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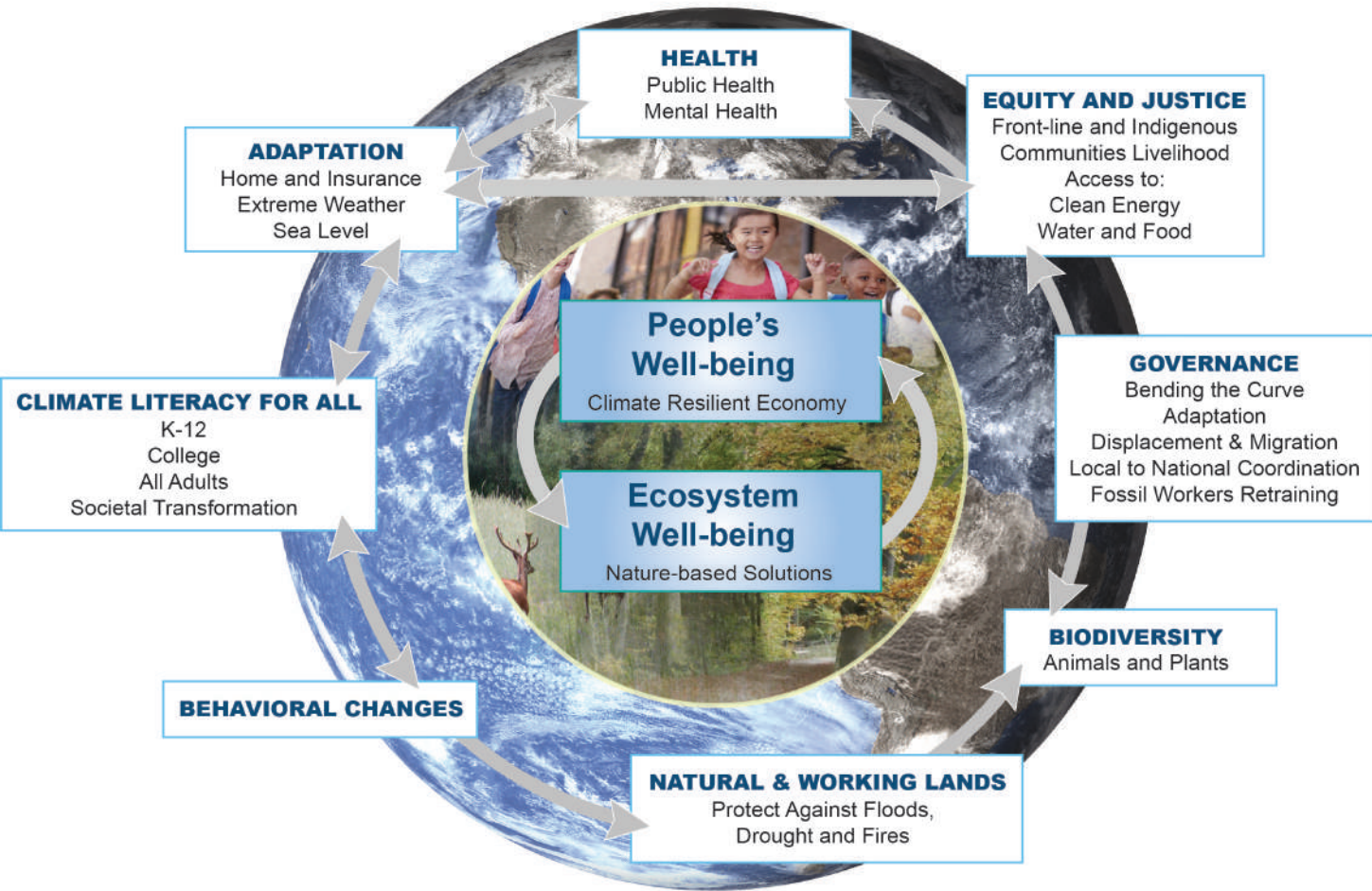
# Unite

## FOR CLIMATE RESILIENCE

Cities Joining Forces To Survive & Thrive

### Climate Resilient California & Californians

CRC2 Sectors of Resilience



Source: Ramanathan et al., CRC2, 2024.

SURVIVE AND THRIVE

- Resilience: **ANTICIPATE** threats and risks.
- Resilience: **PREPARE** for threats and risks.
- Resilience: **RESPOND** to threats and risks.
- Resilience: **RECOVER** from threats and risks.

