

Preparing Oregon's Watersheds for Climate Change

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DEFINITIONS

Preparing for climate change means *taking proactive steps to anticipate and consciously build resistance and resilience* to the likely range of climate change-induced stresses.

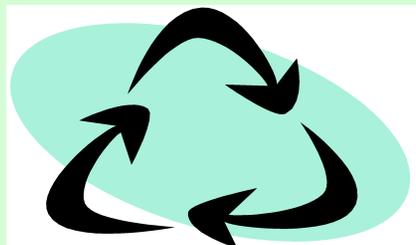
Resistance is the capacity of ecological systems, biodiversity, and humans to *prevent* climate change related impacts from occurring.

Resiliency is the capacity of a system to *adapt to and bounce back from* climate-induced stresses *without crossing a threshold into a new 'unwanted' condition.*

(Adapted from the Resiliency Alliance)

SUSTAINABILITY

- **Watersheds have the capacity to *exist in more than one condition* in which their structure, function and feedbacks are different.**
- **Disturbances—natural or human--can *drive them into a different regime*, often with unwelcome surprises.**
- **A sustainable watershed has the capacity to *absorb disturbance, adjust, but still retain its essential structures, processes, and feedbacks* without flipping into a new ‘unwanted’ condition.**



PREPAREDNESS VS. ADAPTATION

- Adaptation is often used to describe the process of coping with climate change. It describes how organisms respond to change over time. But organisms do not anticipate potential changes.
- Humans, however, have the capacity to anticipate the potential consequences & proactively build resistance & resiliency to them.



- Adaptation is thus an element of preparedness, but does not capture the full range of processes. It also can create inertia.

Key Questions in Preparing for Climate Change

- 1. What are the key variables, core dynamics and disturbances that shape your watershed now?**
- 2. Is your watershed approaching a new threshold?**
- 3. Might climate change alter the key variables and core dynamics and push your system into a new threshold?**
- 4. What management actions can sufficiently build resistance and resiliency to avoid such a change and capture opportunities?**

These questions are tough to answer—but continually asking them is key in preparing for climate change.

SIX CORE PRINCIPLES

1. Manage for diversity and redundancy

- Resilient watersheds are built on *diversity in all forms* such that they can *offset factors* that ‘*simplify*’ watersheds.

Genetic, biological, landscape, social, economic



- Resiliency requires redundancy (organisms, structures, processes) *that provide the same function*--the more variations available the better able to cope with a shock.

- *Response and functional diversity are key*—different functional groups of organisms and habitats that perform different roles (a range of species often exist within a functional group).

2. Manage for disturbance and change.

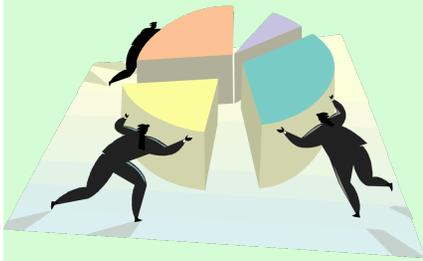
- Many of the problems facing our watersheds are the result of *past efforts to constrain and control ecological variability*—e.g. floods, fire, disease outbreaks.
- Unless disturbances are allowed to play out, *climate change may (further) simplify your watershed*—e.g. a forest never allowed to burn will lose its fire-resistant species and burn hotter.



- Managing change can help *prevent a disturbance from driving key variables over a threshold* into a new (unwanted) condition.

3. Embed modularity

- Modularity relates to *the way and extent to which the key variables within your watershed are interlinked.*



- In highly connected systems (tight linkages between all variables) *shocks move rapidly through the system, e.g. if a hatchery produces a single genetic variety of fish a blockage or disease can wipe out the entire run.*

- In resilient watersheds components that *are not all tightly linked* keep functioning *even when major shocks hit the system.*

4. Manage ‘fast’ and ‘slow’ changing variables— but emphasize slow.

- Variables are the key factors that *shape how your watershed functions*. Often there are many variables—but 3-5 are usually key



- We often manage for variables that are *readily visible, change quickly and are easy to measure* (e.g. fish return, trees planted).

- However, variables that *change slowly and thus are hard to see and measure* are often the key to sustainability of your watershed e.g. mycorrhizal fungus in Doug fir forests, nutrient cycle, biomass levels, sediment loads.

5. Build effective rapid feedback and learning mechanisms

- Climate-induced *changes in one variable can have important implications* for an entire watershed—even fully reconfigure it.
- Effective feedback systems help control this process by *detecting changing variables and thresholds before they are crossed*



- Feedback and learning mechanisms should account for *delays*.

6. Build capacity to manage ‘social-ecological’ systems

- More than natural disturbances & climate change affect watersheds. *Economic & social shocks also have effects.*



- Managing *one component of any system in isolation* might work in the short run, but *inevitably fails*.



- *Fully engage stakeholders and manage the whole system—social, economic and ecological, not its individual components.*

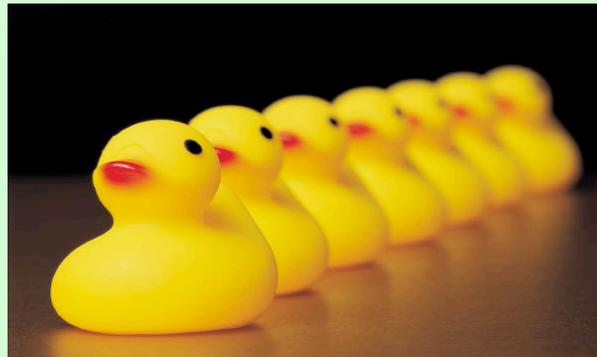
SIX CORE PRINCIPLES

- 1. Manage for diversity and redundancy**
- 2. Prepare & allow for disturbance and change**
- 3. Embed modularity ---don't connect everything**
- 4. Manage 'fast' & 'slow' changing variables—but emphasize slow.**
- 5. Build effective rapid feedback and learning mechanisms**
- 6. Build capacity to manage social-ecological systems**

BASIC STEPS

1. Organize Your Climate Preparedness Team & Process

- **Biophysical science team**
- **Key public agencies and stakeholders representing built, economic, human and cultural systems.**
- **Consider two steps: natural systems then community systems**

