11th Annual
Psychology Day at the United Nations

Climate Change:
Psychological Interventions
Promoting Mitigation and Adaptation

12 April 2018

facebook.com/UNPsychologyDay
twitter: @UNPsychologyDay
#PsychDayUN2018

11th Annual
Psychology Day at the United Nations

Climate Change:
Psychological Interventions
Promoting Mitigation and Adaptation

INTRODUCTION AND OPENING REMARKS

facebook.com/UNPsychologyDay
twitter: @UNPsychologyDay
#PsychDayUN2018

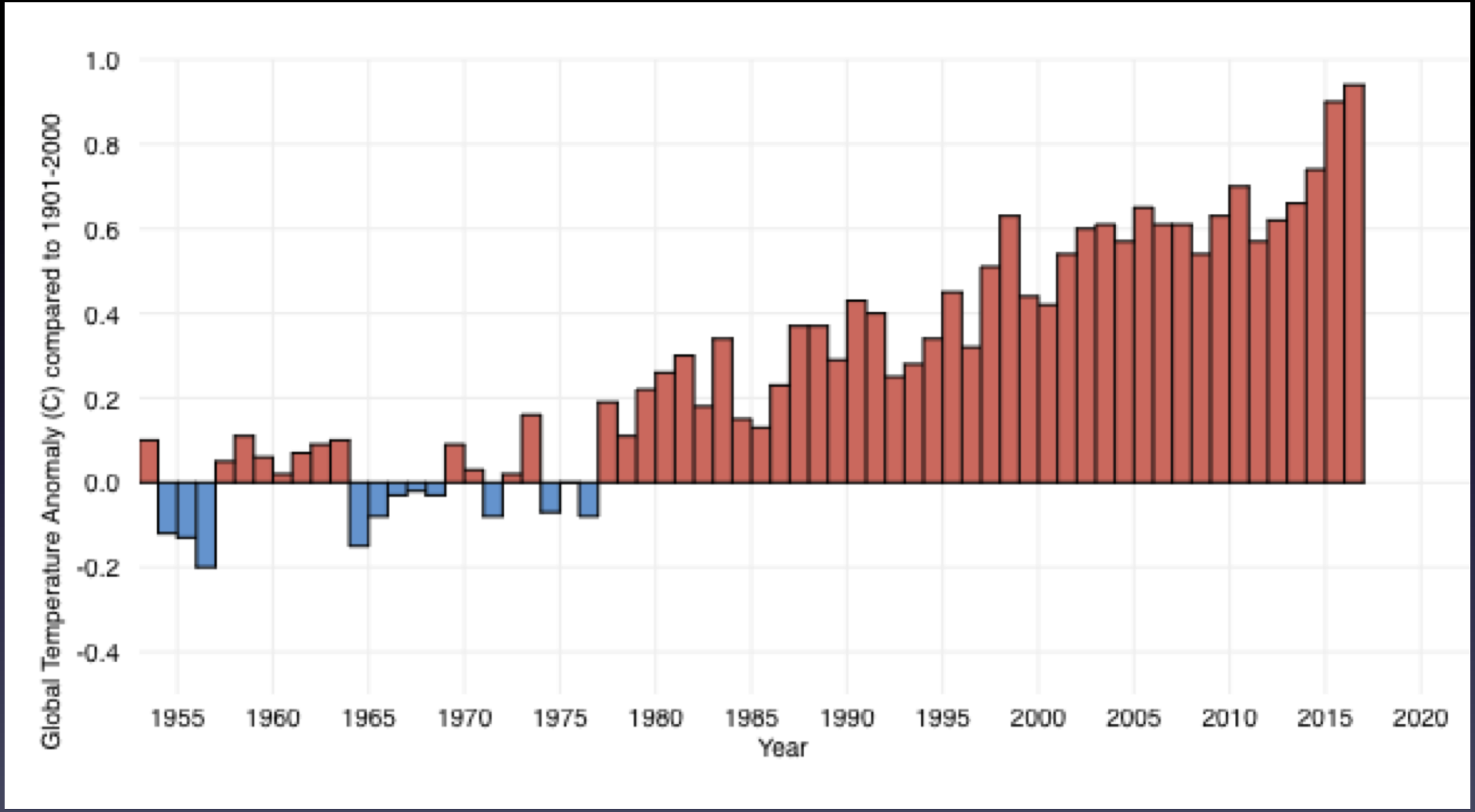
The role of psychology in responding to global climate change

Susan Clayton

Psychology Day at the United Nations

4/12/18

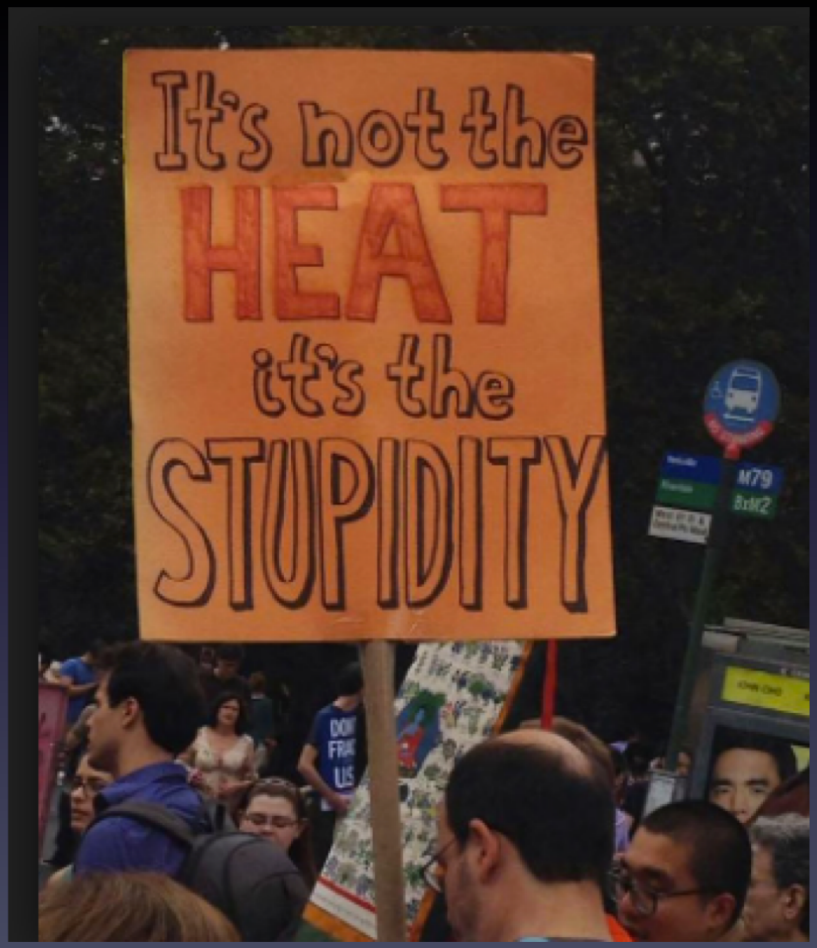
The climate is changing.



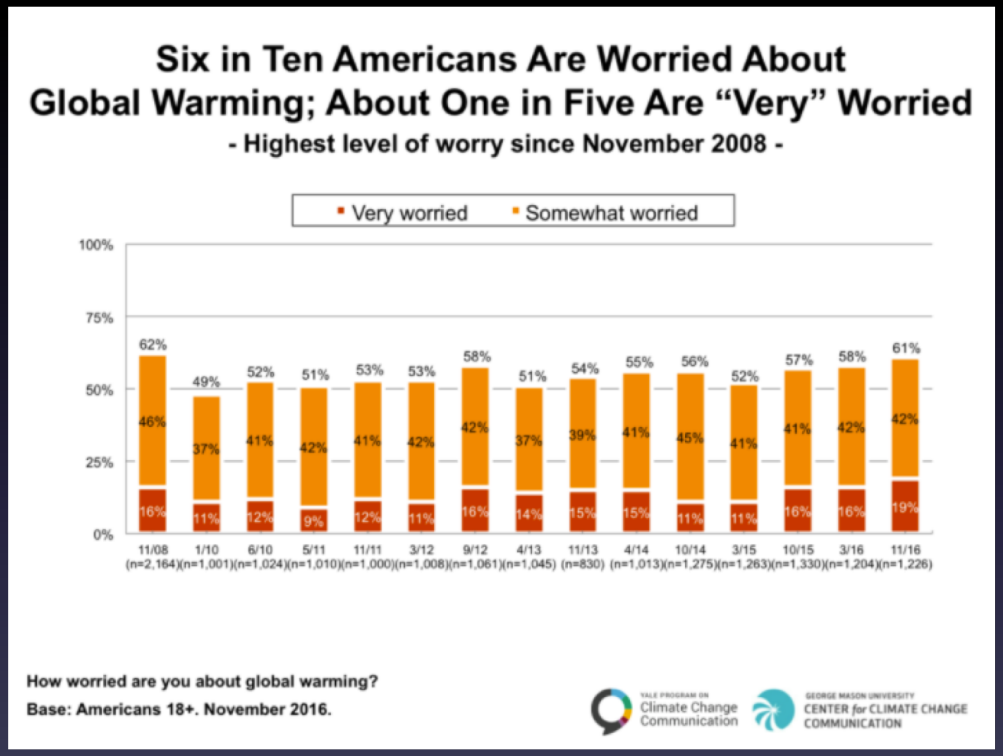
What are the psychological aspects?

