

Climate Change: The Public Health Response

APHA Session 4077
Climate Change: A Challenge to Public Health
6 November, 2007

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Agency for Toxic Substances and Disease Registry
Centers for Disease Control and Prevention

Potential Health Effects of Climate Change

Climate change:

- Temperature rise
- Sea level rise
- Hydrologic extremes



- ➔ Heat stress, cardiovascular failure
- ➔ Injuries, fatalities
- ➔ Asthma, cardiovascular disease
- ➔ Resp allergies, poison ivy
- ➔ Malaria, dengue, hantavirus, encephalitis, Rift Valley fever
- ➔ Cholera, cryptosporidiosis, campylobacter, leptospirosis
- ➔ Malnutrition, diarrhea, harmful algal blooms
- ➔ Anxiety, post-traumatic stress, depression, despair
- ➔ Forced migration, civil conflict

Adapted from J. Patz

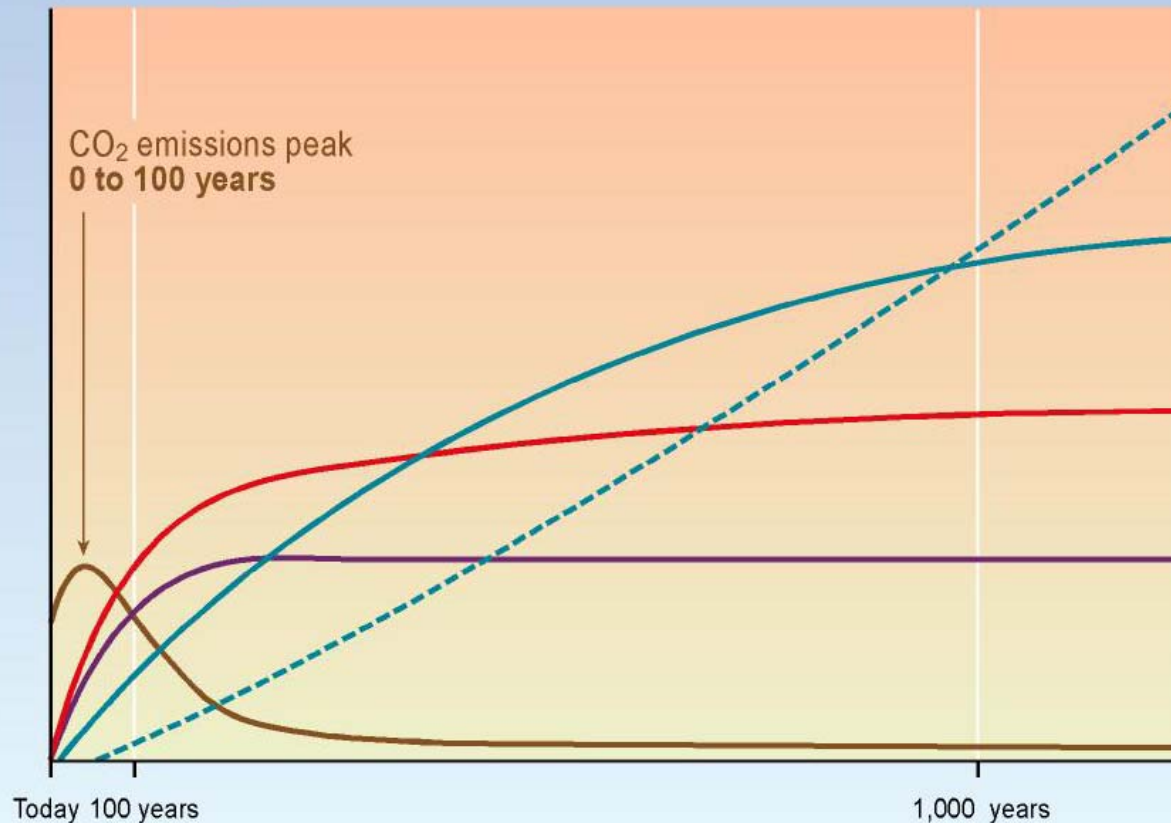
Looking over the horizon



The climate change commitment

CO₂ concentration, temperature, and sea level continue to rise long after emissions are reduced