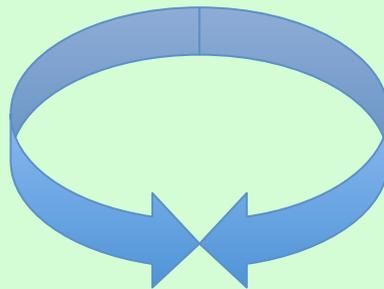


2. Bound Your System

Define the vulnerability of What, to What?

a) Identify resources of concern (e.g. salmon, water quality, forests, agricultural productivity)

b) Identify key management challenges (e.g. dams, water withdrawals, sedimentation)



3. Identify 'Slow' & 'Fast' Moving Variables

a) List all of the factors (variables) that shape the structure and function of your watershed

e.g. density of fish or mammals; nutrient content of streams or soils; level of snowpack or rainfall; density of riparian cover, grazing or timber harvest levels

b) Then identify the handful of (often slow moving hard to measure) variables that *play the dominant role in shaping the trajectory of your watershed.*

If you know the thresholds of these core variables you *might be able to build resilience and prevent crossing thresholds.*

4. Identify Major Disturbance Regimes

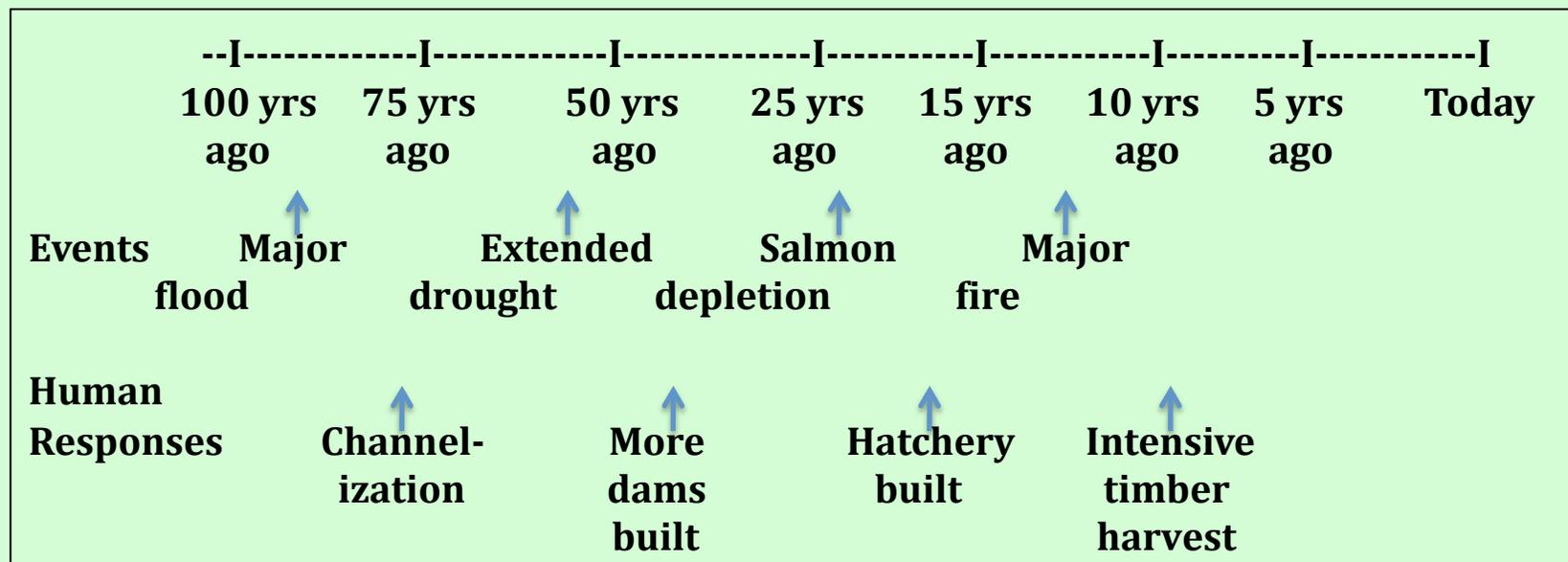
- A disturbance is *anything that causes significant disruptions to your watershed.*

Natural disturbances can include drought, floods, disease outbreaks, fire etc.
Human disturbances can include dams, water diversions, land conversion, excessive timber harvest, pollution etc.

- Identify the major *ongoing (“press”)* disturbances as well as the *short term (“pulse”)* disturbances that shape your watershed.

5. Map the History of Change In Your Watershed

Summarize the historic patterns of major stresses or triggering events & human responses.



Then ask: “Do any patterns stand out?”

6. Identify Critical 'Thresholds' That Have *Already* Been Crossed

Critical threshold: the point at which *sudden or dramatic change* occurs that flips ecological systems or species into a *new unwanted condition or causes unacceptable losses to your system.*

- **Use history of change map to determine if your watershed has already crossed a threshold into into a different regime.**



7. Identify Possible *Future* Critical Thresholds

- a) Use the historic record of the disturbances to see if any of them help to *defined the edge of the coping range of your watershed.***

- b) You can also look at changes and conditions seen in *other watersheds within a similar ecoregion.***