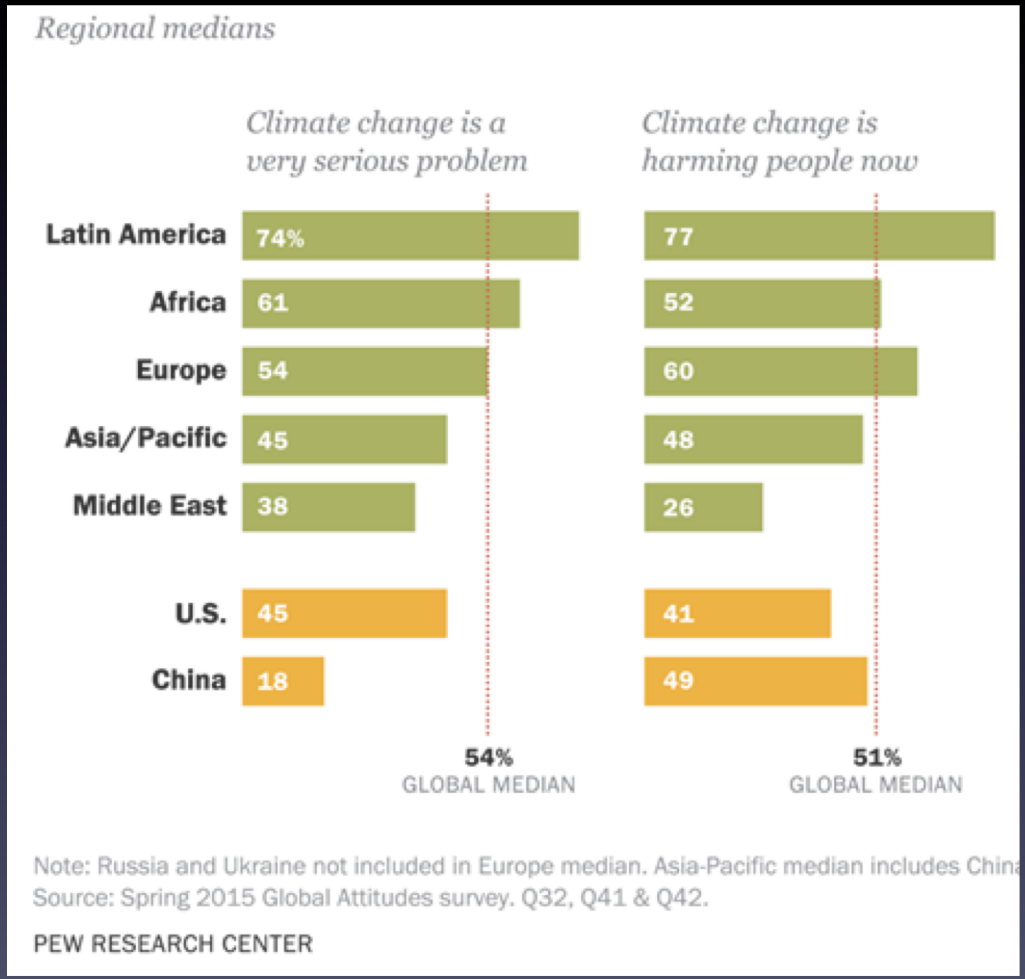
- Human understandings of climate change
- Human consequences of climate change
- Human responses to climate change

(Mis)Understandings



Public perceptions





Barriers to perception

- Limited cognition
  - Ignorance, psychological distance
- Emotional protection
  - Denial, system justification
- Ideology
  - Belief in religion, technology, capitalism

Social factors

- Social norms
- Stereotypes
- Mistrust
- Group polarization

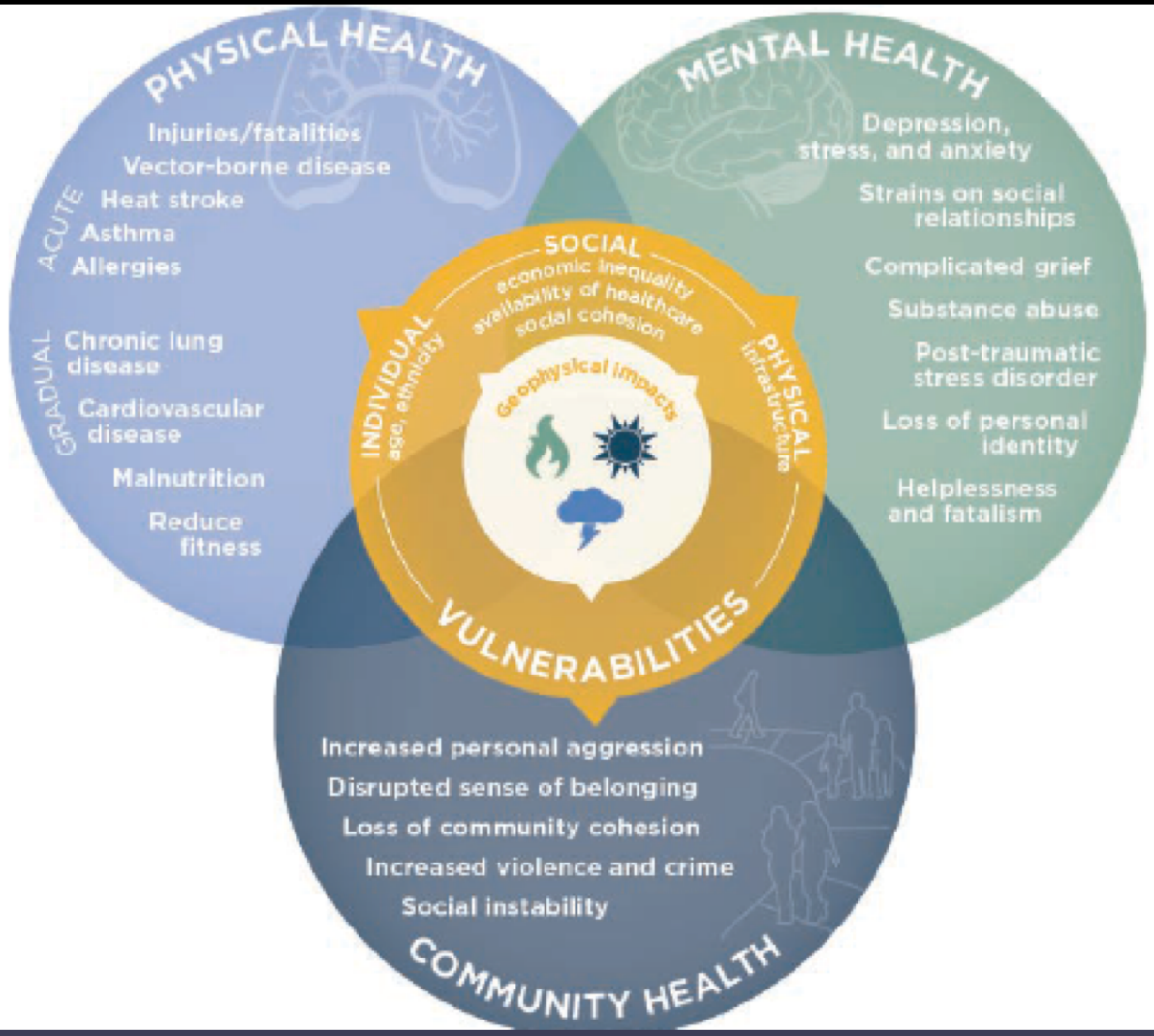
Recommendations for effective communication

- Tell stories
  - Overcome cognitive limits
  - Stories enhance attention and retention
- Highlight solutions and co-benefits
  - Overcome emotional barriers
  - Avoid denial and enhance efficacy
- Know your audience
  - Overcome group identities
  - Work with pre-existing understandings

Human consequences

- Physical health
- Mental health and wellbeing
- Social relationships
- Broader ways of thinking

Linking the Impacts



Consider multiple timescales

- Consequences of acute events
- Consequences of chronic changes

Acute events (natural disasters)

- Physical health
- Mental health
- Social wellbeing

Long-term changes

- Physical health
  - Heat
  - Food insecurity
  - Vector-borne diseases

- Mental health
  - Disrupted social relationships
  - Threats to identity
  - Loss of place

Social impacts

- Increases in violence, crime, interpersonal aggression
- Decreased social cohesion
- Increased inequity

Violence and conflict

U.S. DEPARTMENT OF DEFENSE

HOME | TODAY IN DOD | ABOUT DOD | TOP ISSUES | NEWS | MEDIA

HOME > NEWS ARTICLE VIEW

DoD Releases Report on Security Implications of Climate Change

DoD News, Defense Media Activity

PRINT | E-MAIL

WASHINGTON, July 29, 2015 — Global climate change will aggravate problem

Reduced social cohesion

Increased inequity

Some groups are at greater risk

- Economically vulnerable
  - members of low-income communities and nations
- Socially vulnerable
  - women, members of marginalized communities
- Physiologically vulnerable
  - Children, the elderly

Threats to identity

- loss of lifestyle and culture
- loss of autonomy and control
- loss of occupation
- loss of place

Loss of occupation

"Ranching families across the country are now facing *an existential threat* to a way of life that has sustained them"

(New York Times on wildfires in the U.S.)

Farmers in drought-afflicted areas in Australia and India have suffered increased levels of mental distress.
Suicide rates are higher for agricultural workers in the U.S. than for any other occupational group.

Loss of place

Migration

Effects of migration

- Refugees experience cumulative stressors.
- Immigrants are at increased risk of psychosis.
- This is true even among second-generation immigrants.

Perceptions of place

- "You think your house is permanent… When you lose your house and everything you own, you learn *everything is temporary*"

(Hurricane Sandy survivor)

Effective responses

- Mitigation
- Adaptation and resilience
  - Adapting to new behavioral conditions

How can we encourage a culture of mitigation and adaptation?

Through *identity*

Social aspects of environmental identity

- Shared understandings
  - Beliefs and values
- Collective orientation
  - Acting together to address shared problems
- Social capital
  - Strengthened in-group and cross-group ties
- Social groupings
  - Stereotypes and norms

Identity campaigning

- Use ingroup messengers
- Highlight ingroup norms that protect the environment
- Frame the ingroup as more environmental than a comparison

Social identities can promote mitigation

Identification with a group is a precursor of collective action

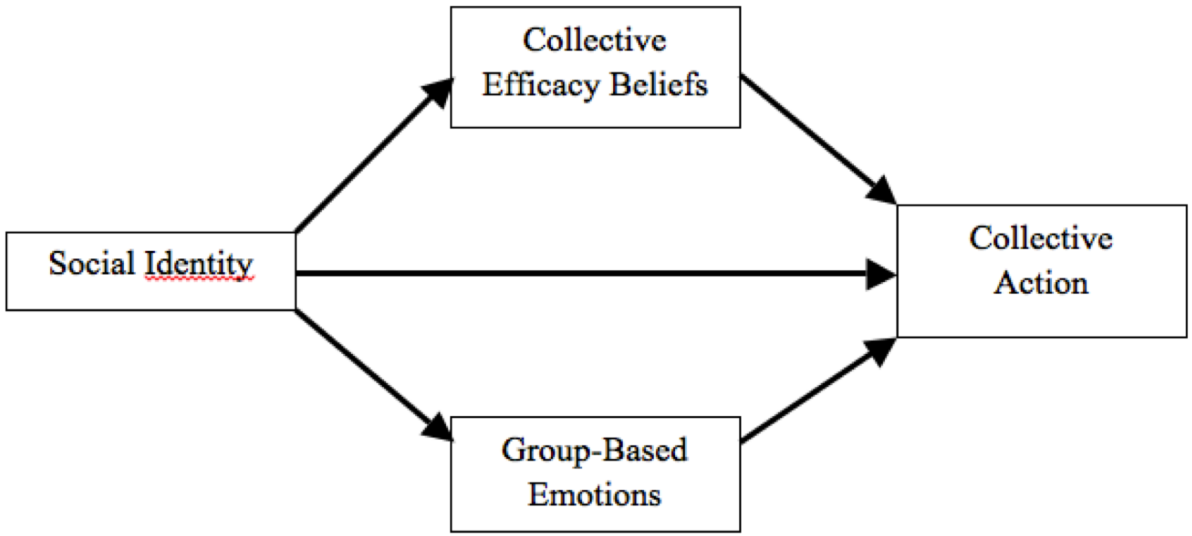


Figure 1. The Social Identity Model of Collective Action.

