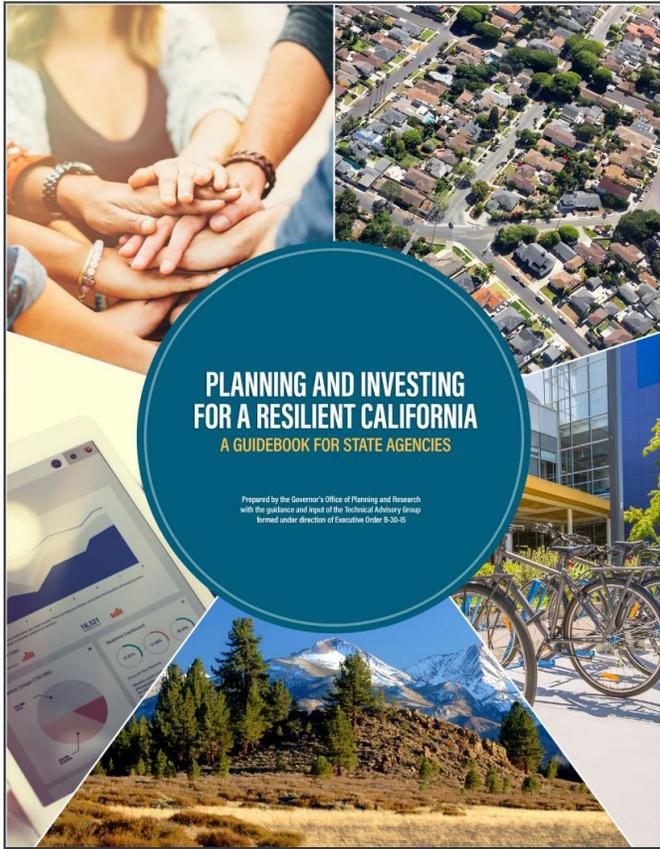
Resilient Built Systems: "Infrastructure and built systems withstand changing conditions and shocks, including changes in climate, while continuing to provide essential services."

Resilient Social Systems: "All people and communities respond to changing average conditions, shocks, and stresses in a manner that minimizes risks to public health, safety, and economic disruption and maximizes equity and protection of the most vulnerable."



Resilience Metrics Survey

1. Do you use climate resilience metrics in your work?
 - a. Why do you measure climate resilience?
 - b. Please share your indicators and metrics
2. Have you come across climate resilience metrics from other organizations that you think could be useful to your work?
 - a. Please provide examples of climate resilience metrics that you think are worth sharing.
3. What do you think the state should measure to demonstrate its progress towards achieving climate resilience?



Resiliency Guidebook Equity Checklist

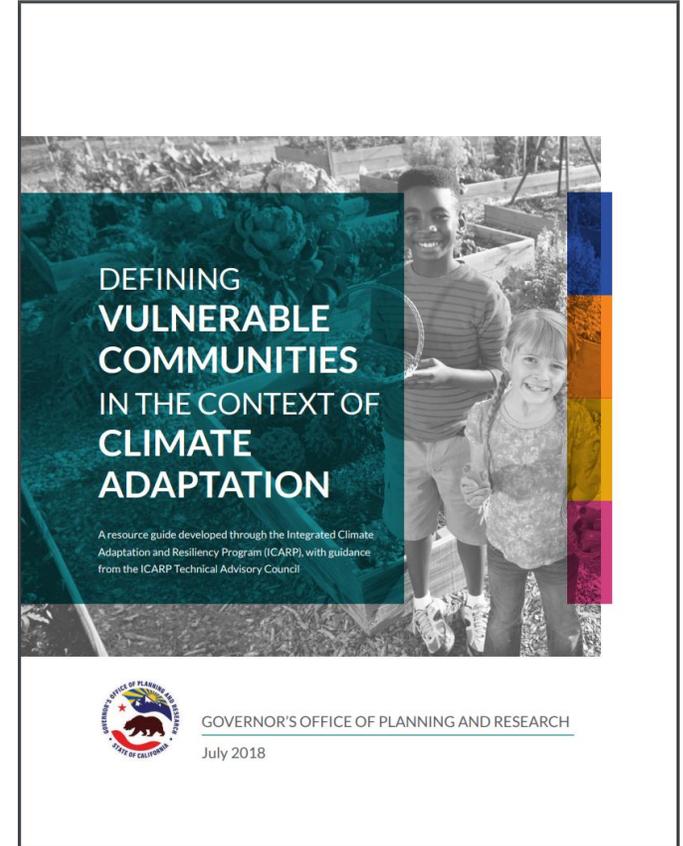
Executive Order B-30-15 directed State agencies to integrate climate change into all planning and investment, including accounting for current and future climate conditions in infrastructure investment. OPR was directed to convene a Technical Advisory Group to develop guidance to support implementation of the Executive Order.