Magnitude of response



Time taken to reach equilibrium

Sea-level rise due to ice melting:
several millennia

Sea-level rise due to thermal expansion:
centuries to millennia

Temperature stabilization:
a few centuries

CO₂ stabilization:
100 to 300 years

CO₂ emissions

Source: IPCC

- Intergenerational responsibility
- Stewardship



Evangelical Climate Initiative

New! Youth Statement Sign Up

Contact us

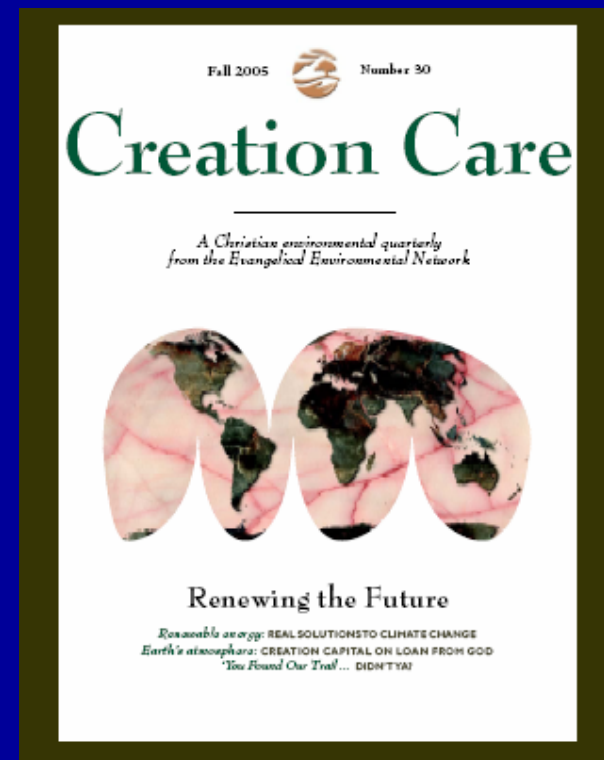
Statement FAQ Action Resources Press


Sign up for updates and mailing list

"For by Him (Christ) all things were created: things in heaven and on earth." (Col. 1:16)

The same love for God and neighbor that compels us to preach salvation through Jesus Christ, protect the unborn, preserve the family and the sanctity of marriage, and take the whole Gospel to a hurting world, also compels us to recognize that human-induced climate change is a serious Christian issue requiring action now.

To make clear our views and commitment, as evangelical leaders we have issued the statement *Climate Change: An Evangelical Call to Action*. We invite



Fall 2005  Number 30

Creation Care

A Christian environmental quarterly from the Evangelical Environmental Network

Renewing the Future

*Reasonable as a dog: REAL SOLUTIONS TO CLIMATE CHANGE
Earth's atmosphere: CREATION CAPITAL ON LOAN FROM GOD
"You Found Our Trail... DIGNITY"*