Source: California 100.

The California Transdisciplinary Team  
Responsible for the Conduct of CRC2

**Ram Ramanathan (Chair);** UCSD & Executive Council Member- Pontifical Academy of Sciences, Vatican City and Co-Chair Vatican’s Climate Resilience Initiative; **Samuel Assefa (Co-Chair):** Director, Governor’s Office of Land Use & Climate Innovation; Chair, Strategic Growth Council  
**Debra Gore-Mann (Co-Chair):** CEO, Greenlining Institute, Oakland

Team Members

**Louise Bedsworth:** (Executive Director, the Center for Law, Energy, and the Environment, UC Berkeley) Adaptation; Partnership with Mayors and State Government; Chair, CRC2 Blueprints Committee.  
**Christina Christie:** Wasserman Dean, School of Education, UCLA Director: Climate Literacy; Chair: Los Angeles Region Regional Summit  
**Abby Edwards:** Deputy Director of Climate and Planning Programs; Governor’s Office of Planning and Research.  
**Fonna Forman:** (Director, UCSD Center on Global Justice & Co-Chair, Global Climate Leadership Council- UC Office of President) Director: Migration; Bending the Curve Education Protocol  
**Jyoti Mishra:** (Director, NEAT Labs UCSD, Co-Director for the UC wide Climate Change and Mental Health Initiative); Director, Public Health/Mental Health and Well-being  
**David Ackerly:** Dean, College of Natural Resources, UC Berkeley Biodiversity and Nature Based Solutions  
**Nicole Capretz:** CEO, Climate Action Campaign, San Diego and SoCal. Mitigation and Resilience-Actions to Policies  
**Ellie Cohen:** CEO, The Climate Center. Cross-boundary, collaborative and just-solutions to climate change  
**Karen Cowe:** CEO, Ten Strands. Climate Literacy  
**Andra Yeghoian:** CIO, Ten Strands; County Level Resilience  
**Erminia Guarneri, MD:** Founding President, Academy of Integrative Medicine  
**Jonathan Parfrey:** CEO of Climate Resolve, Los Angeles  
**Sheri Weiser, MD, MPH:** Director, Center on Climate Change, Health and Equity, UC San Francisco  
**Sigrid Wright:** CEO of Community Environmental Council, Santa Barbara  
**Maryanne Wolf:** Director of the UCLA Center for Dyslexia, Diverse Learners, and Social Justice

City/County Leaders (In progress)

**Joe LaCava:** Council President Pro Tem, City of San Diego; Chair, City of San Diego Environment Committee  
**Rita Kampalath:** Chief Sustainability Officer; County of Los Angeles  
**Alexis Fineman:** Council Member, Town of San Anselmo; former Mayor of San Anselmo

Advisory Board (In progress)

**Chancellor Marcelo M. Suárez-Orozco:** Chancellor, Univ of Mass, Boston; Council Member, Pontifical Academy of Social Sciences  
**Wade Crowfoot:** Secretary, California Natural Resources Agency



## Cost of Doing Nothing

### Economic Imperative

The human costs would be far greater: a lack of food and water, a loss of jobs, worsening health and well-being, reduced standard of living.

Climate action and resilience policies should be aligned and linked, unlocking valuable synergies in areas such as electrification, diversification of energy sources, energy efficiency improvements and circular economy for strategic materials.

**Unchecked climate change could cost the global economy \$178 trillion in net present value terms from 2021-2070.**

By 2050, it is estimated that an additional USD 33 trillion on top of existing spending plans (USD 98 trillion) is needed to achieve the 1.5°C goal.

**Reference:** <https://www.deloitte.com/global/en/issues/climate/gx-transform-to-react-climate-policy-new-world-order.html>; 07 Jun 2022 Transform to React: Climate Policy in the New World Order

**Vision:** Human well-being and ecosystems well-being have to be the top priority for climate actions. In order to create this vision, we will create an ecosystem of researchers, mayors, community leaders, philanthropists and entrepreneurs in California for: Bending the Warming Curve, Adapting to unavoidable climate change and Transforming to Sustainable Living.

**Mission:** Help California's city leaders develop a vertically integrated, climate resilience effort to learn from their respective experiences of dealing with the climate crisis and to facilitate access to state and federal funds.