8. Examine How Climate Change Might Impact Your Watershed

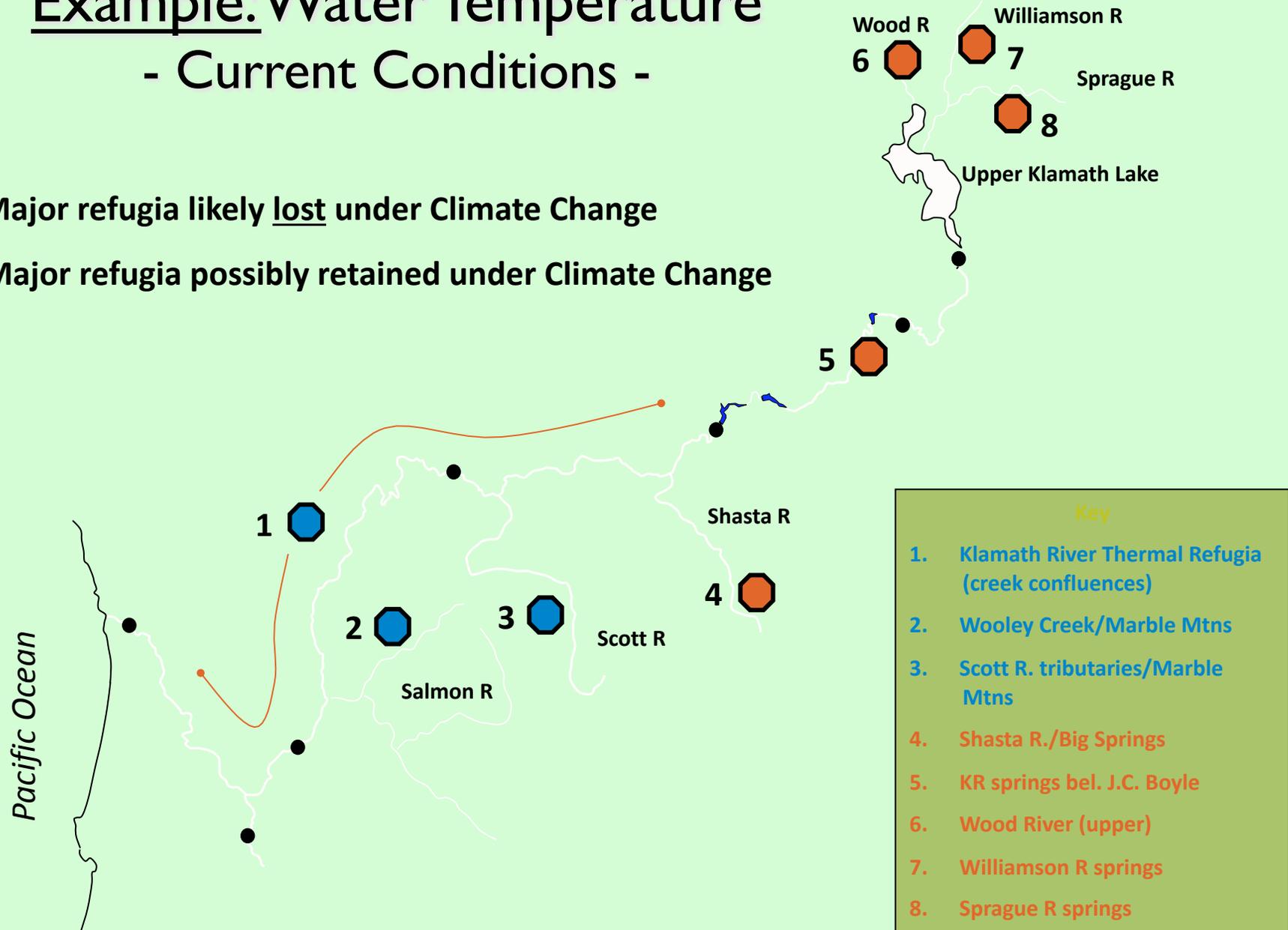
- a) **Use downscaled scenarios to assess the potential vulnerability of *systems, species, and locations*.**
- b) **Identify how it might *affect slow and fast moving variables and disturbance regimes*.**
- c) **Consider *cross-scale affects***
- d) **Identify potential economic, social and ecological *opportunities***

Example: Water Temperature

- Current Conditions -

 Major refugia likely lost under Climate Change

 Major refugia possibly retained under Climate Change



SCENARIO PLANNING

- **An exercise in “what if” planning—**

“If this story played out what would likely happen?”

“Would we be ready for those changes?”

“What could be do to prepare?”

- **Often some *obvious actions* emerge that should be taken under *all scenarios*, some *precautionary actions* are identified, & *long term monitoring is established* for effects you are unsure of.**