Social identities can also promote resilience

– Positive emotions

– Empowerment

Promoting resilient individuals

- Self-efficacy
- Optimism
- Active coping
- Being prepared

A sense of personal meaning and empowerment

Promoting resilient communities

- Supportive social networks
- Access to information
- Connection to place
- Connections to culture

A healthy identity situated in community, culture, and environment

Important roles for psychology in helping to address climate change

- Investigate perceptions
  - And design effective messaging
- Explore impacts
  - Including long-term and abstract impacts
- Encourage mitigation
  - Use identity-based campaigns
- Promote adaptation and resilience
  - Suggest ways of creating a healthy identity in the "new normal" environment

"Countries will have to undergo a shift from understanding climate change solely as a threat, to embracing the response to climate change as an opportunity for *human health and well-being*"

The Lancet Countdown: Tracking progress on health and climate change. (2016)

Thank you!

Mental Health and Wellbeing: EXTREME WEATHER

Daniel Dodgen, Ph.D.
Director, Division for Operational Policy and Strategic Planning
UN Psychology Day
April 12, 2018

Major U.S. Climate Trends

KEY FINDINGS: Mental Health and Well-Being

Exposure to Weather-Related Disasters Results in Mental Health Consequences

- Examples of mental health consequences include post-traumatic stress disorder, depression, anxiety, grief/bereavement, increased substance use or misuse, and suicidal thoughts.
- Disaster-related stress and accompanying psychological impacts can continue over extended time periods - up to a year or more.

KEY FINDINGS: Mental Health and Well-Being

- Specific Groups of People are at Higher Risk
  - Children are at risk for distress, anxiety, and other adverse mental health effects in the aftermath of an extreme event.
  - Farmers, those with limited mobility, immigrants, those living in coastal areas, those from Indigenous communities or tribes, and veterans are also expected to experience higher risk of poor mental health outcomes.
  - People living in poverty and with fewer socioeconomic resources have less capacity to adapt to the challenges brought by extreme weather.
  - Firefighters, emergency medical service providers, healthcare workers, those recovering human remains, and non-traditional first responders who may be involved with supporting the community after a natural disaster are all at increased risk for mental health consequence.

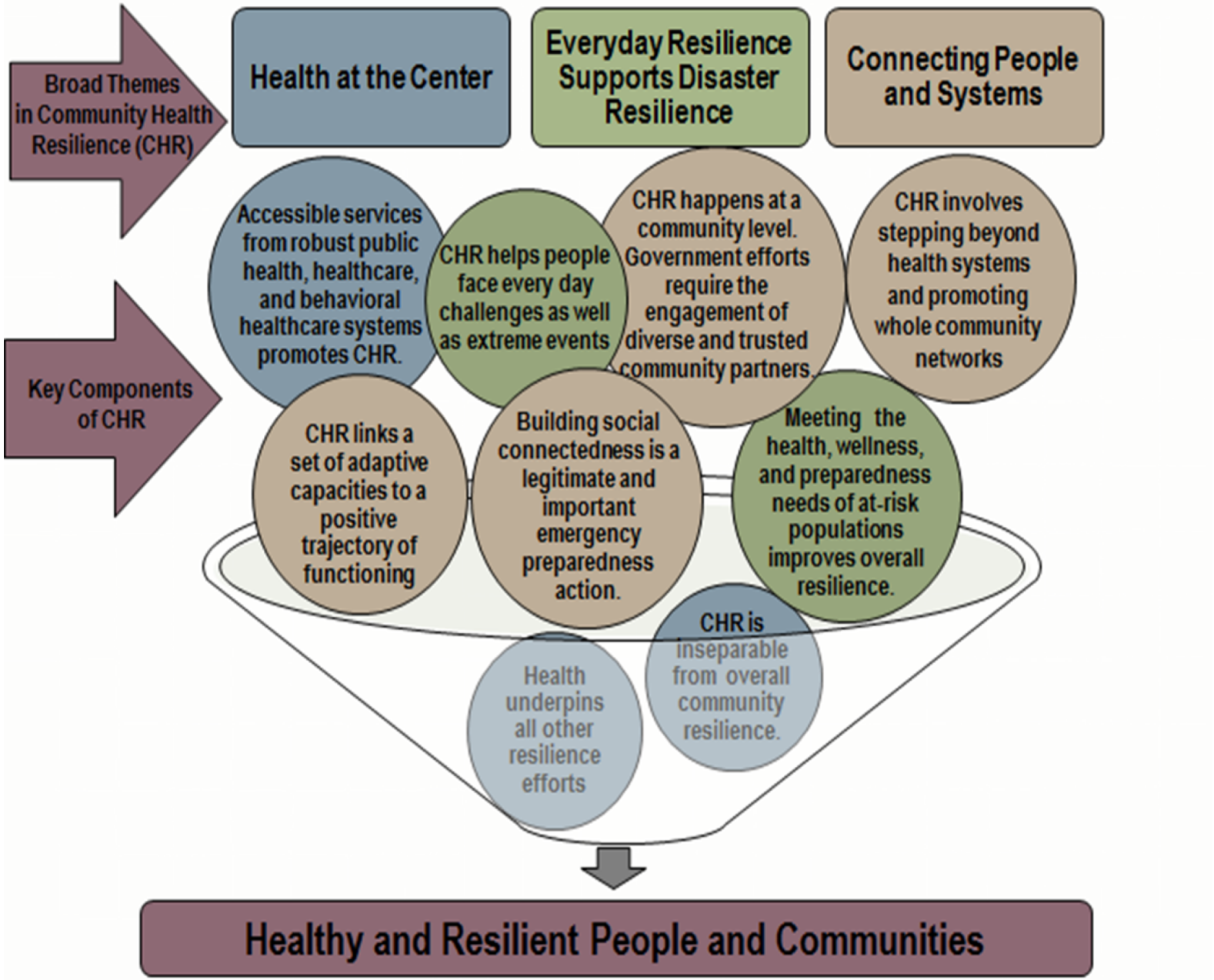
Key Findings: Mental Health and Well-Being

- Extreme Heat Increases Risks for People with Mental Illness
  - Increases in extreme heat will increase the risk of disease and death for people with mental illness, including elderly populations and those taking prescription medications that impair the body's ability to regulate temperature.

ASPR and HHS are committed to integrating mental health into responses to extreme weather events

During the recent hurricanes

- Convened over 50 Federal Disaster Behavioral Health Group coordination calls with partners including Red Cross, SAMHSA, regional and local partners
- Utilized behavioral health liaison officers as part of the Incident Response Coordination Team to ensure coordination of field-level behavioral health activities.
- Deployed multiple behavioral health specialists to provide mental health services and consultation to impacted communities and shelters.

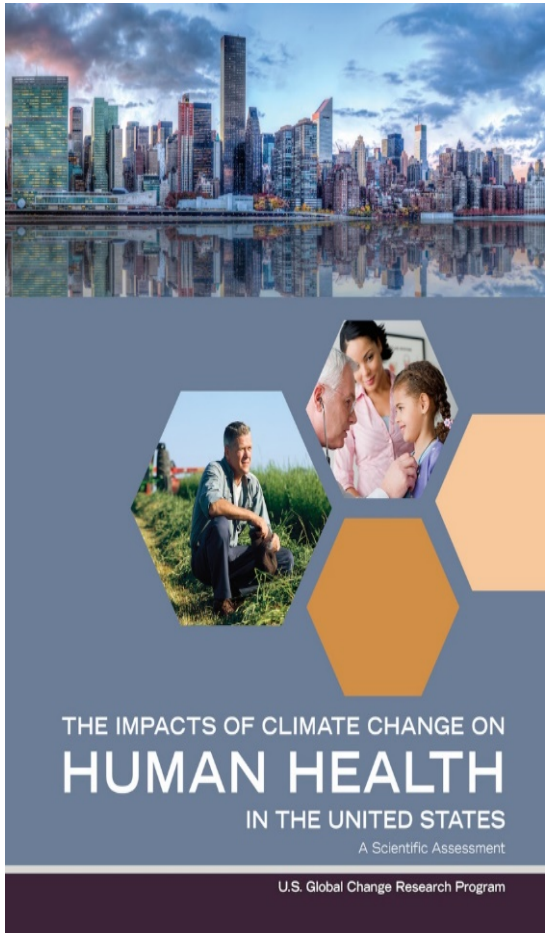


Natl. Prep. Response Sci. Board Former. Natl. Biodef. Sci. Board. 2014. Community Health Resilience. Natl. Prep. Response Sci. Board Former. Natl. Biodef. Sci. Board. Rep. 1-13, Dep. Health Hum. Serv. Office Assist. Secr. Prep. Response, Washington, DC

RESOURCES

Office of the Assistant Secretary for Preparedness and Response (www.phe.gov)

USGCRP Report (health2016.globalchange.gov)



Discussion

Psychological contributions to overcoming disengagement and fostering compelling solutions to climate change

Irina Feygina

Psychology Day at the United Nations

April 12th, 2018

Psychological Contributions

- Understand people's experience
  - What happens when people encounter the possibility and reality of climate change?
  - What creates resistance and disengagement? What motivates action?
- Harness psychological insights and methodology to:

1. Engage through communication
   - Connect with the needs and realities of audiences
   - Develop compelling communication approaches
2. Create effective programs, policy, interventions
   - Psychologically informed program design
   - Evidence-based decision making