Care for the
individual
patient

Care for the
community

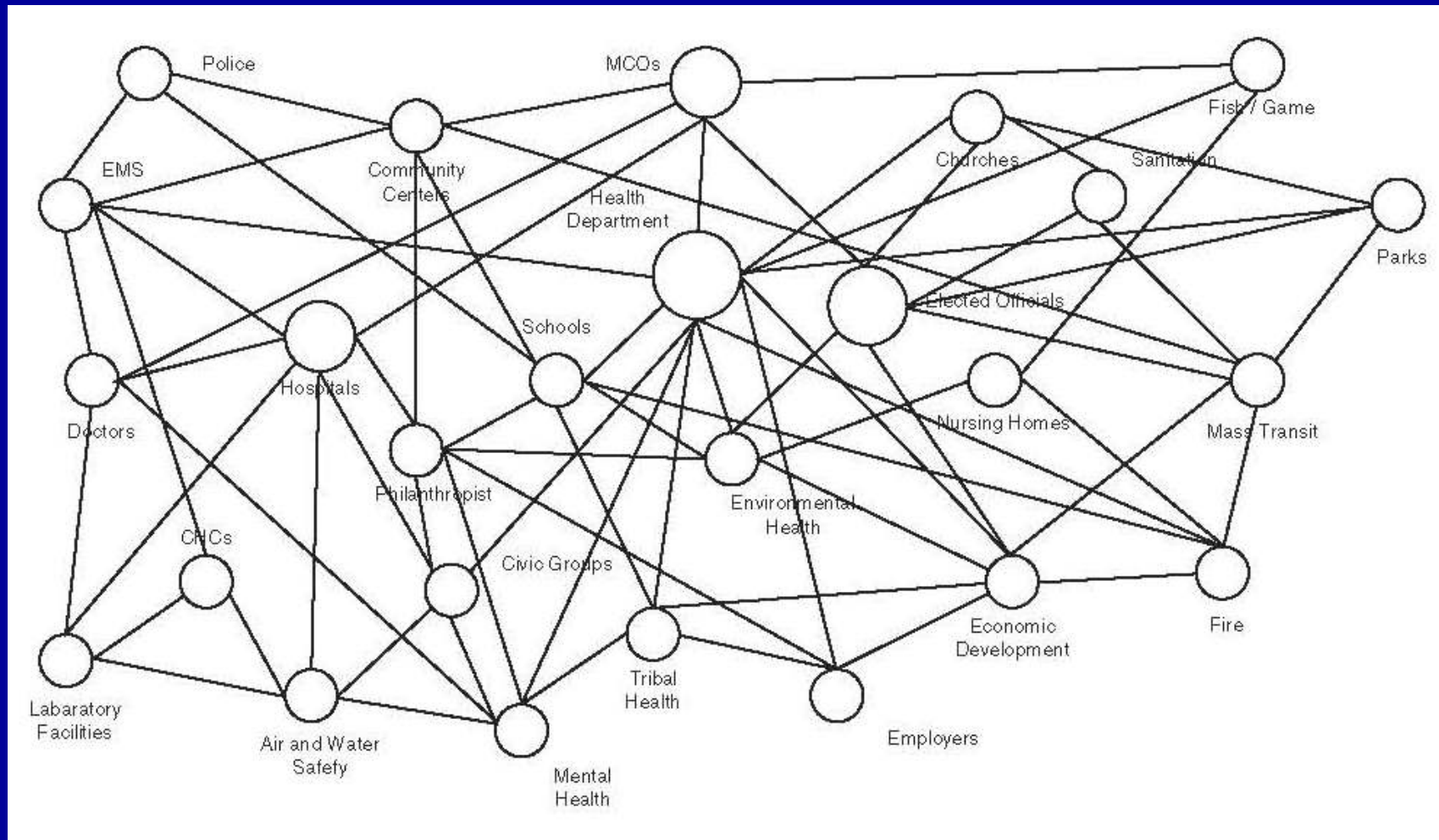
Care for
future
generations

THE CLINICAL
APPROACH

THE PUBLIC
HEALTH
APPROACH

