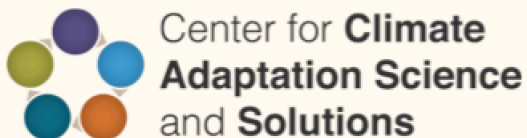


Welcome to a Climate Conversation

*Confronting Climate Change: Avoiding the Unmanageable
and Managing the Unavoidable*

- *John Holdren*

Science Advisor to the President

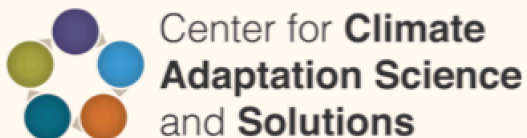


A Climate Conversation: Avoiding the Unmanageable and Managing the Unavoidable

Panel of Experts:

- **Kathy Jacobs**
- **Gregg Garfin**
- **Marcela Vasquez Leon**
- **Margaret Wilder**
- **Ninel Escobar**

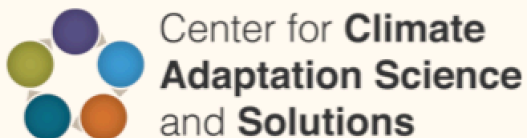
Moderator: Jim Buizer



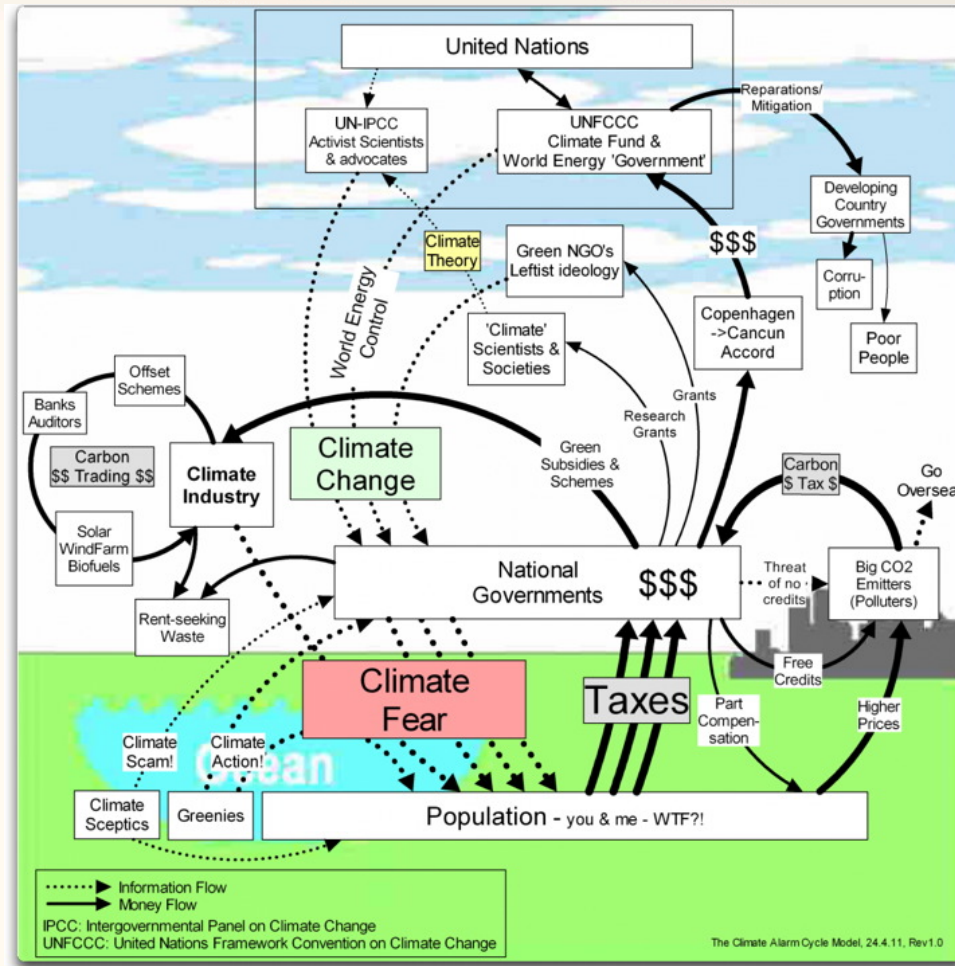
The U.S. National Climate Assessment and what it means for you

Kathy Jacobs

Department of Soils, Water and Environmental Science
Director, Center for Climate Adaptation Science and Solutions
Institute of the Environment
University of Arizona



Climate Assessments are Important...