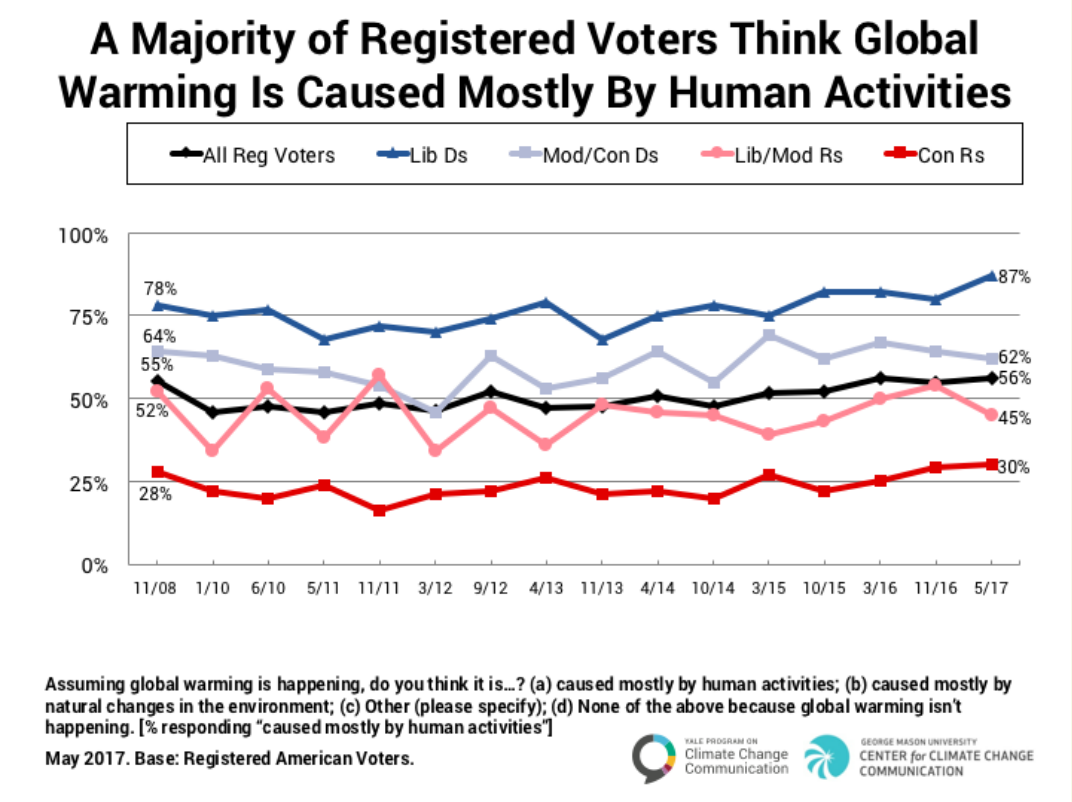
Psychological Contributions to Improving Climate Communication

Understand Responses to Climate Change

- Psychological lens through which we perceive and respond to information about climate change
  - Cognition
  - Attitudes and values
  - Needs and motives
  - Social norms, identities
  - Personal experience
  - Narratives and emotion

Climate Communication: Cognition

- Knowledge and understanding are important
  - Information Deficit Model
- But are profoundly affected by other psychological processes
  - Especially when there is conflict and controversy



http://climatecommunication.yale.edu/publications/politics-global-warming-may-2017/5/

Climate Communication: Attitudes and Values

- What is important for us; What do we value, hold as moral
- Our worldviews and the key beliefs around which they are organized
- Respond to climate change as consistent with our values, and imperative for protecting what we care about:
  - Impacts on our lives and those we care about
  - Safety and security
  - Stability, protect and pass on way of life
  - Health and well-being
  - Economics and jobs

Climate Communication: Attitudes and Values

- Example: Twitter communication on climate change
- How/when do people respond to messages about climate change?
- Does relevance to values make climate messages more appealing?
- Examined Twitter climate communication by TV weathercasters across the U.S.
- Findings:
  - Climate change tweets receive greater engagement than weather-only tweets
  - More frequent mentions of climate change ⇒ more frequent retweeting
  - Increased responses to climate change messages that discuss:
    - Damage; Economics; Health; Sociopolitical system
  - Greater interest when climate change linked to extreme weather events

Climate Communication: Needs and Motives

- Types of needs:
  - Personal: Family, parenting, personal safety and health, economic well-being
  - Social/group/ideological: political ideology, system justification, just world
- Influence how people perceive, understand, encode, and recall information
- Work with needs and priorities, rather than against them
- Example: Science skepticism


I DON'T BELIEVE IN
GLOBAL WARMING

Climate Communication: Needs and Motives

- Motivation to defend the social, political, and economic status quo and established institutions
- Fulfills fundamental psychological needs
  - Safety, control, belonging
- Reduces dissonance, anxiety, uncertainty
  - Manage threat to system, alleviate fear
- Results in upholding problematic aspects of systems
  - Resistance to change

Feygina, Jost, & Goldsmith, 2010

Climate Communication: Needs and Motives

- Climate change threatens the system on all levels: economic, political, social
- Respond by disengaging from the problem, doubting the evidence and messenger
- Motivated cognition – thinking and feeling affected
- Essential psychological function - will not be circumvented
- Engagement efforts need to address this motive

Feygina, Jost, & Goldsmith, 2010; Hennes, Ruische, Feygina et al. (2016)

Climate Communication: Needs and Motives

- System-sanctioned change
- Reframe pro-environmental change as a way to uphold what people care about and support, rather than challenge, the system
- "Being pro-environmental allows us to protect and preserve the American way of life. It is patriotic to conserve the country's natural resources"
- Reverse the negative association between protecting the social system and protecting the environment
- Harness system justification motivation to inspire pro-environmental behavior

Feygina, Jost, & Goldsmith, 2010

Green Patriot Posters

Climate Communication: Norms, Identities

- What is people's most powerful and important motive?
- The need to belong is paramount, harness it!

- Social norms, identities, institutions
  - Local norms, expectations
  - Group membership, social identities

- People align behavior to social norms
  - Norms suggest effective, adaptive, and appropriate behavior
  - Ways to fit into and belong to groups

Climate Communication: Norms, Identities

- Example: Social norms and resource conservation / clean energy

- Water conservation messaging in hotels
  - JOIN YOUR FELLOW GUESTS IN HELPING TO SAVE THE ENVIRONMENT. In a study conducted in Fall 2003, 75% of the guests **who stayed in this room** (#313) participated in our new resource savings program by using their towels more than once. You can join your fellow guests in this program to help save the environment by reusing your towels during your stay. (49.3%)

- Energy conservation messaging
  - Compare energy usage to neighbors with similarly sized houses
  - Motivate lower energy consumption in line with the "normal" neighborhood rate
  - Deliver 2.1 to 3.5% reductions in energy use

- Distributed solar adoption

(Goldstein, Cialdini, Griskevicius, 2008; OPower)

Climate Communication: Personal Experience

- People respond to risk when it gets close and personal
  - Only 1 in 3 adults in US believe climate change will impact them
- Personal experience - source of knowledge, decisions, behavior
  - Local weather / local warming effect
- Psychological proximity
  - Temporal – climate change is happening now
  - Spatial – climate impacts are taking place here
  - Social – people like me are experiencing climate change effects
  - Hypothetical – there is certainty about climate change and impacts

Climate Communication: Personal Experience

https://www.nytimes.com/interactive/2016/08/16/us/louisiana-flooding-pictures-maps.html

Climate Communication: Personal Experience

- Example: Extreme weather attribution

- Importance of showing link between climate and weather
  - Attributing specific extreme weather events to climate change

- Experimental evidence shows attribution communication increases:
  - Concern about climate change
  - Interest in knowing if future extreme weather events were caused by climate change
  - Intention to engage in adaptation behaviors
  - Intention to engage in mitigation behaviors
  - Support for climate policy

- Developing economies – vulnerability and preparedness

Climate Communication: Narratives & Emotion

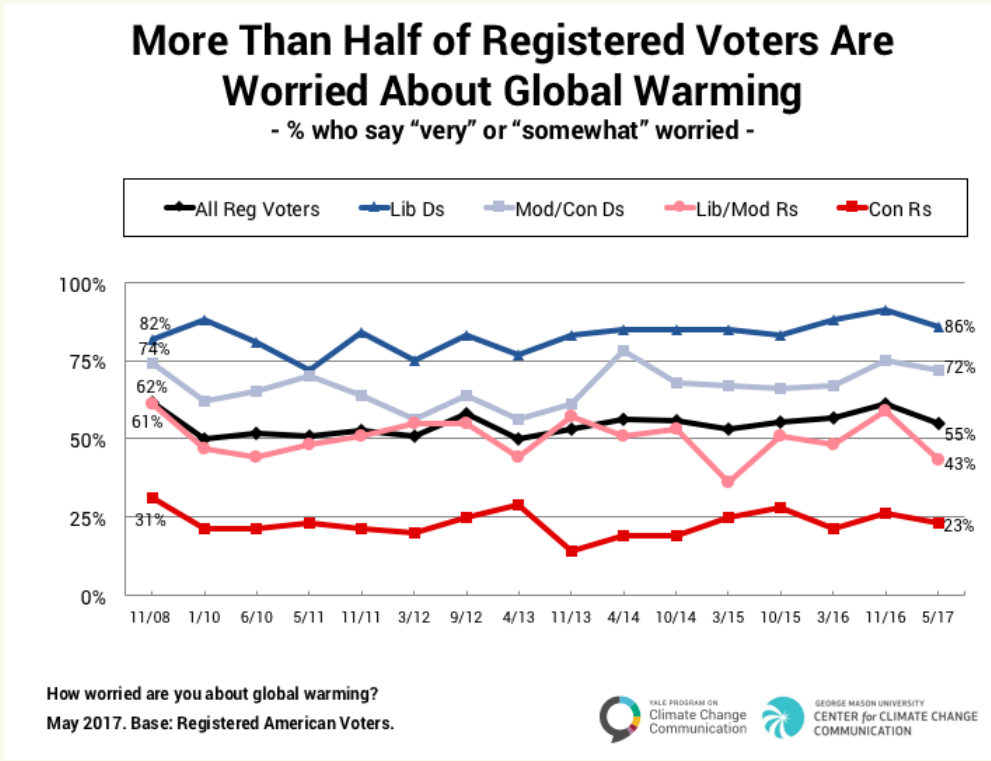
- Narratives and stories
  - We are wired to respond to, understand, and remember stories
  - Narrative has power of cognitive, emotional, and motivational engagement
  - Trusted messengers
- Emotion and subjective experience
  - Negative emotions
    - Fear appeals; Hopelessness, fatalism
  - Positive emotions
    - Hope, aspiration, desire, inspiration, joy, awe; Humor