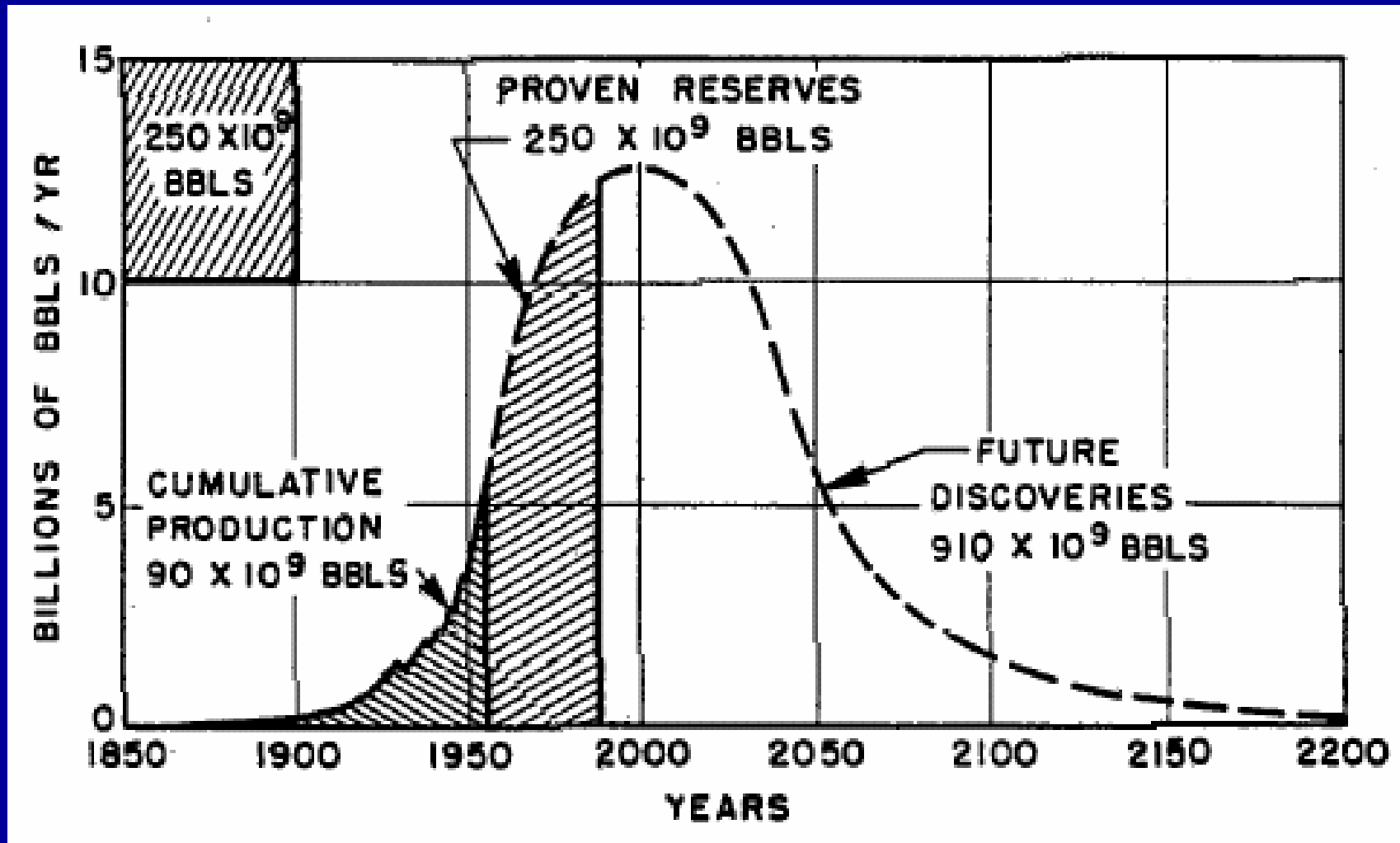
THE LEGACY
APPROACH

Systems thinking



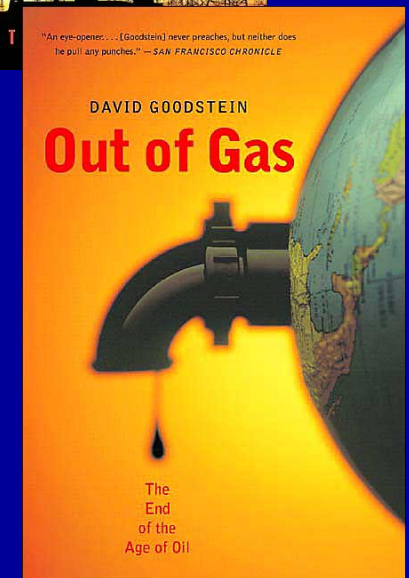
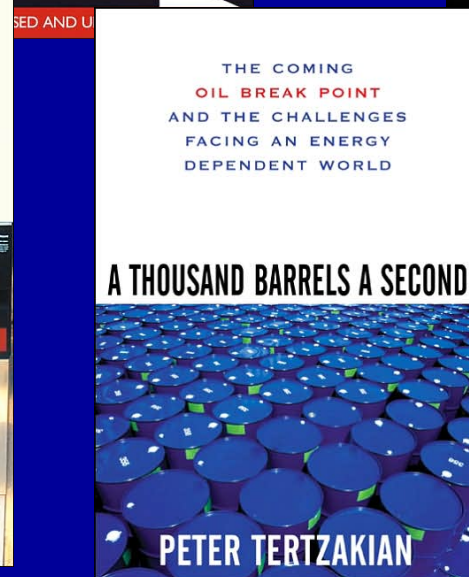
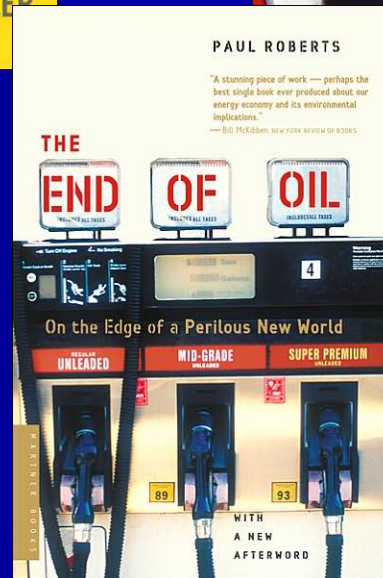