**Objective:** The climate heating and associated weather extremes are expected to get worse at least for the next 25 years. In the interim, we need to develop an implementable resilience plan to survive the crisis and emerge from it healthier and stronger. Basically, Survive and Thrive.

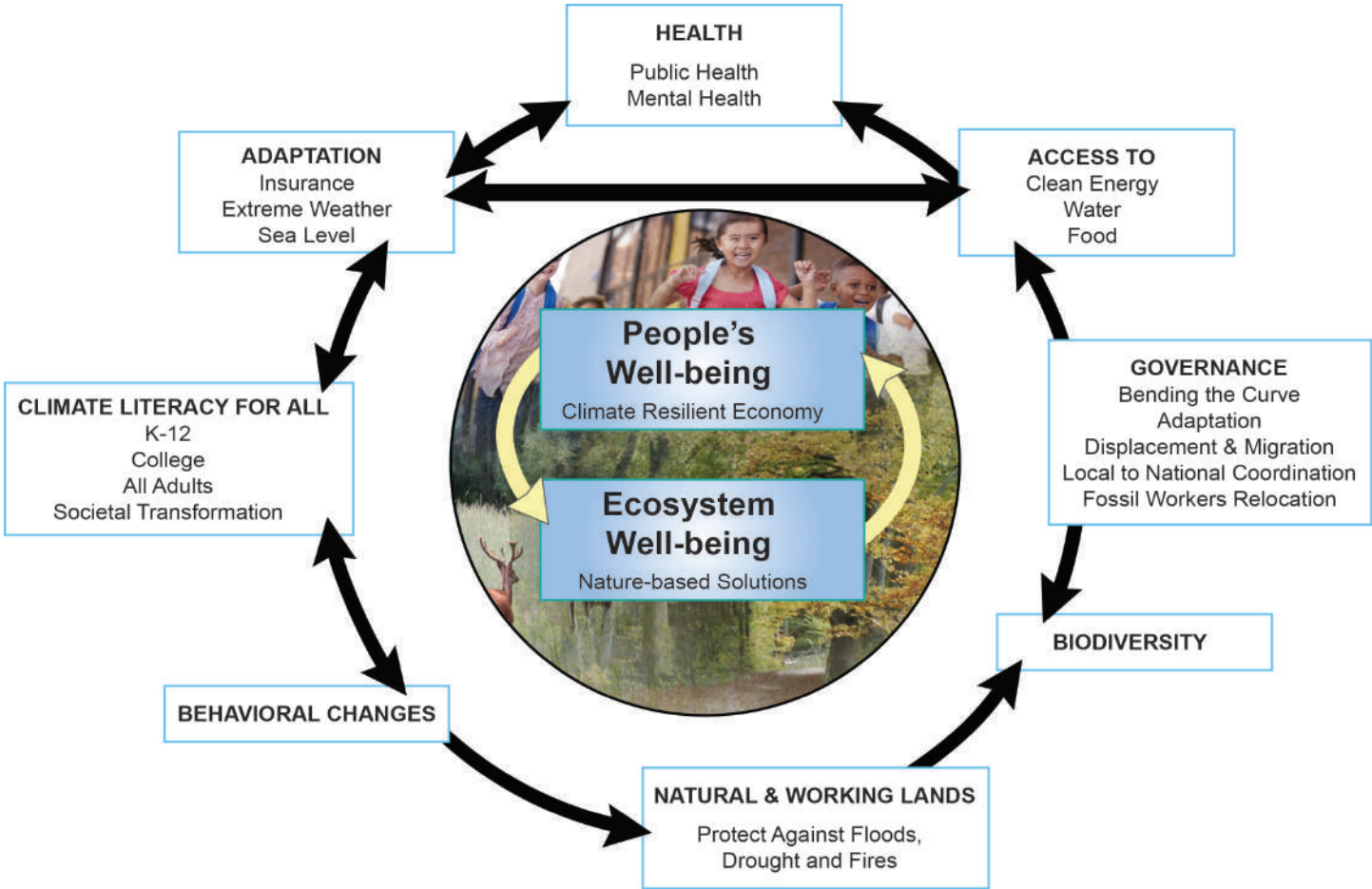
The transdisciplinary actions we develop for climate resilience of Californians can serve as a model for the rest of the nation.