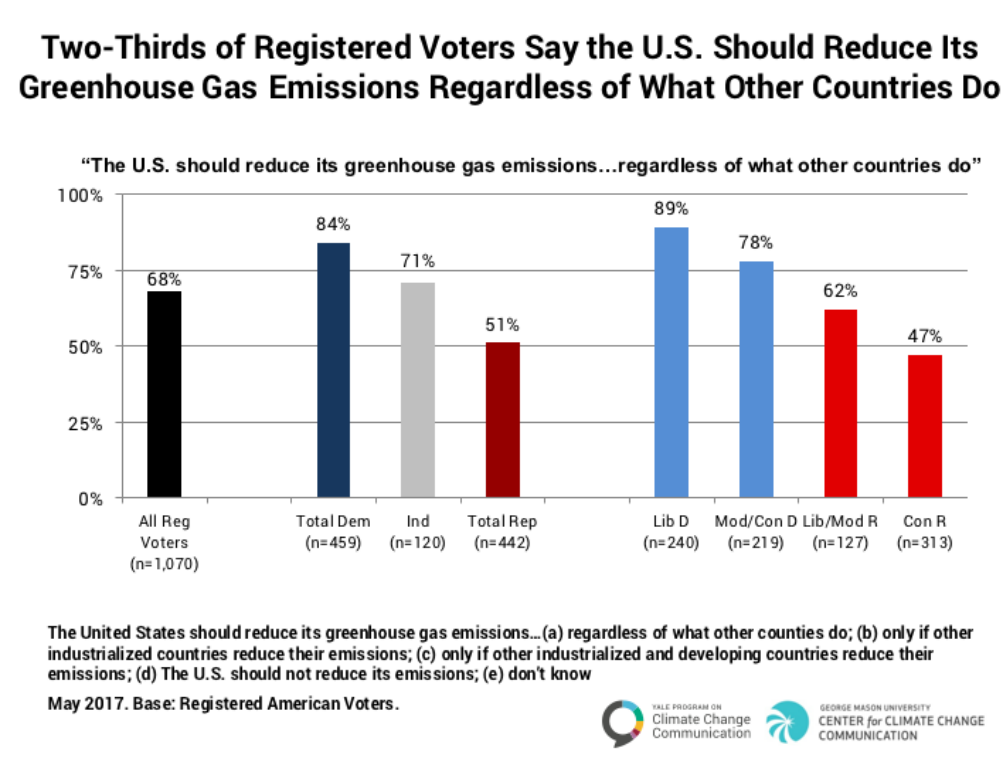

Positive proof of global warming.
18th Century
1900
1950
1970
1980
1990
joe-ks.com

Climate Communication: Narratives & Emotion

- Narratives and stories
  - We are wired to respond to, understand, and remember stories
  - Narrative has power of cognitive, emotional, and motivational engagement
  - Trusted messengers
- Emotion and subjective experience
  - Negative emotions
    - Fear appeals; Hopelessness, fatalism
  - Positive emotions
    - Hope, aspiration, desire, inspiration, joy, awe; Humor
- Efficacy and empowerment

Climate Communication: Solutions





http://climatecommunication.yale.edu/publications/politics-global-warming-may-2017/5/

Climate Communication: Solutions

Registered Voters Support Diverse Climate-Friendly Energy Policies

- % who say "strongly" or "somewhat support" policy -

		Democrats				Republicans		
	All Reg Voters	Total	Lib	Mod/ Con	Ind	Total	Lib/ Mod	Con
(Unweighted base)	(1,070)	(459)	(240)	(219)	(120)	(442)	(127)	(313)
	%	%	%	%	%	%	%	%
Fund more research into renewable energy sources, such as solar and wind power	86	95	98	93	82	76	87	72
Provide tax rebates for people who purchase energy-efficient vehicles or solar panels	84	95	99	91	82	74	81	71
Regulate carbon dioxide (the primary greenhouse gas) as a pollutant	77	94	96	92	75	57	72	51

How much do you support or oppose the following policies?

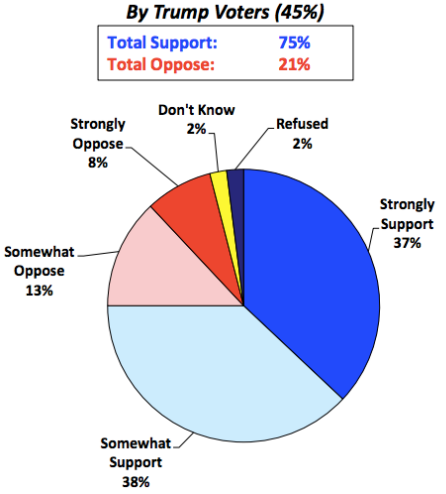
May 2017. Base: Registered American Voters.

YALE PROGRAM ON Climate Change Communication

GEORGE MASON UNIVERSITY CENTER for CLIMATE CHANGE COMMUNICATION

Three out of four Trump voters support action to accelerate the development and use of clean energy.

"And, would you say you support or oppose taking action to accelerate the development and use of clean energy in the United States?"



http://climatecommunication.yale.edu/publications/politics-global-warming-may-2017/5/

Climate Communication: Know your Audience

- What works for one audience does not work for another
- For some people the path to climate engagement is through:
  - Understanding and concern
  - Relevance to needs and realities; psychological proximity
  - Engagement, empowerment
- For other people it is through:
  - A focus on solutions consistent with values
  - Being careful about negative information and threat
  - Prioritizing protecting / upholding what people identify with
  - Communicating new norms around action via ingroup messengers who offer permission to engage

Psychological Contributions to Creating Effective Programs / Solutions in the Climate Change Space

Create Effective Climate Programs / Solutions

- What is people's most limited cognitive resource?
- Attention
- Decision making
  - Is not a 'rational' process
  - Cognitive biases and heuristics
  - The way choices are presented makes a difference
  - Contextual, affected by peripheral factors
  - Driven by needs and desires – not cost-benefit
  - Social norms and influences, community, institutions


24 HOUR
FITNESS

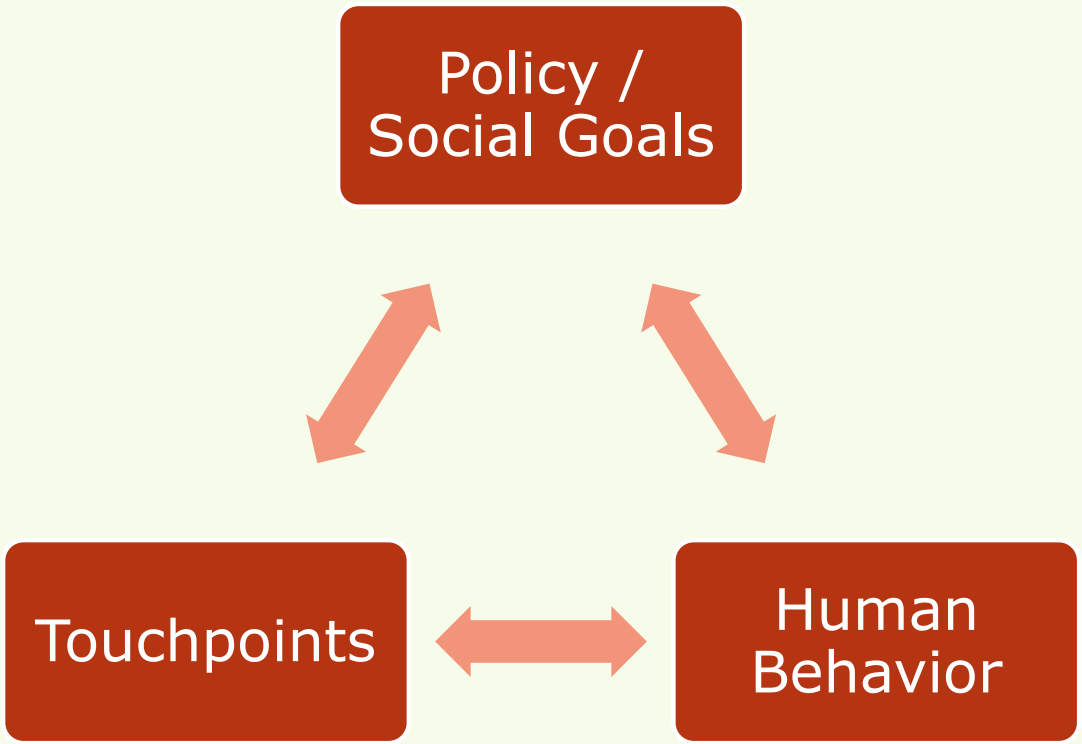
Key Principles

1. Use knowledge of human behavior drivers
   - Small changes to the framing of a choice or behavior can improve effectiveness
2. Test interventions before policy adoption
   - Use robust empirical methods
     - Randomized controlled trials

- Example: U.S. federal government – Office of Evaluation Sciences
  - Identify and test low-cost behavioral interventions that can improve Federal programs; larger effort to promote evidence-based policy and decision-making
  - Use insights from behavioral sciences to design policies that are:

    1) More effective; 2) Less Costly; 3) Better Serve People

Project Selection



Behavioral Insights: EAST

- Easy: Make it easy for people to achieve their goals
  - The power of defaults
    - Automatically enroll people in programs
    - Commit to increased participation for future years
  - Simplify the process
    - Complexity of getting information
    - Filling out forms, requirements, steps
  - Make it convenient

Behavioral Insights: EAST

- Easy: Make it easy for people to achieve their goals
- Attractive: Draw people's attention to your messages
  - Novel; surprising
  - Salient; noticeable
  - Relevant; interesting
  - Visually appealing

Behavioral Insights: EAST

- Easy: Make it easy for people to achieve their goals
- Attractive: Draw people's attention to your messages
- Social: Motivate people through others' behaviors
  - Social norms
  - Reciprocity
  - Cooperation
  - Reputation

Behavioral Insights: EAST

- Easy: Make it easy for people to achieve their goals
- Attractive: Draw people's attention to your messages
- Social: Motivate people through others' behaviors
- Timely: Make decisions relevant at key decision points
  - Provide information when needed
  - Target points of action

Empirical Testing

- Figuring out not just what works, but what works best

- ***Test:*** Create robust measures for evaluating intervention's efficacy
  - Randomized controlled field studies

- ***Learn:*** Analyze outcomes. Determine if the effect size is great enough to suggest a high return-on-investment if brought to scale.

- ***Adapt:*** Use findings from the 'Learn' stage to modify the intervention as needed, in order to refine the way in which the policy is designed and implemented.