They are a critical foundation for policy and decisions and help distinguish facts from fiction!

The Third National Climate Assessment

Inclusive, broad expertise

60 member Federal Advisory Committee

300 authors

Every region and sector represented

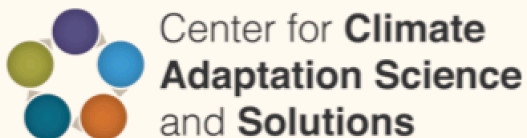
Public engagement

Listening sessions around the country

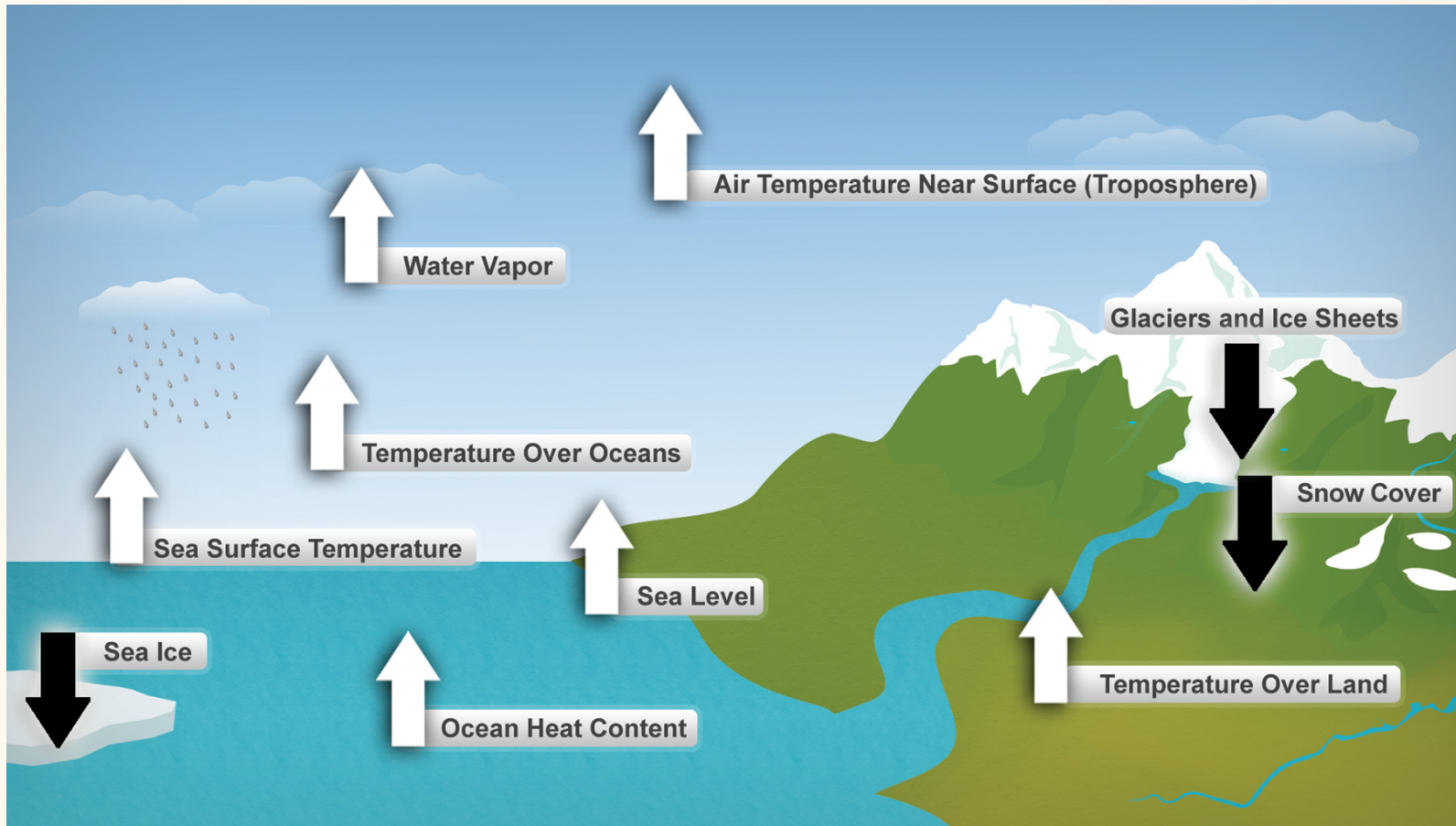
Electronic access to evidence

Importance of understanding communities

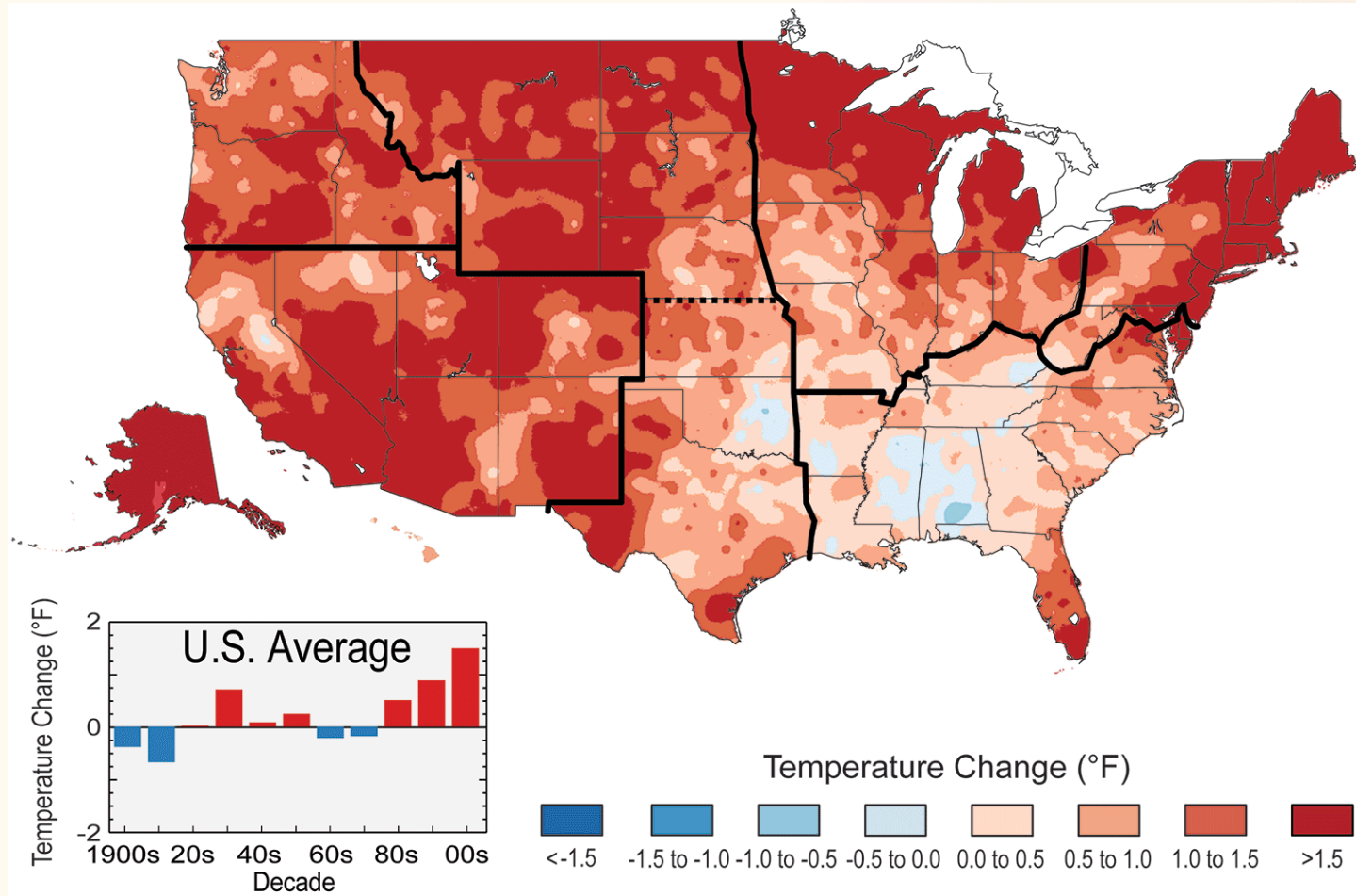
University of Arizona played a major role!