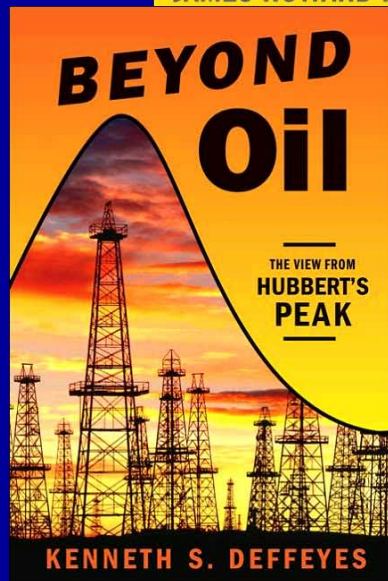
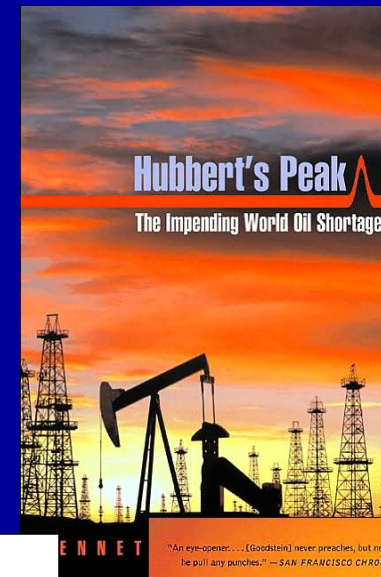
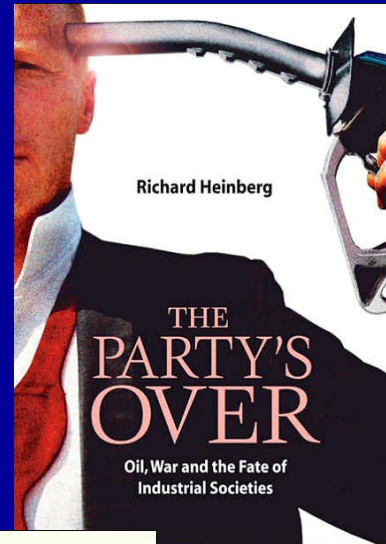
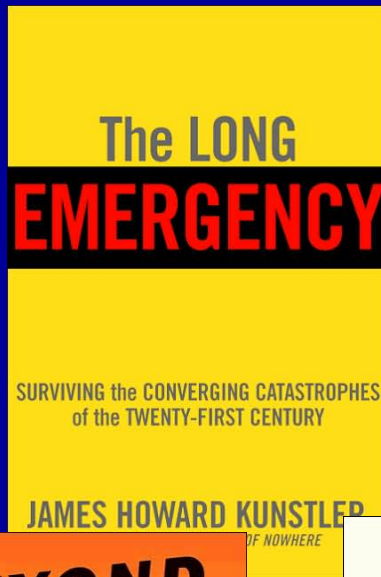
Reality (simplified)