Examples

- Defaults: Creating new habits and norms
- Reminders, cues: Improving use of energy efficiency features
- Making sustainable choices most convenient and attractive
- Improving ease and usability of energy products
- Linking energy consumption and well-being
- Aligning efficiency with organizational mission and needs
- Pilot testing interventions

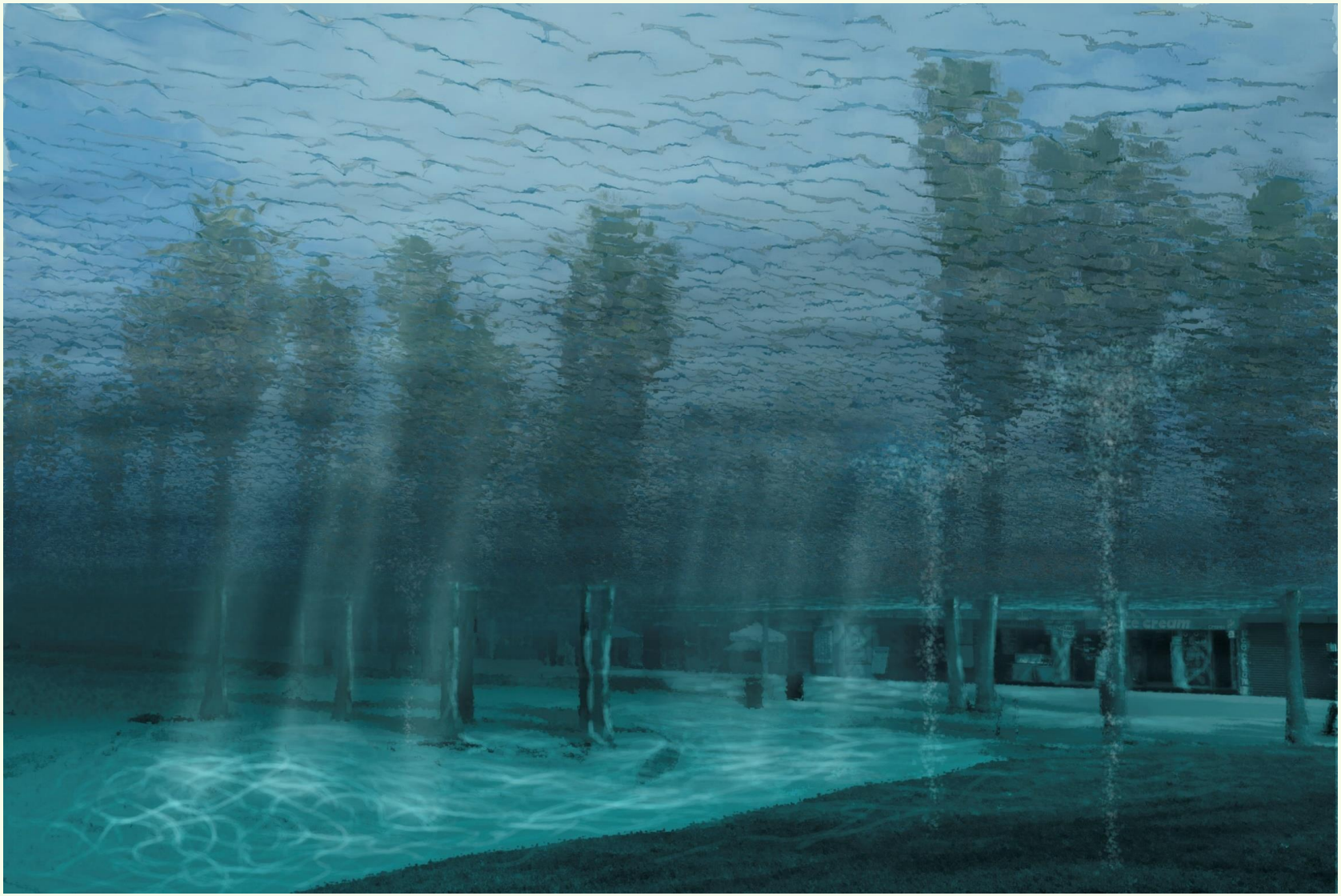
Harnessing the Power of Behavior

- Identify where behavior makes a difference
  - Measuring and understanding behavior, experiences, needs
- Align behavior with effective climate-relevant practice
  - Behavioral insights; Cognitive, affective, motivational processes
  - Communities and leadership
- Work at intersection of personal, organizational, and systemic
- Understand and work with the roots of conflict
- Improve communication, information flow, institutional design
  - Users and managers; norms and mission
- Measure and track behavior
  - Pilot test; Integrate into ongoing monitoring and assessment

Benefits of Applying Psychology

- Wealth of powerful knowledge – underutilized, integration opportunities
- Research methods and evaluation capacities – evidence based decision-making and ongoing tracking of impacts
- Work with stakeholders, conflict, management, diversity of needs
- Across individual experience, organizational structures and mission
- Policy and program development and implementation – compelling, effective, tailored to audiences/constituents – dialogue, feedback
- Learning opportunities – research and application, interdisciplinarity

THANK YOU!



Climate Central http://sealevel.climatecentral.org

Changing the Behaviors that Drive Climate Change: What People Need to Understand, and How to Promote Change

Paul C. Stern

Social and Environmental Research Institute (USA)

Norwegian University of Science and Technology

U.S. National Academies of Sciences, Engineering, and Medicine (retired)

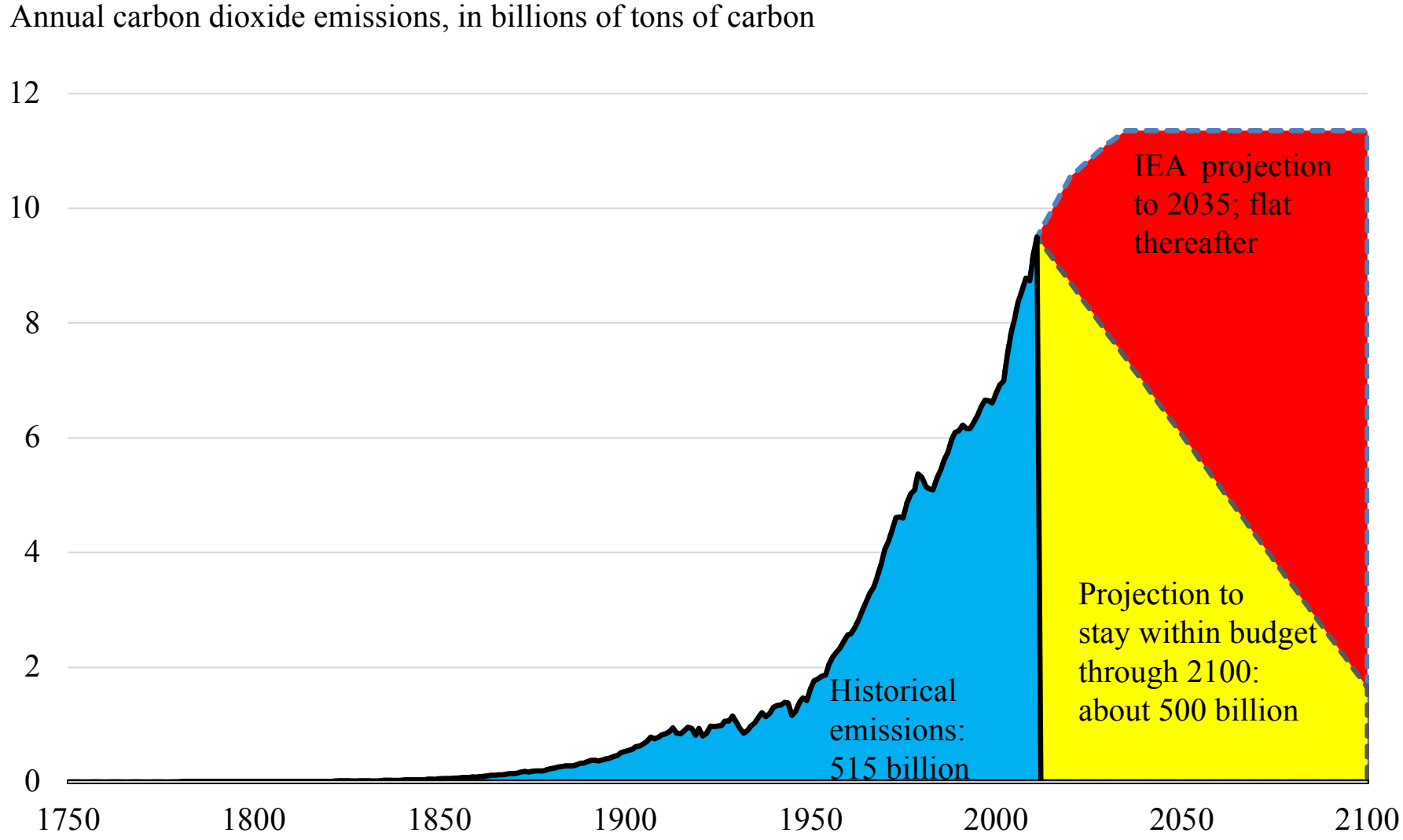
April 12, 2018

Outline of talk

- My pleasure to speak at the UN
- The magnitude of the problem
- How psychology can add to what other fields can offer
- Some ways psychology can help:
  - Focusing on *what non-scientists most need to* ***understand*** about climate change to inform their choices
  - Identifying ***which behaviors matter*** for limiting climate change, and correcting common misunderstandings
    - This is different for different people; in different economic, social, and political contexts (including countries); and on different time horizons
  - Identifying ***ways individuals can make a difference*** (as consumers choices, as members of organizations, as citizens)

My long connection to the UN

The challenge for humanity is *to turn around what my generation has done* (mainly in high-income countries), and thus benefit future generations How do we stay within a 1 trillion ton Carbon "budget" through 2100



Sources: Daniel Raimi and Michael Vandenbergh. For historical emissions, the Carbon Dioxide Information Analysis Center national time-series data. Available at http://cdiac.ornl.gov/trends/emis/tre_coun.html. For projections, IEA *World Energy Outlook* 2013. Historical emissions were tallied from 1751-2012, and IEA projections were used to estimate annual growth in emissions each year from 2010-2035, when IEA projections end. Emissions after 2035 were assumed to remain constant.

What can Psychology Offer?