9. Assess Risks and Set Priorities

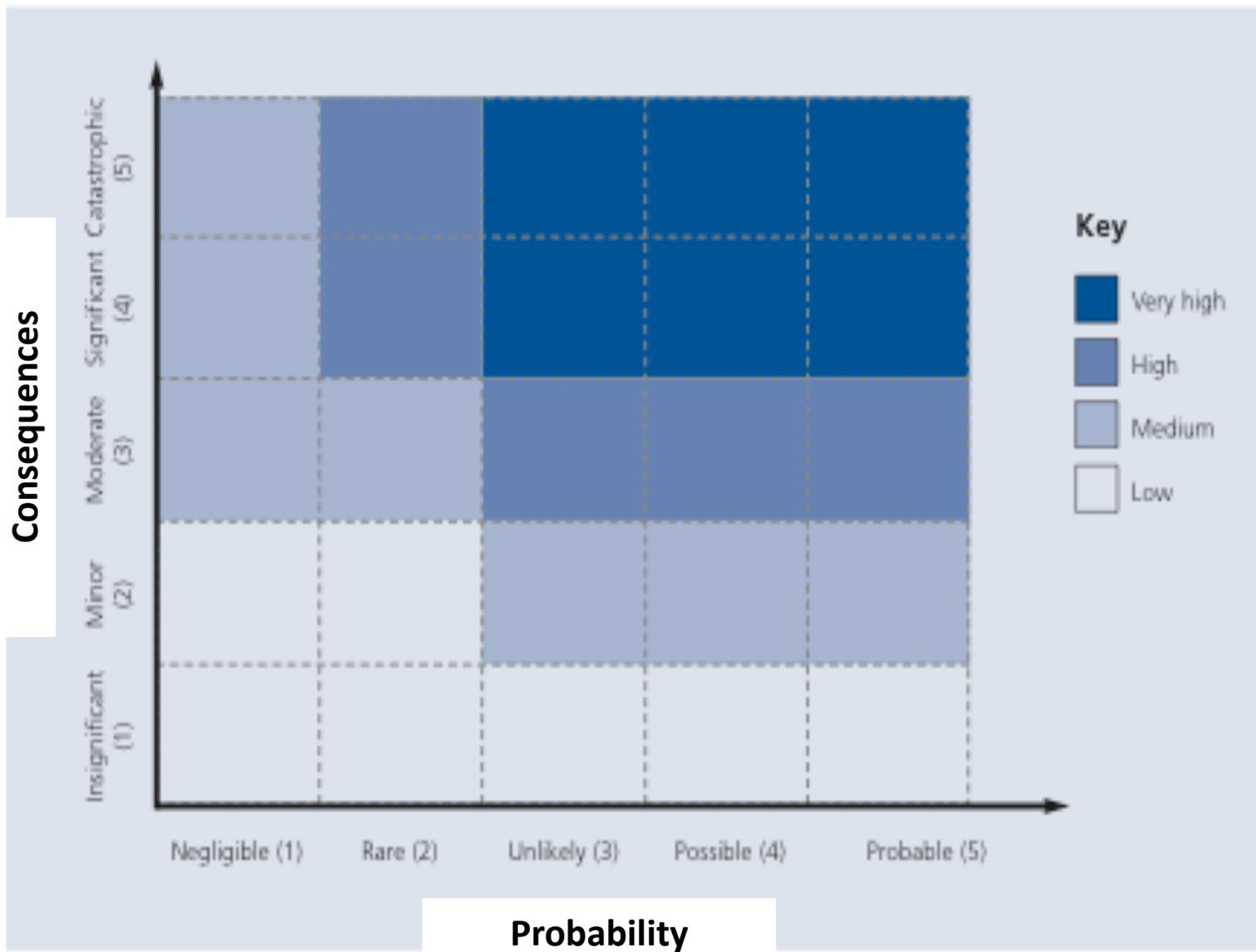
Standard Approach

Risk= the *probability* of occurrence x the magnitude of the *consequence* of occurrence. $R=P \times C$

- a) Use a matrix and for each impact assign a value of 0-5, or low, medium and high for (1) the likelihood of an impact occurring and 2) the magnitude of its consequence should it occur.

- b) Plotting the risks into a chart can make it easier to visualize.

Sample Risk Assessment Matrix



SAMPLE WATERSHED RISK CHART

Process, Species, Stream Reach, Place	Potential Impact	Fast & Slow Variables Affected or Disturbances Magnified	Probability of Occurrence	Magnitude of Consequence (including risk of pushing system into new state)	Risk Rating (High, Medium, Low)	Risk Ranking (by number)	Proposed Actions
EXAMPLE 1. Reduced Snowpack	Low summer stream flows; water quality and temp	Fish (F), nutrient cycle S), Drought	H	H	H	1	Riparian protection; Forest cover; Water conservation
2. Drought							
3.							
4.							
5.							

SAMPLE OF SUITE OF POSSIBLE ACTIVITIES

Specifics are Agency, Issue, and Resource Dependent

- Land and vegetation management projects
- Wildlife management projects
- Water (quality and quantity) management projects
- Road improvement projects
- Wetland and riparian projects
- Fish management projects
- Infrastructure development or funding
- NEPA analysis and responses
- Permitting
- Enforcement
- Emergency planning
- Agency standards and regulations
- Education and outreach
- Partnership development
- Technical assistance
- Data gathering, assessments, modeling
- Other

(Adapted from EPA Methodology Jan 2010)

10. Identify Strategies and Tactics, Develop Workplan etc.

Category	Example
Maintain status quo	Do nothing and rebuild or abandon structures, restore systems after damage
Prevent the loss	Protect refugia, hyporheic zones & trib junctions, enhance wetlands for floods, protect cold water springs for drought
Spread or share the loss	Purchase flood insurance
Change the activity	Don't build in low lying coastal areas or floodplains, don't cut on steep slopes, rebuild wetlands, water exchanges
Change the location	Relocate buildings out of flood zones, connect strongholds via riparian areas, expand reserves uphill and northward
Increase buffering capacity	Replant diverse vegetation, enhance genetic diversity, increase crop diversity

Sample Actions to Build Aquatic Ecosystem Resiliency to Climate Change

- Identify watersheds that are likely to remain functional over next 50 years
- Identify and protect priority refugia
 - Mostly cold water springs that can keep streams cool as reduced flows increase water temps.
- Consider alternative water allocations
 - balancing species, people and agriculture
- Augmenting flows
 - Restore landscape sponges
 - Small reservoirs
- Protecting and restoring springs/groundwater
- Riparian restoration
- On coast focus on coastal fog zone, including estuaries

(Jim Sedell)

Sample aquatic system climate change actions

Action	Does action ameliorate climate change effect?		
	Temperature increase	Low flow decrease	Peak flow increase
Road rehabilitation	N	N	N/Y
Riparian rehabilitation	Y	N/Y	N
Floodplain connectivity	Y	N	Y
Restore in-stream flow	Y	Y	N
In-stream habitat	N	N	N
Nutrient enrichment	N	N	N
Restore incised channel	Y	Y	Y

Modified from summary table by Jen Greene via Jim Sedell

IDENTIFY ECONOMIC AND COMMUNITY OPPORTUNITIES

Continually Ask:

- What type of new products, crops, businesses, or jobs could help build resistance and resiliency to climate change?
- What type of new products, crops, businesses or jobs will be viable under changing climate conditions?
- How can we build the foundation needed to capture these opportunities?

