The Triple Bottom Line Perspective for Climate Resilience in Transportation Infrastructure Planning

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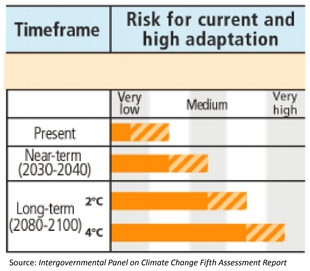
QUESTION

How can policy makers include more than just economic considerations in infrastructure development and investment?

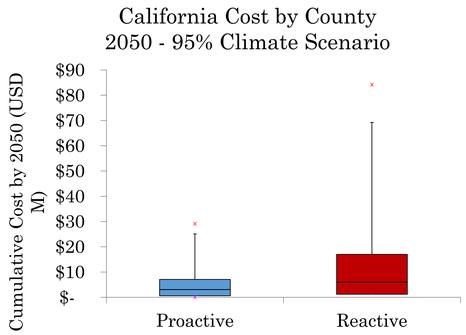
METHODOLOGY

- Analysis is preformed with 22 IPCC-approved General Circulation Models (GCMs).
- GCMs determine a range of climate change future scenarios.
- Analysis includes national, sub-national, and smaller climate research unit levels.
- Displayed by default at the 5th, 50th (median) and 95th percentile models to give a range of possible future risk from climate impacts.

IPSS is the first system to analyze climate change impact based on specific stressor-response equations that provide quantitative modeling and cost impact projections.



Source: *Intergovernmental Panel on Climate Change Fifth Assessment Report*



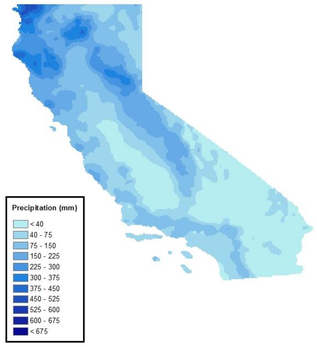
ECONOMIC

- Climate change will effect infrastructure's life span
- Evaluates cost from climate impact on existing infrastructure .
- Infrastructure is important economically to any area

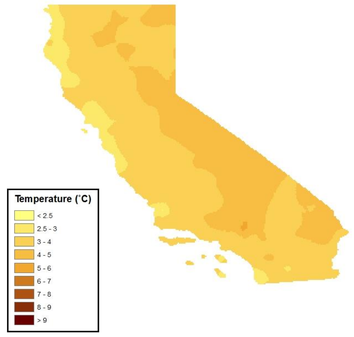
ENVIRONMENTAL

- Precipitation and heat will change in a give area due to climate change
- GCMs predict futures of changing precipitation
- IPSS models these change trends up till 2100.

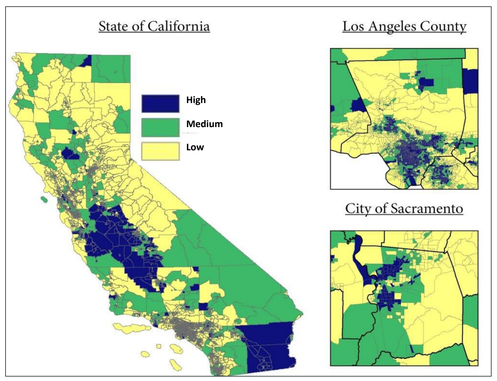
Precipitation: California 95%



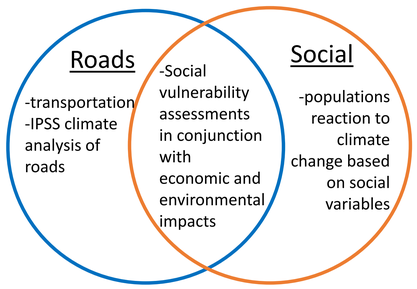
Temperature: California 95%



Social Vulnerability Map of California

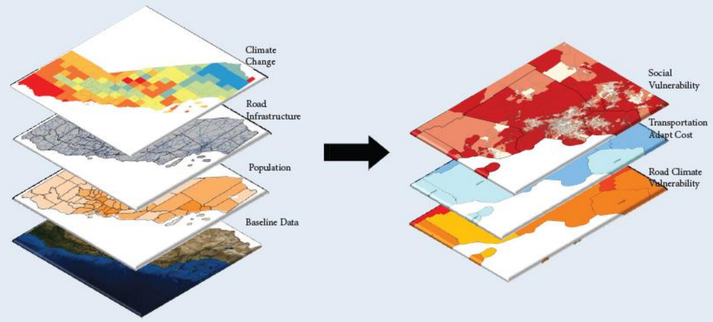


SOCIAL



Social Vulnerability Index Factors (Cooley et. al 2012)		
Households with AC	Population over 25 with a diploma	Born outside the US
Impervious areas	Residents living in institutions	Limited English households
Lack of Vehicles	People of Color	Households of poverty
Pre-term births	Renter households	Over 65 and living along
Tree canopy	Under 18/ Youth fitness	Unemployment
Outdoor Jobs	Pregnancy	Food Access

The Triple Bottom Line



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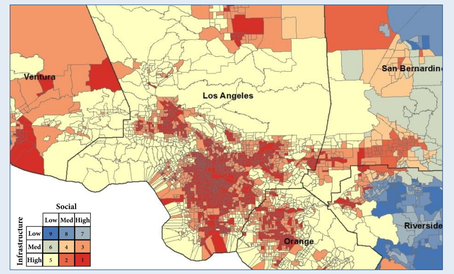
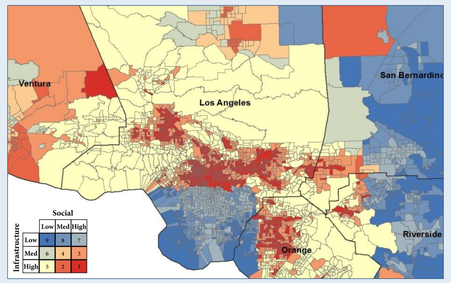


Adapt



By accessing environmental changes and combining the cost of climate change, and social vulnerability index, we can have targeted infrastructure planning and investment that considers more than just an economic view point.