### **Next Steps:**

- 1) Build a regional network of mayors, community leaders, researchers, philanthropists and entrepreneurs from California during early fall of 2024 to learn, firsthand, the impacts of climate on their communities as well as the actions that are being taken to achieve resilience.
- 2) Convene a research/stakeholder team that will synthesize available data, collect new data if necessary, and use the evidence as the basis of climate resilience plans.
- 3) Help cities develop a vertically integrated, resilience plan to deal with: Mental and public health effects; loss of homes and livelihood; impacts of droughts and floods on agriculture, forests, and water security; and forced migration within California and across the border.
- 4) Launch a Climate/Resilience Literacy Program for All that cultivates cognitive, social-emotional and cultural transformation.

**Thrive  
Post 2035**

**Survive  
2024-2035**



We do not have to start from scratch. The science behind the resilience concepts have been documented (Ramanathan and von Braun, 2023) in a book by scholars and experts. The California summit will follow a similar summit organized at the Vatican for Mayors and Governors around the world during May 15 to 17, 2024.

Climate resilience requires transdisciplinary partnerships between academia and community leaders, including faith leaders, NGOs, and the public. Mayors and community stakeholders must form the core of such transdisciplinary partnerships.

**Funding**

The project consists of two phases. Sara Miller McCune (Founder, SAGE publications) has generously agreed to provide \$0.5 M to get the project started.

The McCune funds will enable the completion of Phase-1 of the project: Specifically, to hold the summit of mayors, city influencers, and academicians and to produce a summary report. Phase -1 will be from Feb 15, 2024 to Dec 31, 2024.

Phase-2 will produce a blueprint of Climate Resilience for California cities. This phase, estimated to be \$2M, will require the expertise of about 30 from the academic, NGO, private sector and City/State governments. The cost includes data collection and analyses, unlike anything done before by California. It will also include a meeting to release the report. Private donors, foundations and philanthropists will be approached for additional funds needed to undertake Phase-2.



## Why Climate Resilience?

### Emissions Anywhere is Global Warming Everywhere

**The Climate Crisis is upon us. It is likely to get much worse over the next few decades as the planetary heating eclipses 1.5°C by 2030 (give or take three years) [Ref: Xu, Ramanathan, Victor, Nature, 2018]. We expect this to be the COVID moment when the climate crisis moves to all our living rooms. We have about seven years to prepare Californians to become climate resilient.**

**The rising warming curve can bend downwards only after the 2060s, assuming global scale actions such as phasing out fossil fuels are taken now to drastically reduce emissions of the heat trapping pollutants.**

**In short, the climate crisis will be with us for at least the next three decades.**

*Since we Californians cannot control global actions, we cannot just rely on emission reductions. We need a new strategy and approach for enabling Californians to become climate-resilient.*

## C2RC2 Guiding Principles

Adaptation is an action or set of actions that reduce physical climate risk.

*Make climate risks visible, incorporate these risks into all decisions...*

*Failing to lead and act on adaptation will result in a huge economic and human toll.*

Resilience describes a state of readiness to face climate risks.

### CALIFORNIA'S CLIMATE RESILIENCE PRIORITIES

- Strengthen Protections for Climate Vulnerable Communities
- Bolster Public Health and Safety to Protect Against Increasing Climate Risks
- Make Decisions Based on the Best Available Climate Science
- Build a Climate Resilient Economy
- Accelerate Nature-Based Climate Solutions and Strengthen Climate Resilience of Natural Systems
- Partner and Collaborate to Leverage Resources

Source: California Climate Adaptation Strategy, 2022.



## CRC2 Economic Payback

**Investing \$1.8 trillion globally in five areas of adaptation from 2020 to 2030 could generate \$7.1 trillion in total net benefits.**

Reference: Ban Ki Moon, Bill Gates, et al., 2019.



Adapt Now: A Global Call for Leadership on Climate Resilience. Global Commission on Adaptation, 2019

## CRC2 Justification

### CLIMATE-RELATED EVENTS AND TRENDS THAT IMPACT CALIFORNIA:

Source: California Climate Adaptation Strategy, 2022.

- Flooding
- Heavy precipitation
- Wild fires
- Air Pollution
- Extreme heat events
- Drought
- Rising temperatures
- Declining snowpack
- Sea level rise
- Ocean acidification

The good news is that adaptation, done right, will lead to better growth and development. It will also save lives, protect nature, reduce inequalities, and create opportunities.

Adaptation can provide a triple dividend: it avoids economic losses, brings positive gains, and delivers additional social and environmental benefits.