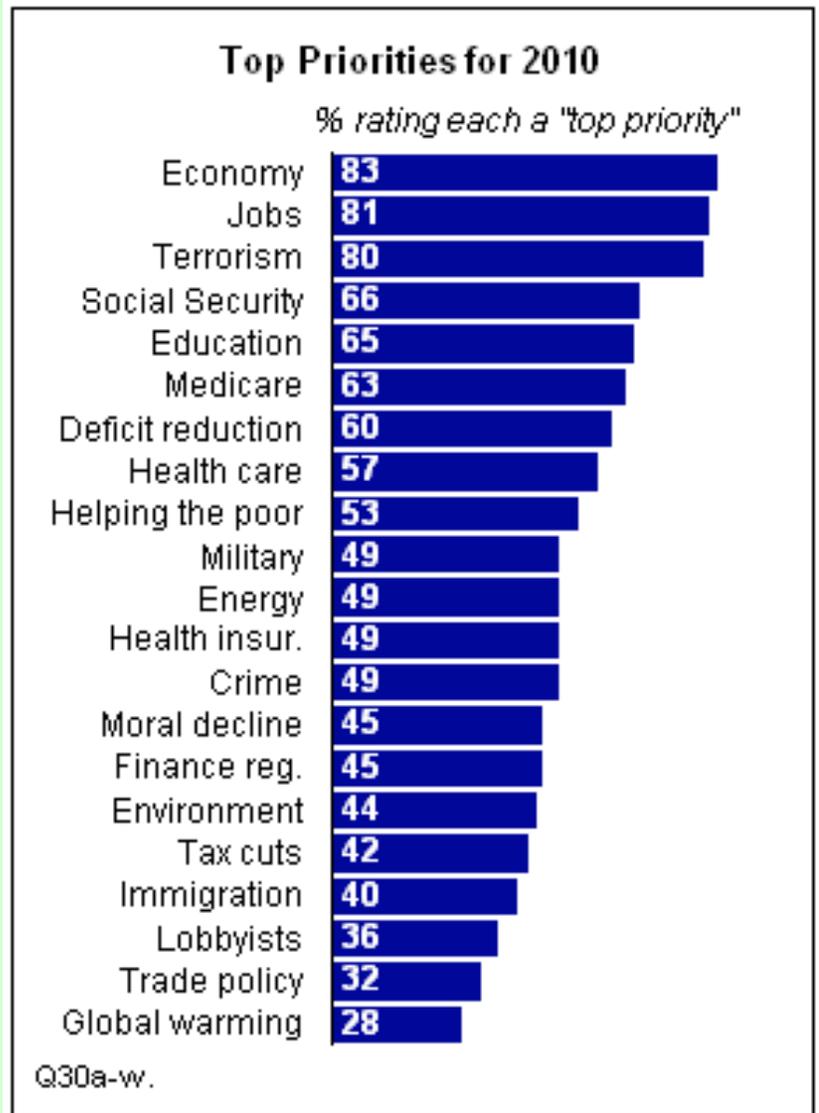


SAMPLE RANKING CRITERIA

Criteria	Activity #1	Activity #2	Activity #3	Activity #4
Potential for effective and defined outcomes				
Co-benefits for other systems or species				
Co-benefits for other sectors				
Cross-program benefits				
Prevention of major ecological loss				
Prevention of major social or economic loss				
Costs				
Equity				

COMMUNICATING EFFECTIVELY
ABOUT GLOBAL WARMING

CURRENT PUBLIC OPINION



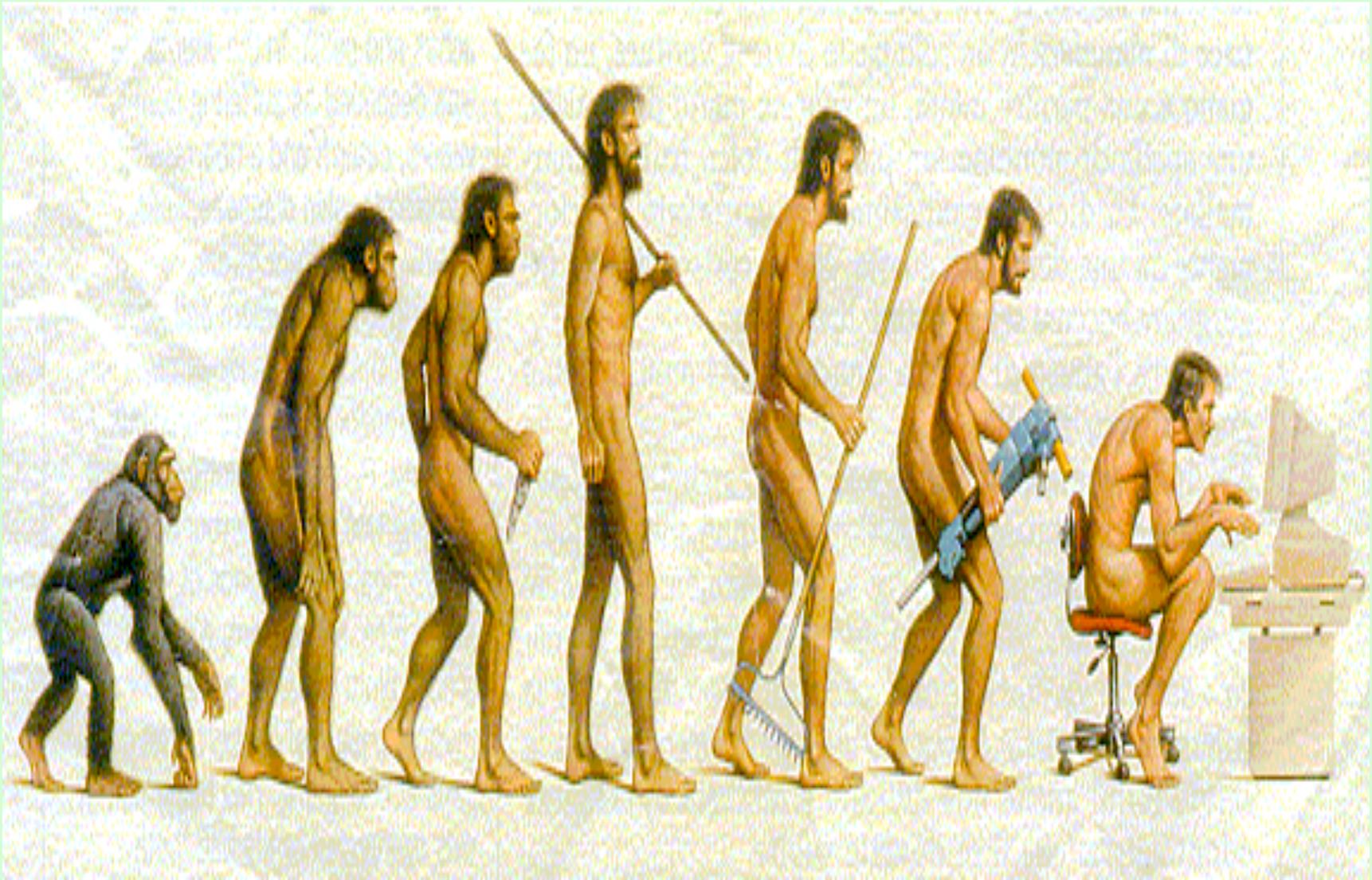
Pew: January 2010

Do you think that global warming is happening?

	2010	2008**
Yes	57	71
No	20	10
Don't Know	23	19

Yale Project on Climate Change: January 2010

PEOPLE CAN AND DO CHANGE!



CLI CLIMATE COMMUNICATIONS RESEARCH IS BASED ON

Practitioner Input

25+ organizations shared research and helped develop framing recommendations

Meta-analysis of 70+ sources

publicly available and confidential research

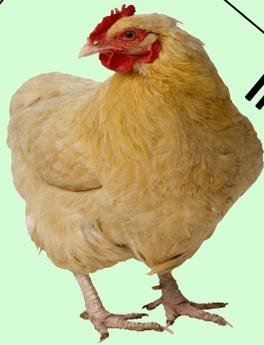
Cost research

4 focus groups
talkback tests with 150 subjects

Message testing

8 focus groups
talkback tests with 600+ subjects
ad concept testing

FRAMES DEFINE HOW WE SEE THE WORLD



Industrial Societies



Non-Industrial Societies



A frame is a “central organizing idea...for making sense of relevant events, suggesting what is at issue.” Gamson/Modigliani

HOW DO PEOPLE AND ORGANIZATIONS CHANGE?