Ten Indicators of A Warming World

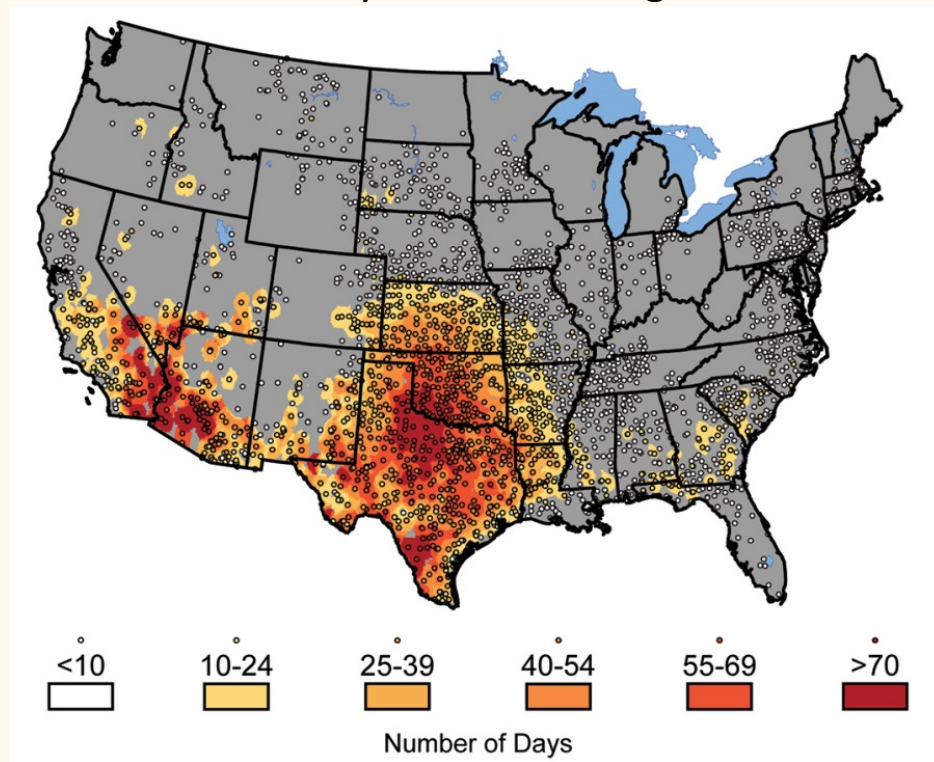


Human-induced climate change has moved firmly into the present.



Americans are already feeling the effects of increases in some types of extreme weather

Number of Days over 100 Degrees in 2011



©AP Photo/The Press-Enterprise, Terry Pierson



Impacts are apparent in every region and in important sectors including health, water, agriculture, energy etc.



© Scott Olson/Getty Images

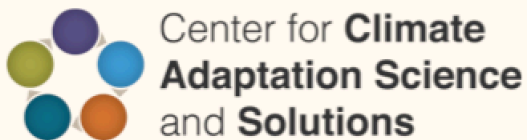
There are many actions we can take to reduce future climate change and its impacts, and to prepare for the impacts we can't avoid.



©Dennis Schroeder, NREL



Tucson Water



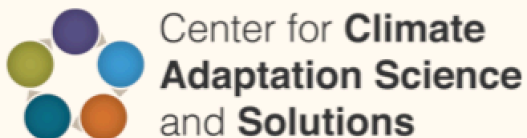
What You Need to Know about Projected Climate Changes for Tucson and the Southwest