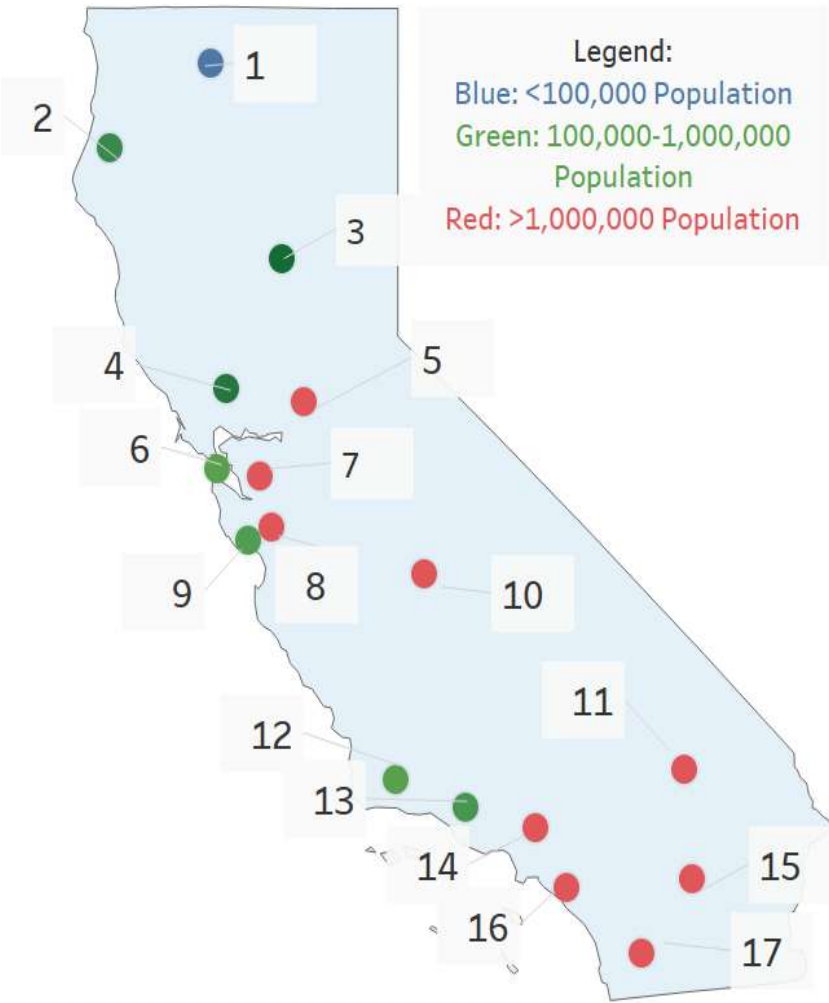
### By 2050:

- Without adaptation, climate change may depress growth in global agriculture yields up to 30%. The 500 million small farms around the world will be most affected
- The number of people who may lack sufficient water, at least one month per year, will soar from 3.6 billion today to more than 5 billion
- Rising seas and greater storm surges could force hundreds of millions of people in coastal cities from their homes, with a total cost to coastal urban areas of more than \$1 trillion each year by 2050