PLEASE ANSWER YES OR NO

1. My target audience has taken **some** actions in the **past six months** to prepare for global warming.
2. My target audience **intends** to take action **in the next month** to prepare for global warming.
3. My target audience **intends** to take action in the **next six to twelve months** to prepare for global warming.
4. My target audience has fundamentally **changed** their behavior & now **consistently** prepares for global warming.

SCORING

- If you answered no to all statements your group is in the Disinterest stage of the shift to climate-positive change.
- If you answered yes to statement three and no to all of the others, your group is in the Deliberation stage of change.
- If you answered yes to statements two and three and no to the others your group is in the Design stage of change.
- If you answered yes to statement one and no to statement two your group is in the Doing stage of change.
- If you answered yes to statement four, your group is in the Defending stage of the shift to climate-positive behavioral change.

FIVE STAGES OF CHANGE FOR THE CLIMATE

Disinterest: "I won't" change.

Key Process: Opening self to possibility of change

Deliberation: "I might" change.

Key Process: Weighing the pros and cons of change

Design: "I will" change.

Key Process: Making public commitment to change

Doing: "I am" changing.

Key Process: Breaking habits & starting new patterns

Defending: "I have" changed.

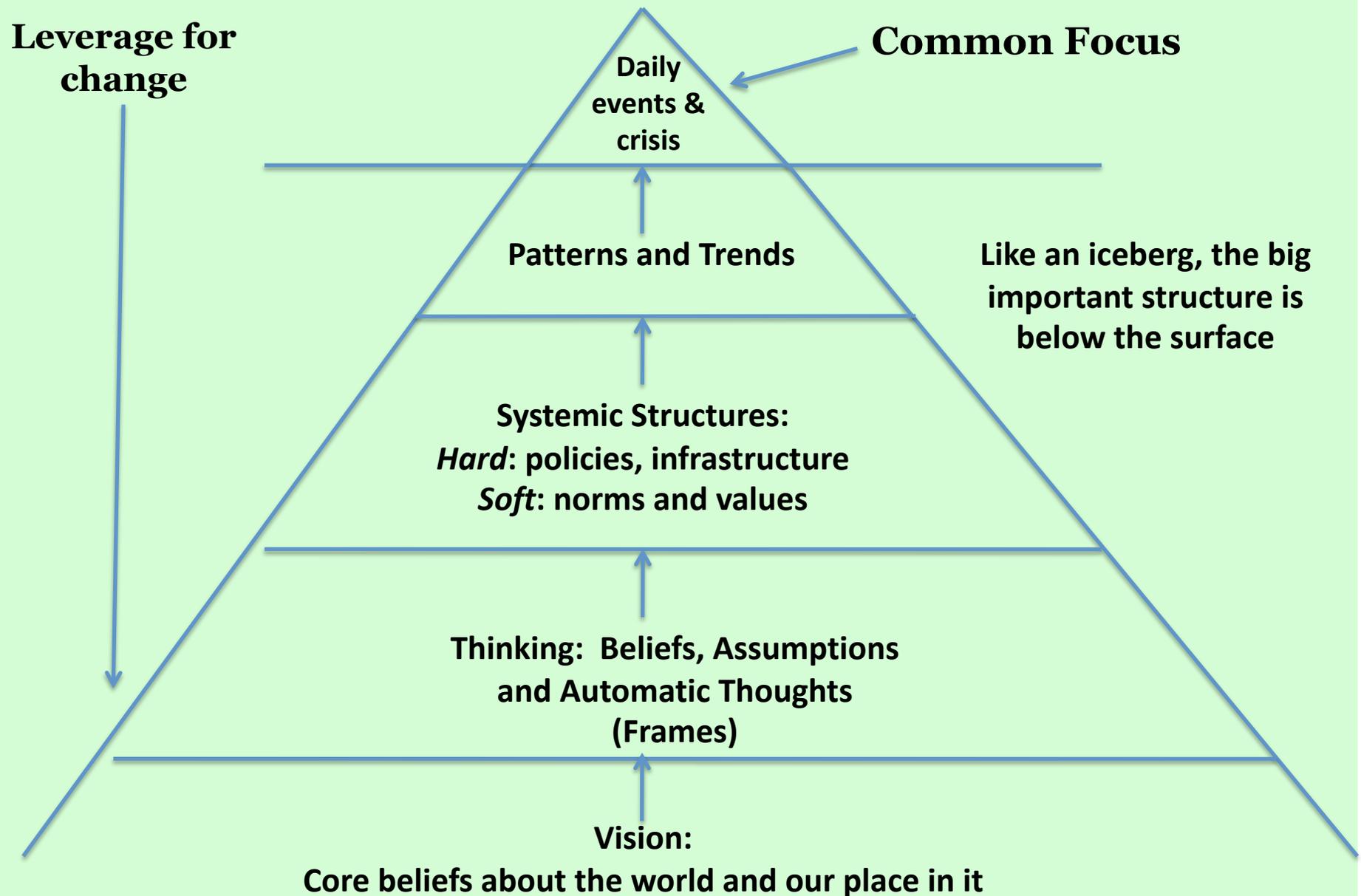
Key Process: Sticking with new thinking and behaviors

To Motivate Others Change Thinking and Behavior...

Know the Stage of Change & Use Proper Communications in Each Stage

- Each stage is predictable and can be diagnosed
- Successful movement through each requires that a specific set of activities be completed.
- Using mechanisms better suited for other stages often slows, halts, or reverses change.

THE ICEBERG: PUTTING COMMUNICATIONS IN CONTEXT



HOW DO YOU MOTIVATE CHANGE?

THREE FUNDAMENTALS

1. **TENSION:** Sufficient internal tension (dissonance) between a desired & current condition
2. **EFFICACY:** Confidence in ones capacity to reduce the tension
3. **BENEFITS:** See the benefits of new behavior as being significantly greater than the downsides of change

The First Key to Motivating Change

Build 'Tension' About Global Warming

- To make a fundamental change, people must feel sufficient tension (dissonance) between a desired goal or value and current reality.
- Tension can be a desire to obtain a positive (e.g. better health, family security, live our values) or avoid a negative (e.g. financial loss, rising costs, property damage).