Gregg Garfin

School of Natural Resources and the Environment

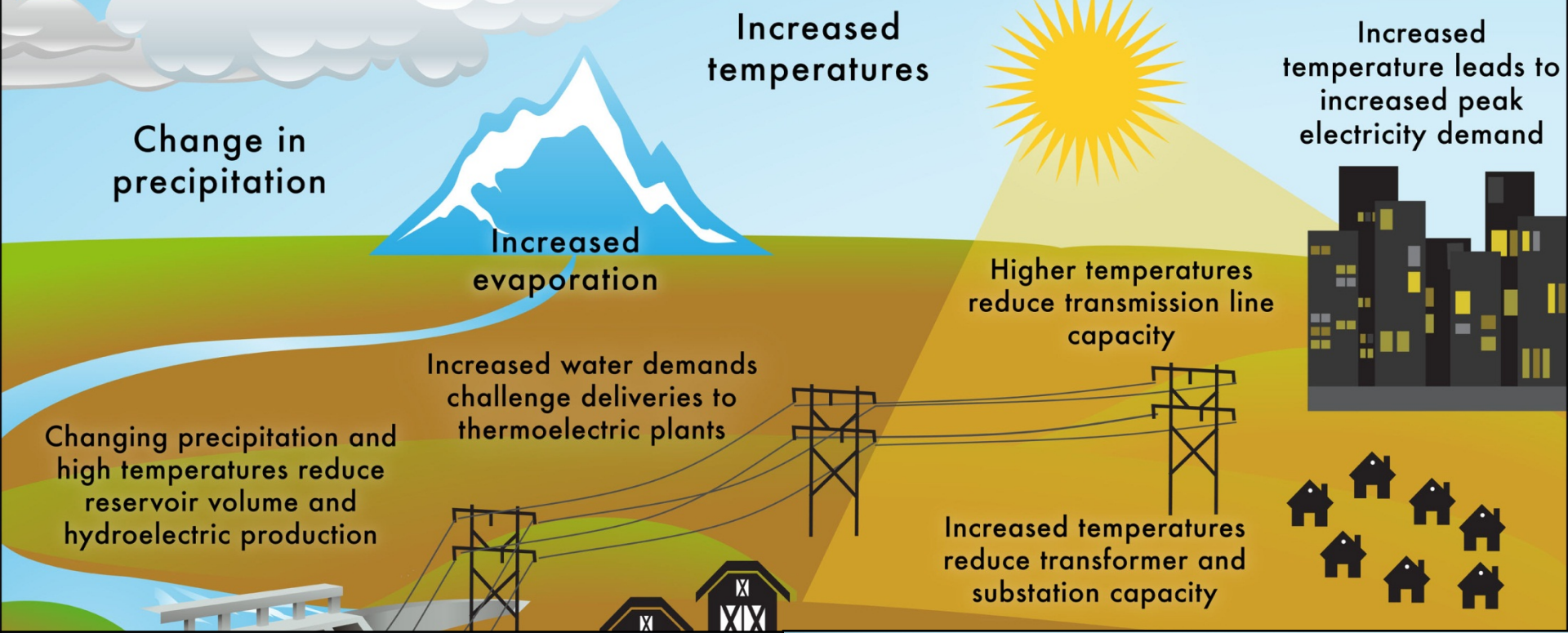
Institute of the Environment

University of Arizona











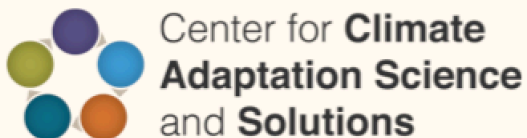
Ethnicity and Vulnerability to Drought in Rural Arizona

Marcela Vásquez-León

School of Anthropology

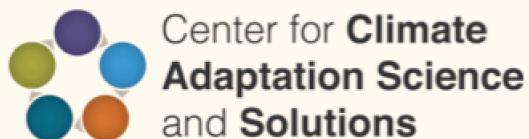
Center for Latin American Studies

University of Arizona



Ethnicity and Vulnerability to Drought in Rural Arizona

- How do such factors as ethnicity, social class, gender, literacy, etc. combine to compound risk and create highly vulnerable populations?
- Adaptation: coping-vs-buffering
- Concept of “social capital” to understand how the critically vulnerable access resources embedded in informal social networks of mutual aid to reduce their vulnerability



Anglo Farmers



I rather get a drought than too much rain, because with irrigation I can control how much water to use for optimal plant development (SSV corn farmer)

Hispanic Farmers

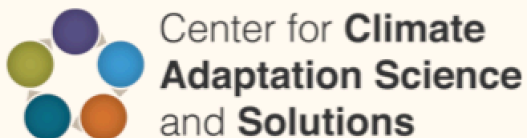


We worked since we were kids, from the bottom up, hoeing, driving tractors. No one taught me how to apply for assistance or get loans from banks (Hispanic Farmer)

Comparison of U.S. Farm Subsidy Payments in the SSV, 1995-2005

	Hispanic Farmers*	White Farmers
Total Subsidies	\$1,166,067	\$92,255,324
Total Recipients	39	712
Av. Pay/ Recipient	\$29,899	\$129,572
Av./recip/ year	\$2,899	\$12,957

Source: U.S. Dept. of Agriculture, compiled by Environmental Working Group (<http://www.ewg.org>). *The category of Hispanic farmers was created based on last name.



Collective Social Mechanisms

- Loans from relatives and friends
- Market interactions with Mexican Mexican-American growers, brokers, and clients
- Direct access to labor



Farm workers' strategies to minimize vulnerability

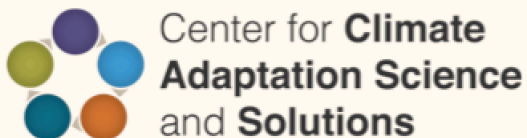


Vulnerability to climate is magnified by low wages, lack of secure housing and access to healthcare, inadequate sanitation, and difficulty obtaining food.