“Hubbert’s peak”



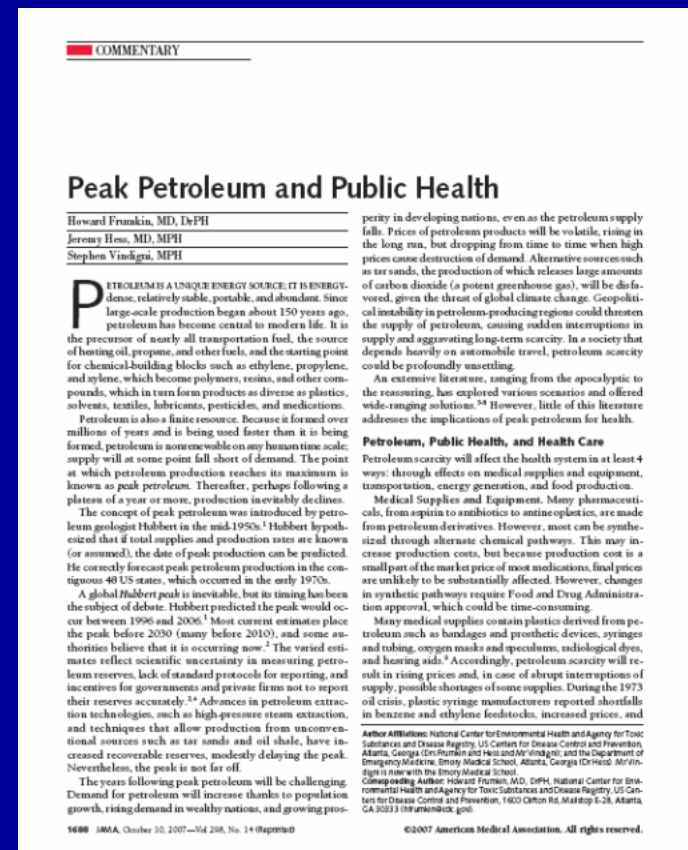
Source: Hubbert, 1956

Peak petroleum

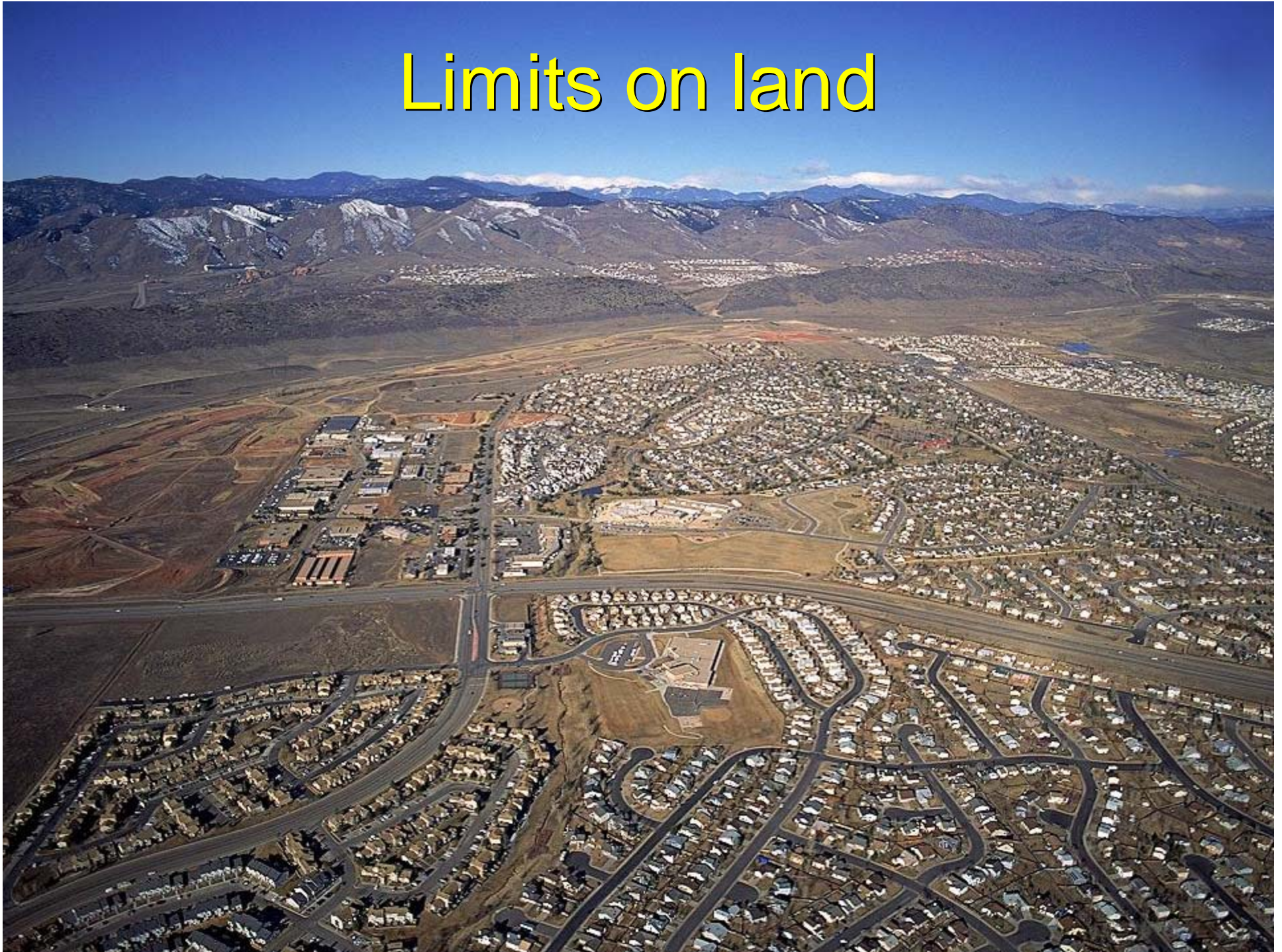


Peak petroleum and public health

- Medical supplies and equipment
 - Medications
 - Supplies
- Transportation
 - Health services
e.g. ambulances
 - Workforce transportation
- Energy
- Food