Communications must emphasize the critical nature of global warming &/or unmet goals or values

“TENSION” IN U.S. ABOUT GLOBAL WARMING IS MODERATE

- **Only 18% of Americans are ‘alarmed’ enough by global warming to personally engage in solutions.**
- **Another 33% are ‘concerned’, but their level of motivation is not strong enough to become personally involved.**
- **42% of the public is not particularly worried and 7% feel no discomfort at all.**

(George Mason & Yale University: Global Warming’s Six America’s 2009)

CHALLENGES IN BUILDING TENSION

The **SIX CHALLENGES** in Building Tension for Action on Global Warming

1. The Terrarium Challenge
2. The Weather Challenge
3. The Warming Challenge
4. The Someday Challenge
5. The “Technology Will Save Us” Challenge
6. The Long List of Impacts Challenge

CHALLENGES IN BUILDING

TENSION

The Terrarium Challenge

- When framed as an environmental issue, global warming becomes just about plants and animals, and other issues seem like a higher priority.



The Weather Challenge

- Most people focus on changes in the weather from day to day and do not understand their relationship to the larger climate patterns that play out over time.



CHALLENGES IN BUILDING TENSION

3. The Warming Challenge

- When the issue is seen as nothing more than a slow, uniform warming around the globe, it is easy to dismiss the importance of the problem and easy to caricature.



4. The Someday Challenge

- When energy solutions are associated with the future, they are forever distant and the path to them unclear.



CHALLENGES IN BUILDING TENSION

5. The “Technology Will Save Us” Challenge

- Many Americans believe that experts will eventually come up with technological solutions to global warming, reducing the need for urgent action now.



6. The Long List of Impacts Challenge

- A long list of frightening impacts can be overwhelming to the point that they check out or become defensive of the current American lifestyle.



HOW TO BUILD TENSION

FOUR RECOMMENDATIONS for adding tension to the global warming conversation

- 1. Illustrate what it means for the climate to change**
- 2. Leverage the idea of “too much carbon”**
- 3. Convey the link between energy and global warming**
- 4. Emphasize that we are facing a moment of choice**

1. ILLUSTRATE WHAT IT MEANS FOR THE CLIMATE TO CHANGE

- **Global warming is not just about temperature – it is about the basic weather patterns that make up our climate.**
- **The climate is the very foundation of our lives.**
- **Every aspect of our lives depends on a stable climate.**
- **Weather patterns affect just about everything in our lives.**

2. LEVERAGE THE IDEA OF “TOO MUCH CARBON”

- **Use Simple Terms such as: “carbon overload” or “carbon load”**
- **Build on “too much carbon” to teach other global warming basics**
- **Use “too much carbon” and the idea of carbon management to recruit “budget” thinking**
- **Focus the conversation on the reduction of carbon**
- **Use “too much carbon” to connect global warming to forests and oceans**

3. CONVEY THE LINK BETWEEN ENERGY AND GLOBAL WARMING

- Make the connections between energy, carbon and global warming
- Clarify what is meant by “clean energy” and use terms like “carbon-free”
- Emphasize successful use of renewable energy technologies
- Illustrate the opportunities associated with energy efficiency as a way to overcome the term’s lack of power and urgency.
- Offer concrete examples of policy change to promote efficacy.

4. EMPHASIZE THAT WE ARE FACING A MOMENT OF CHOICE

- Many Americans care about global warming but believe that addressing it can wait, compared to job creation and economic recovery.
- Illustrate how ignoring global warming will let the problem get worse, leading to more damage and costs over time.
- Talk about how taking smart and responsible sense now is the common sense approach.

The Second Key to Motivating Change

Build 'Self-Efficacy'

- People must have sufficient confidence that they can reduce the tension & eliminate the dissonance

Perception of *social networks, costs, difficulty, skills* keys.



Communications must build confidence in the ability to solve the problem & enhance faith that new practices & policies will make a difference.

EFFICACY ABOUT GLOBAL WARMING IS EXTREMELY LOW

- **Although a majority of Americans believe it is possible to reduce global warming, very few are confident we will do so.**
- **e.g. only 8% of the Alarmed and Concerned segments—the groups with the greatest apprehension about global warming—are convinced that humans will make the changes needed to solve the problem.**

(Global Warming's Six America's)

CHALLENGES IN CREATING A SENSE OF EFFICACY

The **FIVE CHALLENGES** in creating a sense of Efficacy

1. The Kitchen Sink Environmentalism Challenge
2. The Leaders are Taking Care of it Challenge
3. The “Little Things Make a Difference” Challenge
4. The Perfection Challenge
5. The Environmental Overload Challenge

CHALLENGES IN CREATING EFFICACY

1. The Kitchen Sink Environmentalism Challenge

- Lack of clarity around the causes of global warming gets in the way of seeing the right action to take.



2. The Leaders are Taking Care of it Challenge

- Assume that if it's a serious problem, then it's being taken care of, or if leaders aren't acting, then solutions don't exist.



CHALLENGES IN CREATING EFFICACY

3. The "Little Things Make a Difference" Challenge

- Individual behavior change is critical, but it can distract from the need for collective through policy change and community efforts.



4. The Perfection Challenge

- While a certain amount of skepticism can be a good thing, it can also lead to a reluctance to embrace any solution that is not 'perfect'



CHALLENGES IN CREATING EFFICACY

5. The Environmental Overload Challenge

- Green is now a buzz word and people don't know who trust or how to sort out environmental claims.



HOW TO CREATE EFFICACY

FOUR RECOMMENDATIONS to create a sense of efficacy around our ability to address global warming

- 1. Connect global warming to other priority issues.**
- 2. Avoid pollution as a lead idea.**
- 3. Focus on solutions at all levels – individual, organizational societal.**
- 4. Give the audience a clear role in the story.**

1. CONNECT GLOBAL WARMING TO OTHER PRIORITY ISSUES

- Connect global warming to concerns that people already have.
- Provide people with a sense that there are actionable solutions to address global warming
- Clearly illustrate the roles individuals can play even when the “ask” includes policy change.