- Individual household level
- Access to ties of kinship, friendship, and shared origin with current and former farm workers, Hispanic framers, and Mexican foremen
- Forecasting information within geographic circuits
- Relations with contractors can exemplify perverse social capital, where social networks are used to exploit the most vulnerable

Conclusions

- Social Capital: informal collective structures of mutual aid vs. structures that provide access to institutional assistance
- Vulnerability is as much related to exposure as to factors affecting adaptation, with institutional support as a key factor
- Must question adaptive capacity of a system that disables the most vulnerable from accessing a minimum of resources that could prevent the loss of livelihoods
- As societies confront increasingly severe global environmental and economic crises, and as the institutional resources available to mitigate risk shrink, the informal, less subsidy-based, and more mutual aid-based social networks of the critically vulnerable point toward needed adaptations



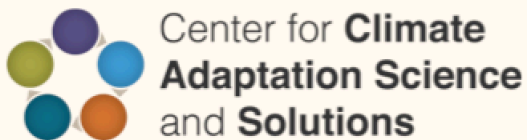
Is there a Southwest climate gap?: Climate and poverty study



Margaret Wilder

Associate Professor

Geography and Development & Latin Amer. St.
PI, CLIMAS Poverty & Climate in Southwest

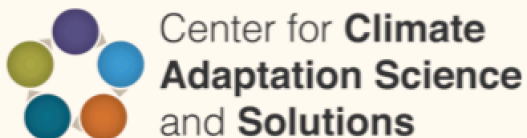


Climate gap:

Disproportionate climate impacts on low-income and minority communities

Key study question:

How are low-income and minority communities experiencing, coping with, and responding to climate?



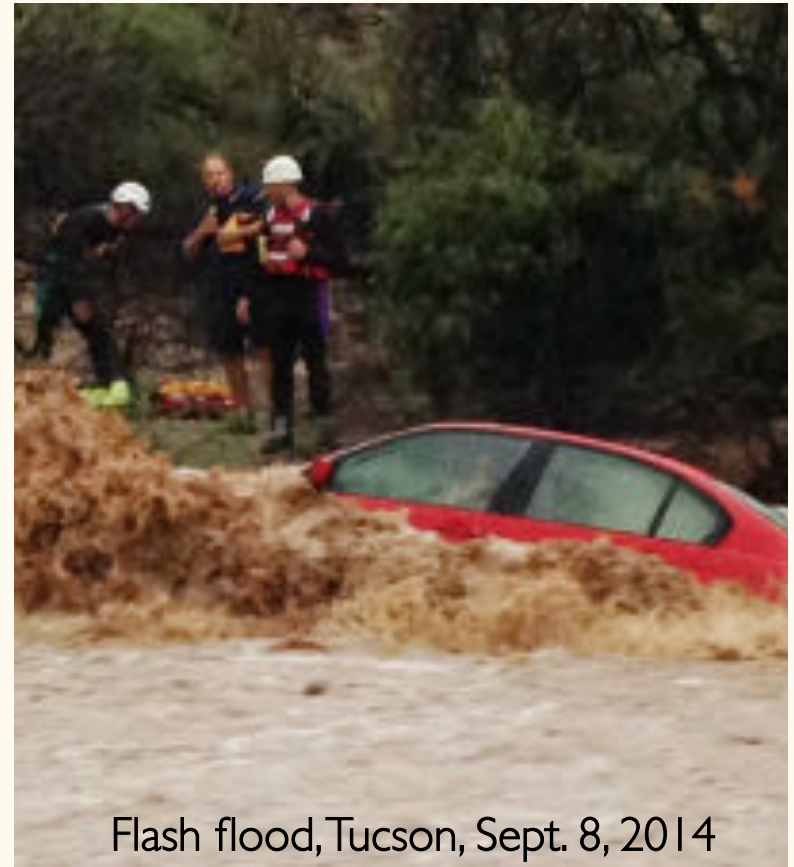
Socioeconomic Indicators in the SW

Census Category	YEAR	AZ	NM	USA
POPULATION, % change	2010-2012	2.5	1.3	1.5
RACE				
American Indian and Alaska Native persons, %	2012	4.4	9.2	0.8
Hispanic or Latino (of any race)	2012	30.2	47.0	16.9
FOOD INSECURITY	2012	14.5	16.5	13.6
FOREIGN BORN/LANGUAGE				
Foreign born, %	2012	13.4	9.2	13.0
Language other than English spoken at home, % age 5+	2012	27.1	35.4	21.0
POVERTY				
People in Poverty, %	2012	18.7	20.8	15.9
HEALTH INSURANCE				
% Uninsured	2012	17.6	18.4	14.8