Limits on land

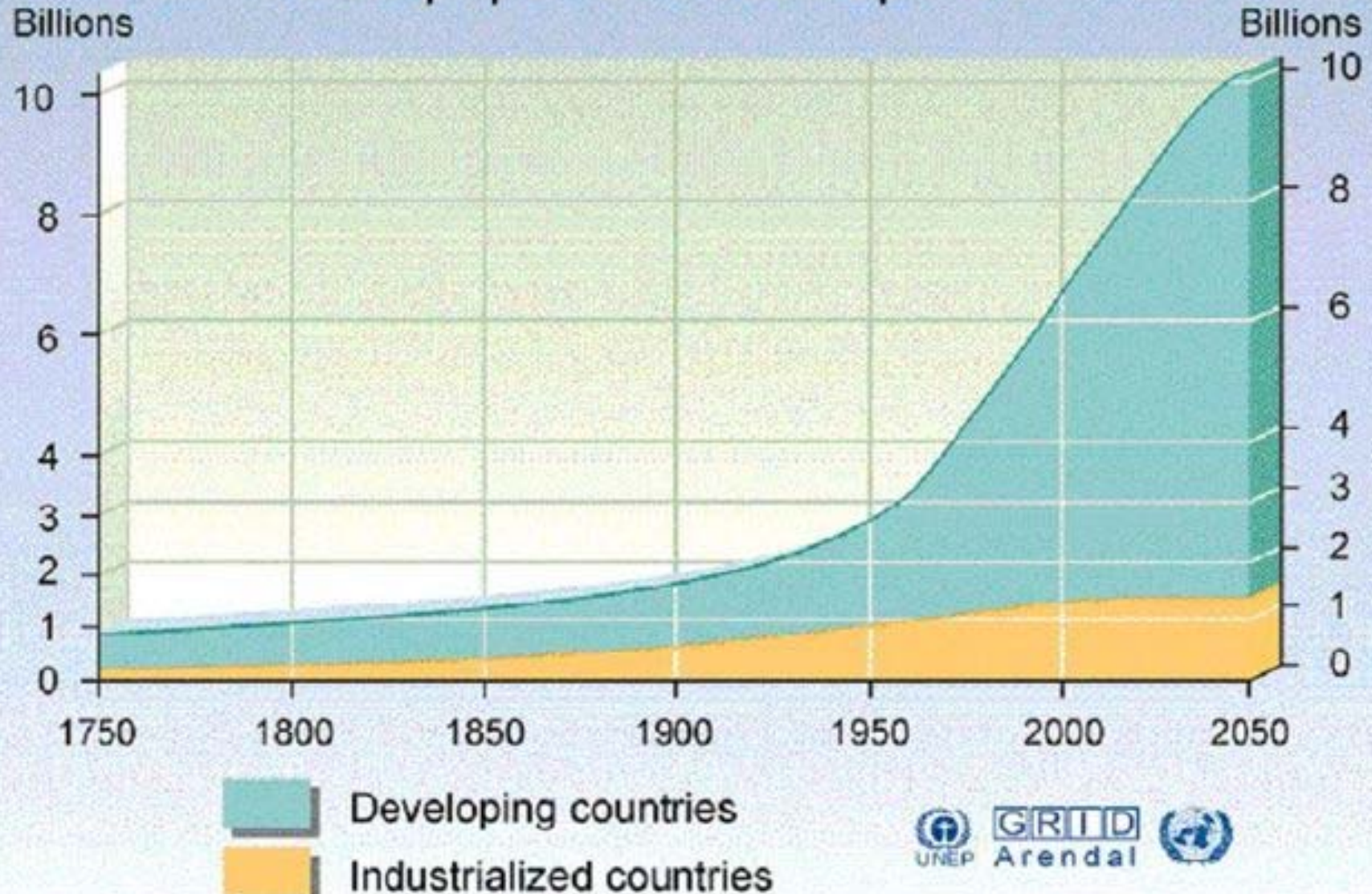


Limits on water



Population growth

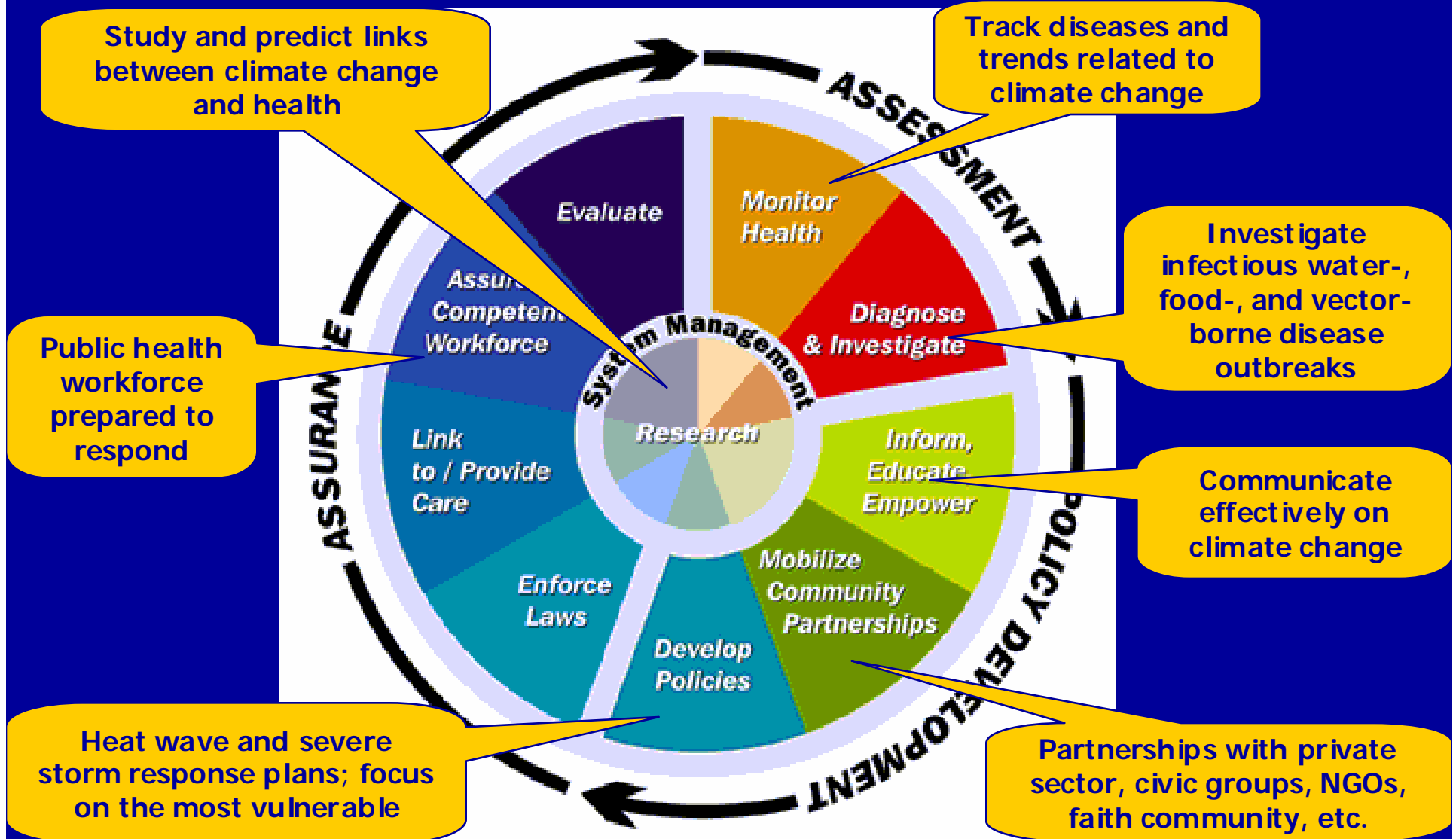
World population development



Public health frameworks

- Prevention
- Preparedness