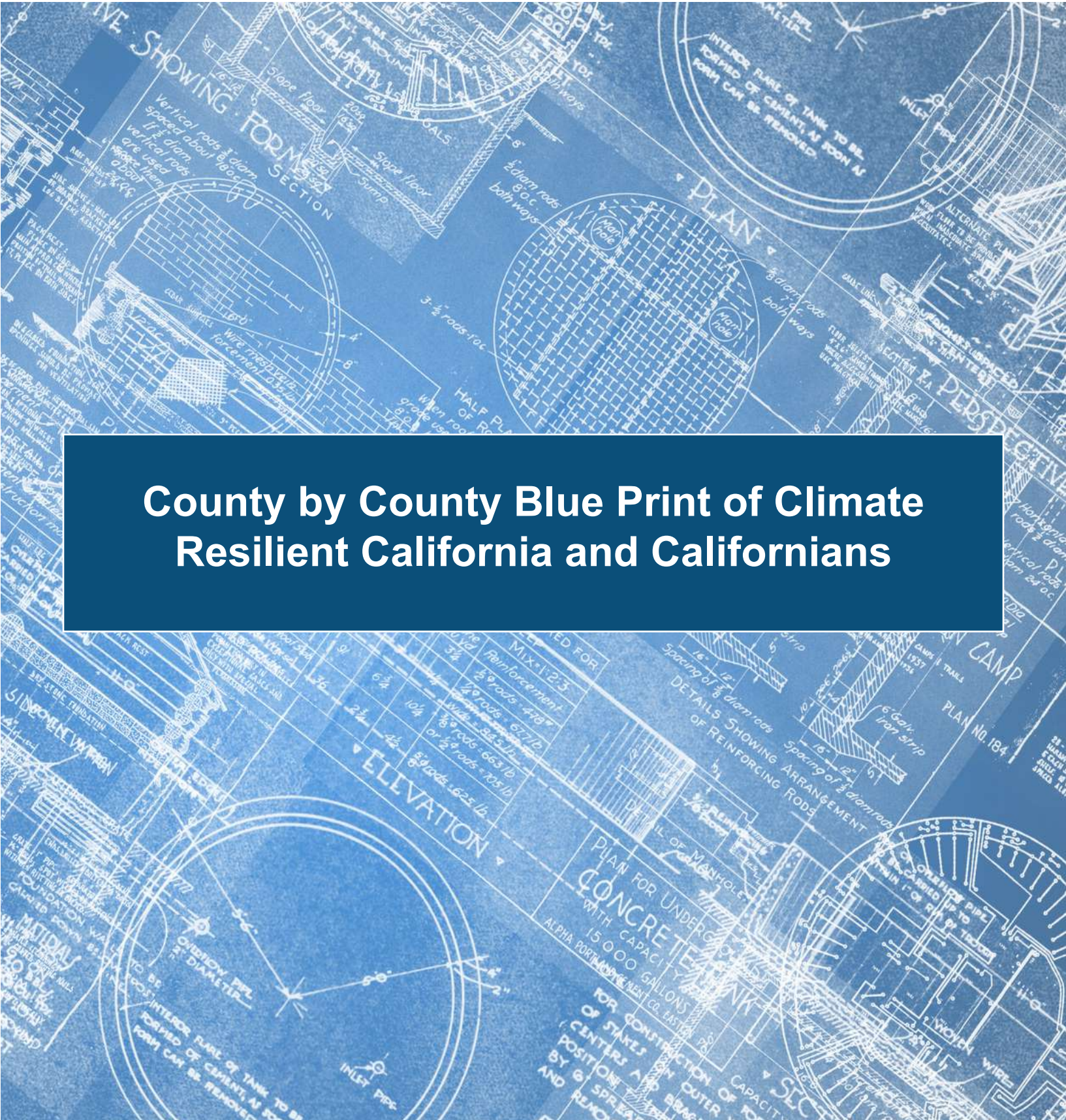


# Select Counties for CRC2 Resilience Blue Print

County	Population	Damages (Billions)
1 Siskiyou	44,076	\$1.3
2 Humboldt	136,463	\$16.5
3 Butte	211,632	\$36.5
4 Napa	138,019	\$17.6
5 Sacramento	1,585,055	\$3.5
6 San Francisco	873,965	\$2.0
7 Alameda	1,682,353	\$1.0
8 Santa Clara	1,936,259	\$1.0
9 Santa Cruz	270,861	\$2.2
10 Fresno	1,008,654	\$0.4
11 San Bernardino	2,181,654	\$10.6
12 Santa Barbara	448,229	\$11.1
13 Ventura	843,843	\$10.2
14 Los Angeles	9,861,224	\$15.3
15 Riverside	2,418,185	\$9.3
16 Orange	3,186,989	\$22.0
17 San Diego	3,298,634	\$8.3
Total "17 Counties"	30.1 M	\$104 B



# Climate Disaster Damages by County



Data Source: <https://www.emdat.be/>  
Land Type Classification: <https://www.counties.org/sites/main/files/file-attachments/2020-june3-countycaucus-esinfo-graphic-4-final.pdf>  
Map (as of 2/25/24): [https://public.tableau.com/shareC6?:display\\_count=n&:origin=viz\\_share\\_link](https://public.tableau.com/shareC6?:display_count=n&:origin=viz_share_link)

Figures may not account for all impacts caused by Climate Change, as not all impacts caused by Climate Change can be categorized as disasters, and not all disasters include accurate metrics on monetary damages caused. Due to the nature of climatological disasters spanning over multiple counties at a time, nearby outside counties which were tied to the data for a given county will be listed as (Relevant Counties). This is to prevent misrepresenting data and overestimating damage costs for any given region.