Important and Recognized Contributions Come from Other Fields

- Physical sciences estimate the effects of emissions on climate change, and consequences for temperature, oceans, etc.
- Engineering can develop technology to reduce fossil fuel use for producing goods and services and to capture emitted greenhouse gases
- Economics analyzes the costs of alternatives for meeting needs; analyzes prices as levers for change
- Law and politics design policies and regulations

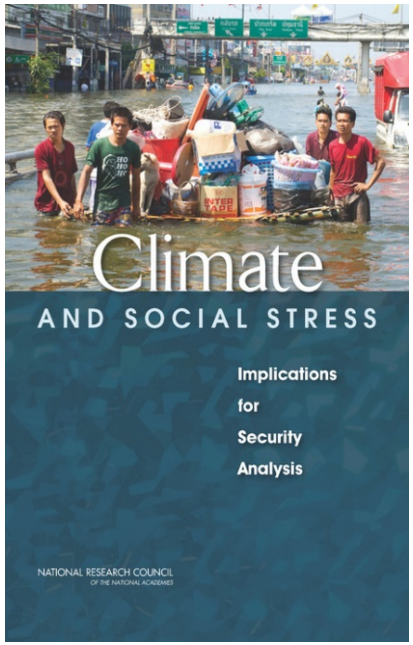
What and how psychology can add

- Human behavior causes climate change, so changing human behavior is key
- The challenge is not simply to apply existing psychological theories, but to
  - consider how psychological insights can add to, or multiply, what other sciences can offer
  - develop integrative theories incorporating psychological and other insights
- I briefly discuss examples in two areas where psychology can help:
  - Showing what non-scientists most need to understand (framing the problem)
  - Finding more effective ways to reduce fossil fuel use (framing the solutions)

Understanding: What Non-Scientists Most Need to Know
about Climate Change (Framing the Problem)

- Natural scientists try to *predict and quantify* what climate change will bring: mostly, physical events, and the associated uncertainties…
- ***BUT:*** *Many of the most important risks cannot be well quantified or pinpointed in space*

(e.g., spread of disease vectors, crop failures, floods, droughts, international migration and conflict) (note migration from Middle East and Africa)



- What non-scientists need most is *qualitative* understanding: *good simple mental models* that convey the essence of what is known—that:
  - are consistent with scientific understanding
  - address important unknowns as well as knowns
  - inform decisions and
  - promote informed dialogue and debate
- This could come, for example, from well-chosen analogies

What are the key things to know about climate change?

Some well-established *facts* (mainly from physical sciences):

1. Climate change is *anthropogenic:* Human activity is causing a new kind and rate of climate change
2. Climate change is *progressive:* It will have increasingly severe effects if it isn't halted. Moreover, the limits to the effects are unknown
3. Climate change is *irreversible* except over very long time periods

But facts about physical climate are not the only important things to understand in order to inform action

- *Psychology can offer insights on*
  - what non-scientists need to know, and
  - how to get the knowledge to them

Nonscientists need to understand not only well-established facts, but also the *risks, challenges,* and *opportunities* related to climate change

4. Under climate change, *extreme events of* unprecedented severity and character become more likely

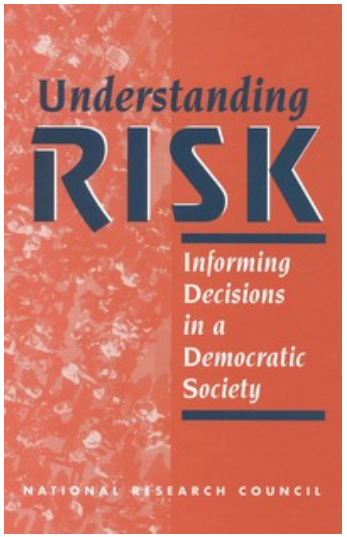
5. The "who, what, where, and when" of dangerous events is very hard to predict (these details of the risks are *uncertain*); low-income populations are particularly affected

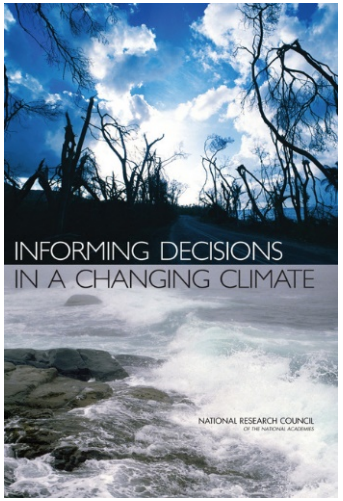
6. There are *tradeoffs*: The things people do that cause climate change also benefit people; limiting climate change often has costs

7. The hazards of climate change all have a common cause (the warming effects of greenhouse gases) so slowing or stopping climate change *reduces all the risks*

8. Climate change will affect outcomes *central to peoples' lives*

9. Because people have different priorities, and contexts, *reasonable people may disagree* about the best ways to address climate risks





Two classes of behaviors for addressing risks: Adaptation and mitigation

- **Adaptation:** preparing for identifiable risks to reduce damage *locally*
  - Identifiable risks of climate change are mainly tied to places and communities where they may occur (hurricanes, floods, droughts, etc. are place-specific)
  - Adaptation can be practiced at individual and community levels
  - Having identifiable local risks facilitates community action
- **Mitigation:** reducing the activities that drive climate change (primarily, fossil fuel consumption) to reduce all the risks *globally*
  - Mitigation reduces both known risks and as-yet-unidentified ones
  - Mitigation anywhere reduces risks everywhere
  - This makes mitigation both more powerful than adaptation and more difficult to organize (a collective action or commons problem)

Some Implications of What we Know

We need to act before we have predictive certainty

We need to recognize that the values, needs, and interests vary among individuals, organizations, communities, countries

4. Climate change increases the risks of *extreme events of* unprecedented severity and character

5. The "who, what, where, and when" of dangerous events is very hard to predict (There are risks, but the details are *uncertain*); poor populations are particularly affected

6. There are *tradeoffs*: The things people do that cause climate change also benefit people; limiting climate change often has costs

7. The hazards of climate change all have a common cause (the warming effects of greenhouse gases) so slowing or stopping climate change *reduces all the risks*

8. Climate change will affect outcomes *central to peoples' lives*

9. Because people have different priorities, and contexts, *reasonable people may disagree* about the best ways to address climate risks

Understanding of these implications is apparently not evenly distributed worldwide

- I usually speak to a U.S. audience
- Some of the key things to know seem to be well known in most countries (though the research is limited)
- The USA is an outlier in public understanding of climate change
  - Organized climate change denial efforts have successfully confused many citizens and helped block national policy action
  - Denial efforts have had some success in a few other countries
  - However, even in the USA, policy progress is being made at state and local levels and in private sector

A promising analogy for informing action: Progressive diseases caused by personal behavior

Some diseases (atherosclerosis, hypertension) are like climate change in many ways:

1. They are caused or worsened by human behavior
2. They are progressive
3. They are hard to reverse, but changing behavior can reduce severity and risks
4. They produce symptoms outside of past personal experience
5. There are uncertainties about how they progress, who will suffer, which symptoms will appear, and when
6. People like doing the things that put them at risk, and treatments can have unpleasant side-effects
7. It is more effective to stop doing what causes the disease than to waiting for treatment until after serious symptoms appear
8. The diseases affect outcomes central to people's lives
9. Reasonable people can disagree about treatment plans

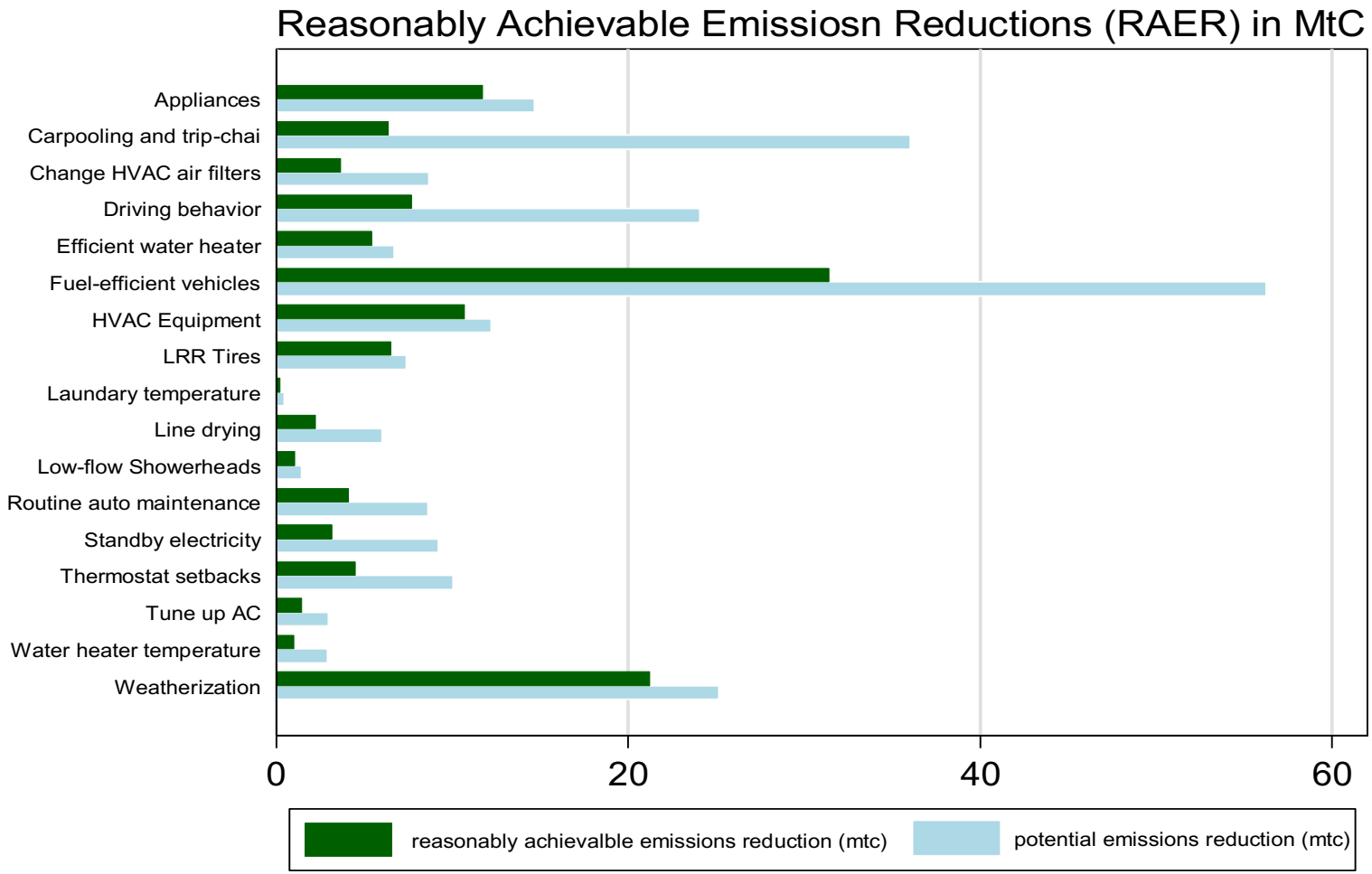
Psychological research can test whether analogies like this can improve understanding and the quality of debates. There are some promising results (Raimi et al., 2016)