Diversity and climate communication

Climate-related warning systems need to take our communities' diversity into account

- Languages
- Media
- Technology

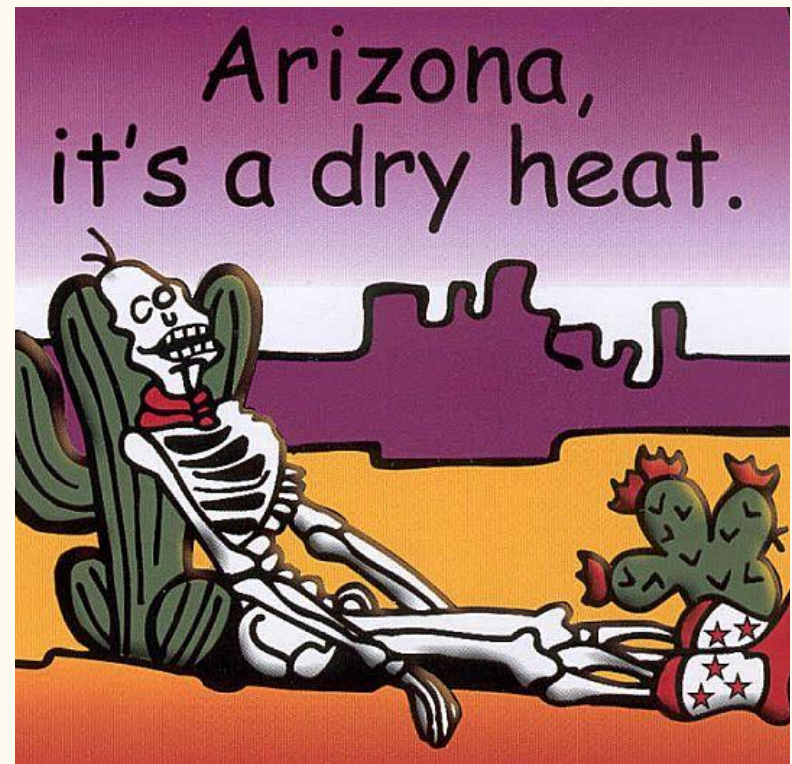


Interviews with social services providers Low-income populations experience climate:

By staying indoors



Through their energy bills



Hispanic communities and resilience

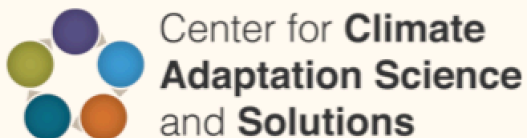
- Strong social networks & high social capital in Hispanic communities
- Neighborhood associations & civic groups
- Programs are underway to reduce vulnerability in low-income areas



Climate Impacts in Mexico

Ninel Escobar

Climate Change Adaptation Coordinator
World Wildlife Fund, Mexico



Background

- México is highly exposed to climate impacts:
 - 15% of its territory
 - 68% of its population
 - 71% of its economy
- 2000 -2012: Damages from floods, droughts and hurricanes cost US\$ 22 billion
- The cost of No Action is 3 **times** the cost of mitigation of damages (La Economía del Cambio Climático, UNAM)

