

Climate Change Research Program

Round 3: Research Priority Areas

ATTACHMENT 4

This attachment provides additional detail on what type of research is included in Round 3 Research Priority Areas to prioritize awards for 2019-2020 Research Program funding.

2019-2020 Research Investment Areas

The 2019-2020 Solicitation for the Climate Change Research Program will focus investment on the following research topics within or between three Research Priority Areas. The below information on the Research Priority Areas aims to maximize benefits of this investment, avoid redundancy with other State grant programs and with past rounds of SGC funding, and to focus investment in areas with high potential for near-term impact.

Researchers are invited to develop proposals that address one or more given topics through a thoughtfully designed research approach that integrates all relevant disciplines, research methods, and that actively incorporates non-academic research partners. The areas of inquiry are designed to provide direction to the proposer, but do not impose a given academic discipline or research methodology. Evaluations will also consider the integration of one or more of the identified crosscutting thematic lenses, described below, into addressing one or more of these Research Priority Areas.

Crosscutting Thematic Lens

Within and across the three Research Priority Areas described below, the SGC has identified two cross-cutting research themes. Investments in these fields support the SGC's mission of supporting and developing sustainable communities. Importantly, a research project can address one or both of these research focuses. A project that addresses needs identified in the three Research Priority Areas, but not these research focuses, may still be awarded a research grant.

- 1. Research integrating climate vulnerability/adaptation and climate-smart communities (Research Priority Areas 1 and 4):** Research into understanding climate vulnerability (or vulnerability in an adaptation context) and implementing pilot practices that contribute to creating climate-smart communities; research that advances both climate adaptation and mitigation, including how local governments can plan and implement actions for both. Researchers, along with key partners, community groups, and other stakeholders, should consider research moving beyond vulnerability assessments to developing pilot projects, studying the economics of addressing climate

adaptation and mitigation, and other related topics that are key needs identified by non-academic research partners.

- 2. Social dimensions of change:** Research that explicitly supports the advancement of best practices identified through prior research, *with a focus on social dimensions/determinants of change and social elements of climate adaptation and mitigation*. This can be addressed in any Research Priority Area; it is an important consideration for developing an interdisciplinary/cross-sectoral research project that will move beyond identifying vulnerabilities to activating change in communities.

Round 3 Research Priority Areas

- **Supporting and Protecting Vulnerable Communities from the Impacts of Climate Change**

In addition to what is included in the Research Investment Plan, specific topics of interest include, but are not limited, to the following:

- Research that will improve planning and implementation at a local and regional level. This can include implementation of adaptation strategies to address climate vulnerability – helping decision-makers and governments move from planning to action, as well as adaptation and mitigation actions taken together, and how to evaluate cost effectiveness/cost-benefits of joint strategies.
- Research targeted at addressing the climate-related needs of underserved communities (including tribal, disadvantaged, low-income, and rural); including how to build capacity in these communities.
- How are existing community climate vulnerabilities affected (positively and negatively) through state, regional, or local policy and planning decisions?
- Research into broader community resilience and community strength (social dimensions of resilience); for instance the impacts of investment on community strength.
- Research addressing wildfire or other disaster resilience needs, and recovering in a way that addresses adaptation and mitigation needs together.
 - o Social dimensions of resilience should be considered and integrated when possible, as well as consideration of creating or piloting collaborative structures comprised of communities, neighborhoods, and constituencies that implement research findings and best practices to benefit and build capacity around anticipated disaster resilience needs.

- **Accelerating and Supporting Transitions to Climate Smart Communities**

In this research area, SGC is seeking proposals that examine the social and technological dimensions of creating more sustainable and resilient communities in California, with a focus on achieving outcomes and changing behavior. Research in this area should include interdisciplinary approaches to understanding technological and societal change to meet climate change goals, including economic and sociological studies. Specific topics of interest include, but are not limited to, the following:

- Research that addresses sustainable and equitable development in a variety of communities, e.g., how to plan and implement location efficient, affordable, climate resilient, and low carbon housing and infrastructure in rural and/or underserved communities.
 - o Consider needs of underserved urban and rural areas, and tribal and indigenous communities in helping meet the State's climate and housing/affordability goals.
 - o Wildfire community resilience in this nexus is critical, including consideration of population growth and development projections.
- Integration of resilience needs, recognizing that climate change is a threat multiplier for more extreme natural disasters, as well as a driver for non-disaster events.
 - o Consideration of these needs along with transitioning to clean energy, low carbon transportation, etc.
 - o Research that considers alignment of the State's need for infill development with climate risk and hazards.
 - o How can climate change risk and community resilience be integrated into development strategies, planning, policies, investments, and/or programs that lower GHG emissions?
- Integrated research into transportation challenges, strategies, and pilots for climate-smart communities:
 - o Addressing needs and implications of increased investments and adoption of low-carbon transportation technologies, active transportation, and public transportation, that also considers housing and other community development needs.
 - o Consideration of social determinants of change when making transportation choices.
 - o Emerging technologies that support climate-smart communities, equity, and other considerations described in research interests above.

- **Integrating Land Use, Conservation, and Management into California Climate Change Programs**

Land management, conversion, and conservation have important implications for meeting the State's climate change goals. Research in this area will examine the interconnections across development planning and the conservation and management of natural and working lands.

Specific topics of interest broadly include, but are not limited, to the following:

- Climate impacts on agricultural, rangelands, and natural lands, and adaptive management strategies that incorporate building resilience, use of natural infrastructure, and reducing greenhouse gas emissions and sequestering carbon. Including consideration of economic impacts, analyses, and strategies that promote both resilience and reducing emissions.
- Pilots and models for scale up and replication of land conservation strategies and adaptive management techniques to achieve climate change mitigation and adaptation goals. Intersection of land conservation and building resilience for communities, economies, and ecosystems.