Which behaviors matter for finding solutions: The roles of individuals in mitigating climate change

- **As consumers**
  - Using existing household equipment
  - Investing in household energy efficiency
  - Investing in renewable energy production for home use
- In organizations (as members, employees, managers, investors)
  - Private climate initiatives have tremendous potential, even without government support (Vandenbergh & Gilligan, *Beyond Politics: The Private Governance Response to Climate* Change, 2017)
- As citizens
  - Influencing government energy policies at local to national levels (renewable energy, urban sprawl, etc.)
  - Influencing by public investments (e.g., infrastructure, mass transit, public pension funds)

What psychology can add in changing consumer behavior

Not all technically and economically feasible emissions reductions are reasonably achievable (Dietz et al., 2009; behavioralwedge.msu.edu)



Often-neglected psychological insights can inform more effective interventions in consumer behavior:

- People tend to overestimate the importance of easily recalled behaviors (cognitive errors and limits)
  - Turning out lights, recycling, etc.
  - Underestimating importance of infrequent choices with the largest, longest-lasting impacts (choices of homes, motor vehicles, major appliances, energy suppliers)
  - Need to reach people when they make important choices
- People have more pressing things to do (limited time and attention, cognitive capacity)
  - Even people who want to lower their "carbon footprints" don't find time to figure out how
  - Especially important with new technologies (e.g., solar energy systems)
- A psychological perspective can overlook the fact that the key factors are not only psychological: major barriers to change lie outside the individual

Which household behaviors do psychologists study most? Which are most important to change?

- Like most non-specialists, psychologists' attention is too often directed to the most easily recalled, frequently repeated behaviors
- These are not the behaviors with the greatest reasonably achievable emissions reductions
- High-potential actions usually involve adoption of low-emissions equipment and technologies
- The determinants of high-potential actions are not all the same as those of frequently repeated behaviors
  - For example, in the USA, interest in household solar energy reflects environmental concerns, expectations of financial benefit, and openness to adopting innovation (Wolske et al., 2017)

Applying psychological insights: Design principles for interventions to reduce household emissions

1. Prioritize High-Impact Actions

- To have high impact, actions must be high in both technical potential and "*behavioral plasticity*"
- High-impact actions typically involve choices of homes and energy-using technologies, and up-front financial costs
- How can plasticity be increased?

2. Provide Sufficient Financial Incentives

- The effect of incentives isn't linear: they can be used *to attract attention*
- Prices may need to be combined with other influence strategies
- Identical incentives can vary in effect by a factor of 10

3. Strongly Market Interventions

- To get attention, *informal marketing* through social networks can be crucial
- Public sector can leverage marketing expertise of industries that sell low-emissions products and can partner with civic groups

Design principles, continued

4. Provide Valid Information from Credible Sources at Points of Decision

- Target consumers *at places and times of decision*
- Providers of equipment can be influential if well informed and using appropriate routines of interaction with consumers

5. Keep it Simple

- *People economize on cognitive effort*, not only money
- Offer short lists of high-impact actions
- Make information about them easily accessible and actionable, not only accurate
- Facilitate one-stop shopping, minimize paperwork and delay
- Opting out rather than opting in

6. Provide Quality Assurance for Low-emission Technologies

- Certifying contractors
- Minimize effort for finding high-quality products and installers

Application of these principles varies in different places

- Governments and private actors vary greatly in how well their policies, services, and marketing efforts employ these principles
- Psychology can help by:
  - seeking ways to apply the principles in particular places, policy contexts, and target behaviors
  - evaluating the acceptability and effectiveness of efforts to induce change in high-impact behaviors

Which behaviors matter for finding solutions: The roles of individuals in mitigating climate change

- As consumers
  - Using existing household equipment
  - Investing in household energy efficiency
  - Investing in renewable energy production for home use
- **In organizations** (as members, employees, managers, investors)
  - Private climate initiatives have tremendous potential, even without government support (Vandenbergh & Gilligan, *Beyond Politics: The Private Governance Response to Climate* Change, 2017)
- As citizens
  - Influencing government energy policies at local to national levels (renewable energy, urban sprawl, etc.)
  - Influencing by public investments (e.g., infrastructure, mass transit, public pension funds)

Psychology can help by informing organizational decision making

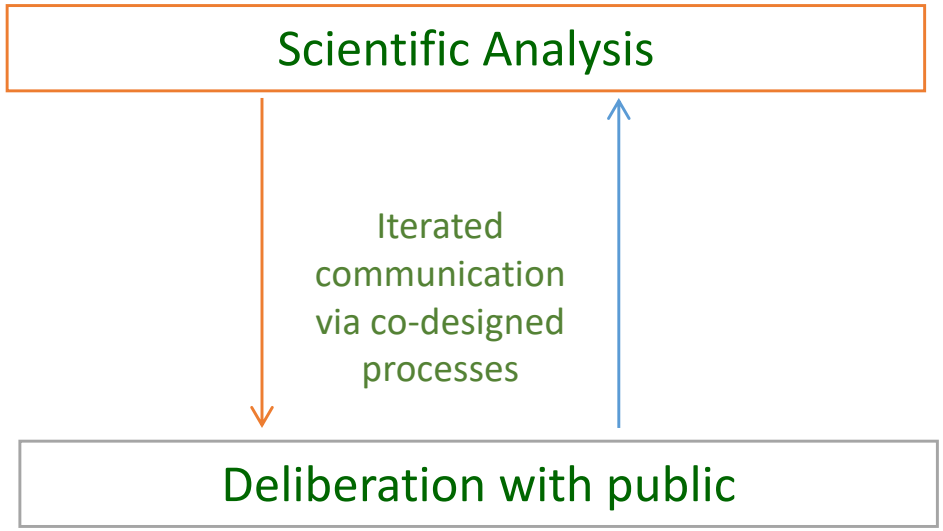
- Insights from organizational psychology on how to promote change and collaboration on organizational goals
- Psychological insights on making energy performance information readily accessible in pursuit of organizational goals

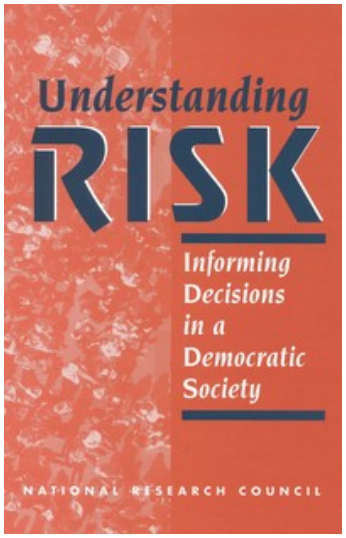
Which behaviors matter for finding solutions:
The roles of individuals in mitigating climate change

- As consumers
  - Using existing household equipment
  - Investing in household energy efficiency
  - Investing in renewable energy production for home use
- In organizations (as members, employees, managers, investors)
  - Private climate initiatives have tremendous potential, even without government support (Vandenbergh & Gilligan, *Beyond Politics: The Private Governance Response to Climate* Change, 2017)
- **As citizens**
  - Improving processes of public decision making
  - Influencing government energy policies at local to national levels (renewable energy, urban sprawl, etc.)
  - Influencing public investments (e.g., infrastructure, mass transit, public pension funds)

Psychology can help limit climate change by advancing democratic decision making

- Informing **public policy choices** at local to national levels (renewable energy, urban sprawl, etc.)
- Informing **decisions on public investments** (e.g., infrastructure, mass transit, public pension funds)
- Informing **processes of public participation** in decision making: "When done well, public participation improves the quality and legitimacy of decisions and builds the capacity of all involved to engage in the policy process" (National Research Council, 2008: 226, after review of about 1000 studies)





Conclusions

- There is much psychologists can contribute to meeting the challenges of climate change
- Humanity is not meeting the challenges adequately by relying only on technology and economic stimuli
- To help meet the challenges, psychologists need to *integrate their insights with those of other fields*
- … and *focus first on the behaviors that matter most* for meeting climate challenges and only after that on psychological theory
- Theory will thus be modified, advanced, and made more useful

References

Dietz, T., Gardner, G.T., Gilligan, J.M., Stern, P.C., and Vandenbergh, M.P. (2009). Household actions can provide a behavioral wedge to rapidly reduce U.S. carbon emissions. *Proceedings of the National Academy of Sciences, 106:* 18452-18456.

National Research Council (1996). *Understanding Risk: Informing Decisions in a Democratic Society.* Washington DC: National Academies Press.

National Research Council (2009). *Informing Decisions in a Changing.* Washington DC: National Academies Press.

National Research Council (2009). *Public Participation in Environmental Assessment an Decision Making.* Washington DC: National Academies Press.

National Research Council (2013). *Climate and Social Stress: Implications for Security Analysis.* Washington DC: National Academies Press.

Raimi, K. T. et al. (2017). The promise and limitations of using analogies to improve decision-relevant understanding of climate change. *PLOS ONE*, *12*(1), 1–20.

Stern, P.C., et al. (2010). Design principles for carbon emissions reduction programs. *Environmental Science and Technology*, 44(13), 4847–4848.

Vandenbergh, M.P., & Gilligan, J.M. (2017). *Beyond politics: The private governance response to climate change.* Cambridge University Press.

Wolske, K.S., & Stern, P.C. (in press). Contributions of psychology to limiting climate change: Opportunities through consumer behavior. In Clayton, S., and Manning, C., eds. *Psychology and Climate Change: Human Perceptions, Impacts, and Responses.* San Diego: Elsevier.

Wolske, K.S., Stern, P.C., and Dietz, T. (2017). Explaining interest in adopting residential solar photovoltaic systems in the United States: Toward an integration of behavioral theories. *Energy Research & Social Science, 25,* 134-151.

11th Annual
Psychology Day at the United Nations

Climate Change:
Psychological Interventions
Promoting Mitigation and Adaptation

facebook.com/UNPsychologyDay
twitter: @UNPsychologyDay
#PsychDayUN2018

11th Annual
Psychology Day at the United Nations

Climate Change:
Psychological Interventions
Promoting Mitigation and Adaptation

CLOSING REMARKS

facebook.com/UNPsychologyDay
twitter: @UNPsychologyDay
#PsychDayUN2018

Thank you for attending!

11th Annual
Psychology Day at the United Nations

Climate Change:
Psychological Interventions
Promoting Mitigation and Adaptation

THANK YOU FOR ATTENDING

facebook.com/UNPsychologyDay
twitter: @UNPsychologyDay
#PsychDayUN2018