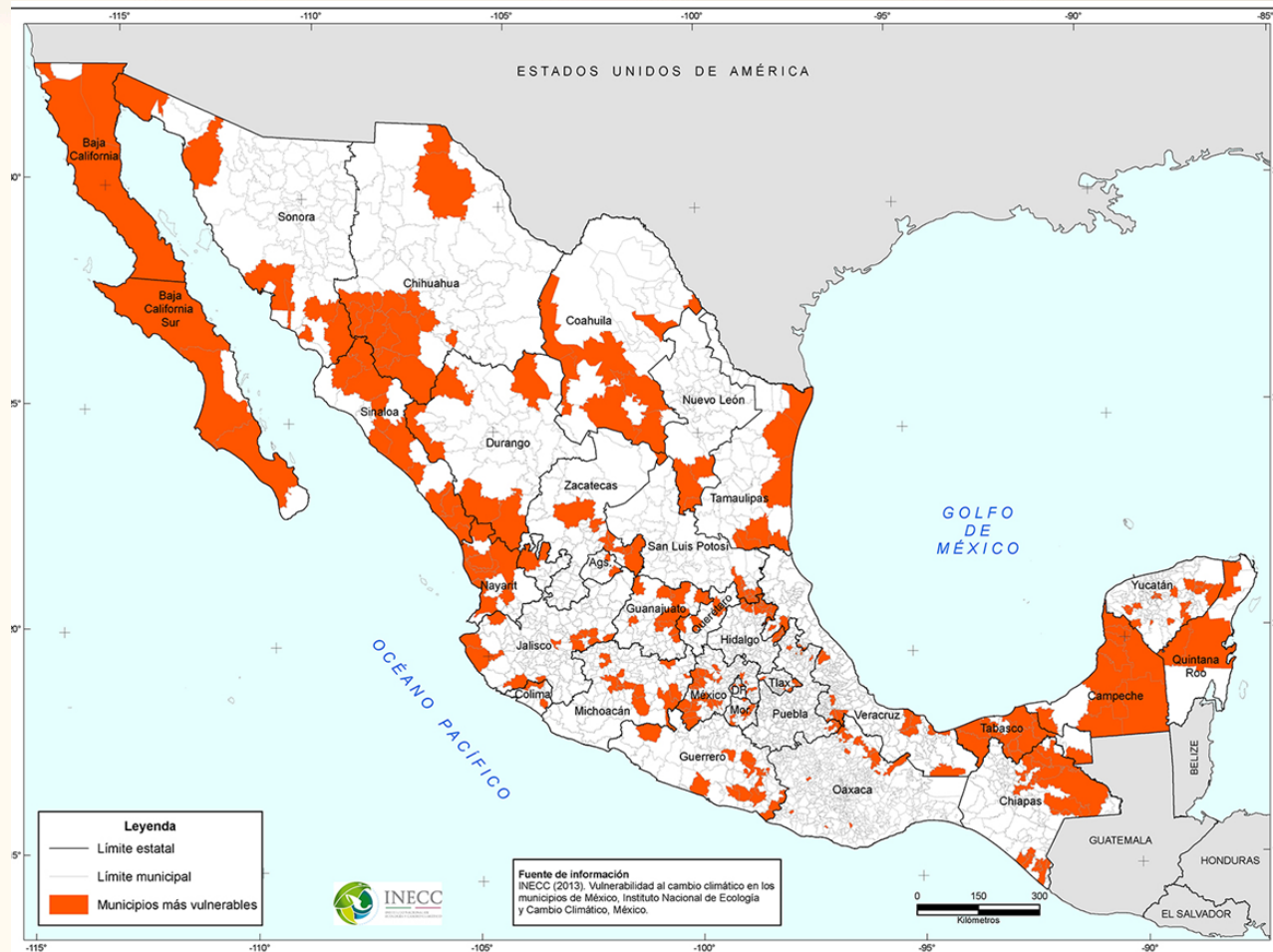
Background

Main sources of vulnerability:

- Exposure: 20%-30% of population live in coastal areas
- Natural resources dependency: Agriculture, cattle ranching, forest management and tourism
- Poverty: 42% of population live in poverty
- 9% in extreme poverty
- Lack of planning for adaptation

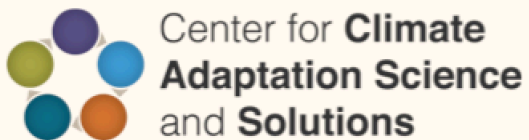


Most vulnerable municipalities



National Institute of Ecology and Climate Change, 2013

Some stories



Expansion of bark beetle plague

- Due to higher temperatures and drought, bark beetle distribution has expanded at an increasing rate
- 21 of 32 states have been affected: Wood from affected trees is no longer useful
- More than 70% of forests in the country are common property of ejidos and indigenous comunidades



2012: Worst drought in the last 70 years

- No rain in 70% of National territory.
- Dams at 30-40% of total capacity.
- 2 million people directly affected.
- Losses:
 - 35% of the livestock
 - 20% of bean production



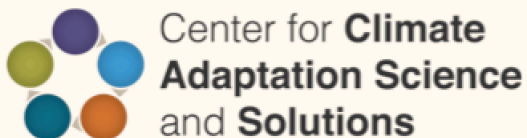
2014: Odile hurricane in Baja California

- Category 3 hurricane
- 92% of BC population had no electricity
- Damage to infrastructure was the highest ever registered according to National Electricity Commission



What we are doing

- Climate Change National Law
- State Adaptation Plans: WWF worked in Sinaloa and Oaxaca
- National Water Reserves Program: Joint effort of WWF and National Water Commission
- National Climate Fund (still without funds)
- Mexico's emissions only represent 1.5% of global emissions. However, it committed to reduce 30% of its emissions before 2020 compared to 2000 base line.
- **Collective action is needed!**



Thank you!

Questions?