2. AVOID POLLUTION AS A LEAD IDEA

- **Using pollution to describe the cause of global warming doesn't help people make the connection between carbon-based energy use and other causes of global warming.**
- **Other ideas, such as the role of "too much carbon" should be established first.**
- **Refer to "the carbon pollution that causes global warming" to explain that we are dealing with a problem of too much carbon in the atmosphere.**

3. FOCUS ON SOLUTIONS

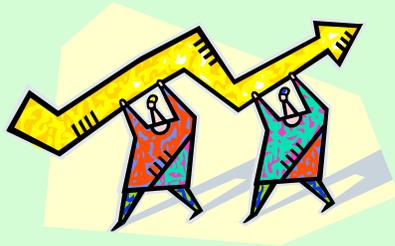
- **Make it clear that government needs to play a proactive role, rather than waiting for the energy situation to “evolve on its own.”**
- **Make the need for collective action apparent, and highlight the importance of citizen action in keeping government accountable.**
- **Illustrate how ideas help solve the problem by using simple explanations that help people make the connections.**
- **Show the link between specific opportunities and how they will address global warming.**

4. GIVE THE AUDIENCE A CLEAR ROLE IN THE STORY

- Help people to bridge between personal and collective action.
- Lower the bar for “collective action” so that people can begin to get engaged and identify themselves with the issue.

The Third Key to Motivating Change

Build the Benefits of Addressing Global Warming



- To make a fundamental shift, people must see at least two benefits to new behaviors for every downside



Communications must build the pros and minimize the cons of solving global warming.

CONFIDENCE IN THE BENEFITS OF REDUCING GLOBAL WARMING IS LOW

- **Alarmed and Concerned Americans expect an average of 6 to 8 benefits (out of 10 offered), such as a better life for their children and an improving economy, if the U.S. acts to reduce global warming.**
- **The other 50% of American's see very few benefits and 18% of this group even expect 2 to 3 negative outcomes.**

(Global Warming's Six America's)

CHALLENGES IN CONVEYING THE BENEFITS

The **THREE CHALLENGES** in conveying the
benefits of change

1. The Energy Cost Challenge
2. The Identity Challenge
3. The Environmental Fatalism Challenge

CHALLENGES IN CONVEYING BENEFITS

1. The Energy Cost Challenge

- Once prices return to “normal,” energy saving activities and support for systemic change can decline.



2. The Identity Challenge

- Global warming is seen through a partisan lens and associated with environmental elites who are out of touch with mainstream America.



CHALLENGES IN CONVEYING BENEFITS

3. The Environmental Fatalism Challenge

- If you don't think anything can be done to make things better, you are not likely to act.



HOW TO CONVEY BENEFITS

TWO RECOMMENDATIONS to convey the
benefits of change

- 1. Tie the need for carbon-free energy choices to the possibility of jobs and economic prosperity.**
- 2. Create a connection to people's identities, interests, and worldviews.**

1. TIE THE NEED FOR CARBON-FREE ENERGY CHOICES TO THE POSSIBILITY OF ECONOMIC PROSPERITY

- Appeal to higher-level values about energy and economy.
- Focus on the need for action now, rather than emphasizing a future transformation.
- Provide concrete examples of the types of jobs and economic opportunities that will result.

2. CREATE A CONNECTION TO IDENTITY

- Even those who care deeply about the environment can view global warming as distant, disconnected to their lives and outside of their ability to influence.
- Rather than seeing it as yet another cause to have to pay attention to, connect the dots for the public by demonstrating how actions they are already taking fit in.

TRADITIONALISTS



20% of adults, 24% of voters
81% Caucasian
47% between 25-44 years of age
32% between 45-64 years of age
55% live in a rural location or small town
22% rank GW as one of the most important issues

Tap

Duty

National Pride

Liberal Communitarianism

Altruism

Avoid

Excessive Taxation

Apocalypse

Humans superior to animals

Sample Frames and Messages

You may have been hearing more talk about global warming but are unsure if there is anything we can do about it. It may just be God's will. Regardless of the cause, being responsible stewards means ensuring that our children have the opportunity to enjoy the high quality of life we enjoy. Global warming threatens that way of life, particularly in communities where the economy is dependent on a stable climate for growing food, harvesting timber, and providing recreational and tourism opportunities. Investing in clean energy can bring economic development to communities that need it without destroying our way of life.

MURKY MIDDLES



17% of adults, 16% of voters
67% make <\$75k
40% identify as Independents
34% rank GW as one of the most important issues

Tap

Equal Relationship with Youth
Openness to Change

Avoid

Aversion to Complexity
Enthusiasm for New
Technology
Duty

Sample Frames and Messages

These days, it can take every ounce of energy to get ahead. We are all working harder and for less return. It is time for a change. There are simple things we can all do to get America back on track, such as saving energy at home. Why bother wasting time arguing about issues like global warming? We can save money and create jobs by making our buildings and cars run on less energy. It just makes sense.

CRUEL WORLDERS



6% of adults, 6% of voters

71% make <\$75k

85% Caucasian

38% work in semi- to unskilled trade

29% rank GW as one of the most important issues

Tap

Entrepreneurialism

American Entitlement

Tried and True

Avoid

Aversion to Complexity

Technology Anxiety

Every Man for Himself

Sample Frames and Messages

America knows how to face tough challenges. We have faced them before and have had the creativity and resiliency to prevail. Our entrepreneurial spirit will help us stay ahead of the pack when it comes to finding new energy sources that we can use to power our lives and save money. Global warming is already impacting the American way of life. We can't afford to let China and India take the lead and push us to the side.

SUGGESTIONS FOR TALKING TO A SKEPTIC

- **There is no evidence of global warming.**
 - The IPCC cited several lines of evidence in concluding that warming is “unequivocal”
- **The primary cause of fluctuations is changing solar activity levels and ocean temperatures.**
 - The mean temperature over the U.S. or any other region does fluctuate from year to year.
- **The current warming is just a natural cycle.**
 - Natural causes such as solar variability and volcanic activity are not the cause of today's warming.
- **There is no proof that rising CO₂ causes global warming.**
 - Very strong evidence shows that higher levels of CO₂ by themselves would cause warming.
- **Global warming is a hoax committed by environmental extremists**
 - The IPCC report was produced by over 600 authors from 47 countries, and reviewed by over 600 experts and governments.
- **There are many competing theories and unknowns about climate change**
 - There is little debate in the climate science community about whether changes in atmospheric CO₂ concentrations alter the earth's greenhouse effect. There *are* debates about how high temps will go and how quickly.



Contact Information

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