The Technical Advisory Group (TAG) included members from nearly every State agency, local and regional governments, non-governmental and community-based organizations, and the private sector. The TAG produced a guidance document called "[Planning and Investing for a Resilient California: A Guidebook for State Agencies](#)." This document provides high-level guidance on what future conditions to plan for and how State agencies should approach planning differently in light of a changing climate.

The Executive Order also mandated that because "climate change will disproportionately affect the state's most vulnerable people", all "State agencies' planning and investments shall...protect the state's most vulnerable populations". This was the first mandate in the United States requiring all state agencies to plan for climate change and to protect vulnerable people while doing so.

The following checklist was created by the Equity and Vulnerable Communities subcommittee of the Technical Advisory Group, facilitated by the Climate Change and Health Equity Program of the California Department of Public Health¹ and is intended to assist State agencies to ensure that plans and investments identify and protect the State's most vulnerable populations. This checklist can be used alongside any decision-making process to improve equitable outcomes.

1. Members of the Equity and Vulnerable Communities subcommittee included Abe Doherty, Alex Leuner, Alex Ghemis, Aleecia Gutierrez, Angelica Ruiz, Arsenio Mataka, Ben Russak, Brian Beveridge, Carolyn Angius, Claire Johns, Colin Bailey, Eve Mordaunt, Jamesina Rogers Gibson, Jana Gannon, Julia Ekstrom, Jose Lara, JR DelAlto, Kathleen Aze, Kathy Duvin, Kerri Timmer, Kirsten Andrews-Scheidt, Linda Helland, Linda Rudolph, Lisa Bates, Margaret Gordon, Marianna Grossman, Megan Walton, Michael McCormick, Michelle Hasson, Monica Palmeira, Nain-Tara Key, Paul McDougall, Sam Diaz, Solange Gould, Sonya Ziaji, Stacy Farfan, and Tracey Delaney



We will build on existing ICARP work...



Equity in Building Resilience in Adaptation Planning



National Equity Atlas

Indicators Research Data in Action About

Indicators

Home / Indicators

National Equity Atlas indicators track how communities are doing on key measures of inclusive prosperity. We define an equitable community as one where all residents — regardless of their race, nativity, gender, or zip code — are fully able to participate in the community's economic vitality, contribute to its readiness for the future, and connect to its assets and resources. Our indicators track change over time, are comparable across geographies, and are disaggregated by race and other demographics as much as possible.

Demographics

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Climate Change Indicators

Climate Change Indicators: Health and Society

Changes in the Earth's climate can affect public health, agriculture, water supplies, energy production and use, land use and development, and recreation. The nature and extent of these effects, and whether they will be harmful or beneficial, will vary regionally and over time. This chapter looks at some of the ways that climate change is affecting human health and society, including changes in Lyme disease, West Nile virus, ragweed pollen season, heat-related deaths and hospitalizations, heating and cooling needs, and the agricultural growing season across the United States.

Because impacts on human health are complex, often indirect, and dependent on multiple societal and environmental factors (including how people choose to respond to these impacts), the development of appropriate health-related climate indicators is challenging and still emerging. It is important for health-related climate indicators to be clear, measurable, and timely to better understand the link between climate change and health effects.

Why does it matter?

Changes in climate affect the average weather conditions to which we are accustomed. These changes may result in multiple threats to human health and welfare. Warmer average temperatures will likely lead to hotter days and more frequent and longer heat waves, which could increase the number of heat-related illnesses and deaths. Increases in the frequency or severity of extreme weather events, such as storms, could increase the risk of dangerous flooding, high winds, and other direct threats to people and property. Warmer temperatures could also reduce air quality by

Climate Change and Human Health

View Indicators:

- Heat-Related Deaths
- Heat-Related Illnesses
- Heating and Cooling Degree Days

...& learn from others

Time to dig in!





Resilient Built Systems

Resilient Built Systems:

"Infrastructure and built systems withstand changing conditions and shocks, including changes in climate, while continuing to provide essential services."

- Why do we want to measure resilience in built systems?
- How would we know if California has resilient built systems?
- Who's already measuring built system resilience?



Resilient Natural Systems

Resilient Natural Systems:

“Natural systems adjust and maintain functioning ecosystems in the face of change.”

- Why do we want to measure resilience in natural systems?
- How would we know if California has resilient natural systems?
- Who's already measuring natural system resilience?



Resilient Social Systems

Resilient Social Systems:

“All people and communities respond to changing average conditions, shocks, and stresses in a manner that minimizes risks to public health, safety, and economic disruption and maximizes equity and protection of the most vulnerable.”

- Why do we want to measure resilience in social systems?
- How would we know if California has resilient social systems?
- Who's already measuring social system resilience?



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Thank you!

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