- Acting the face of uncertainty
- Risk management
- Co-benefits
- Economics
- Ethics

Public Health Action on Climate Change

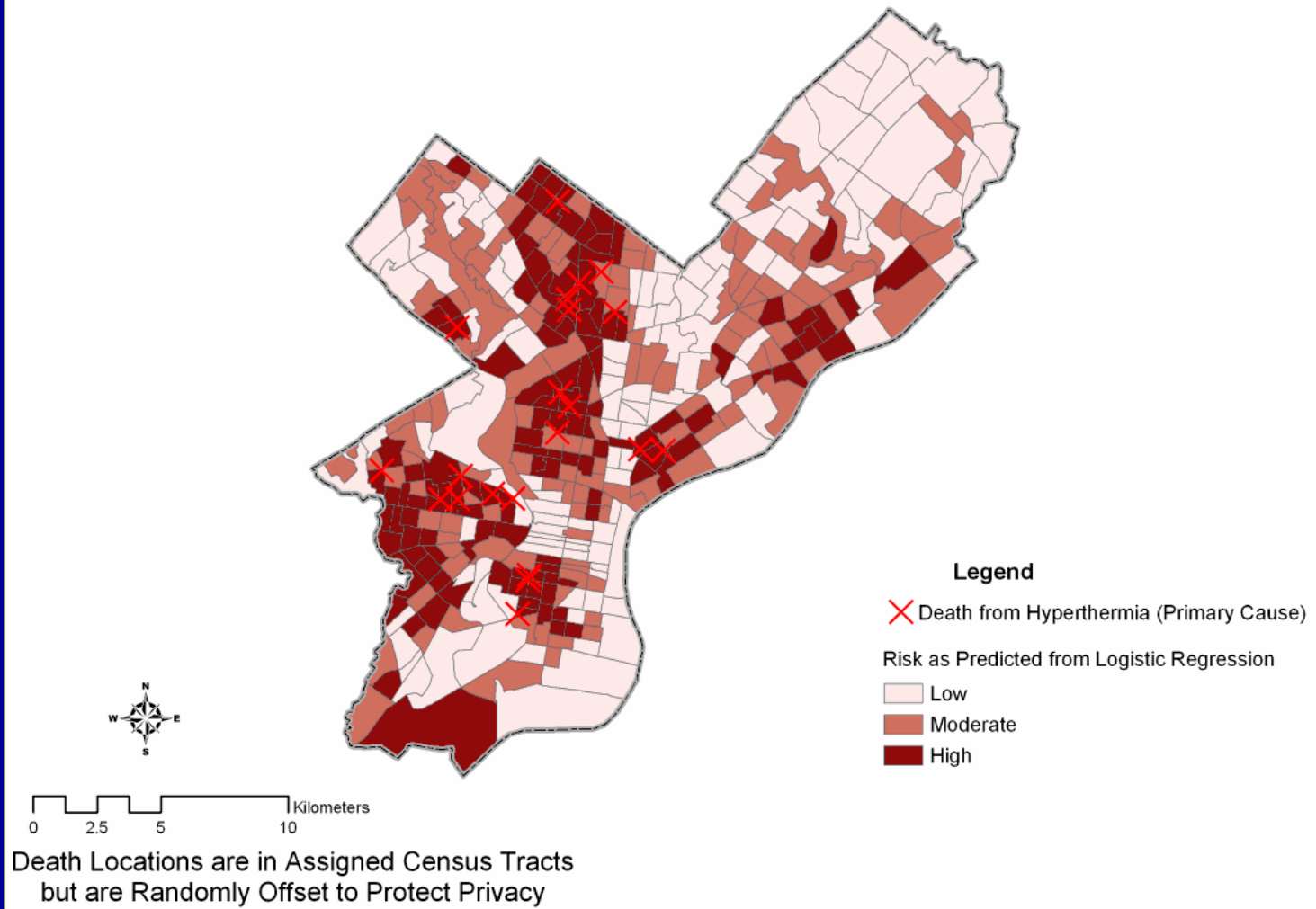


Public Health Action on Climate Change

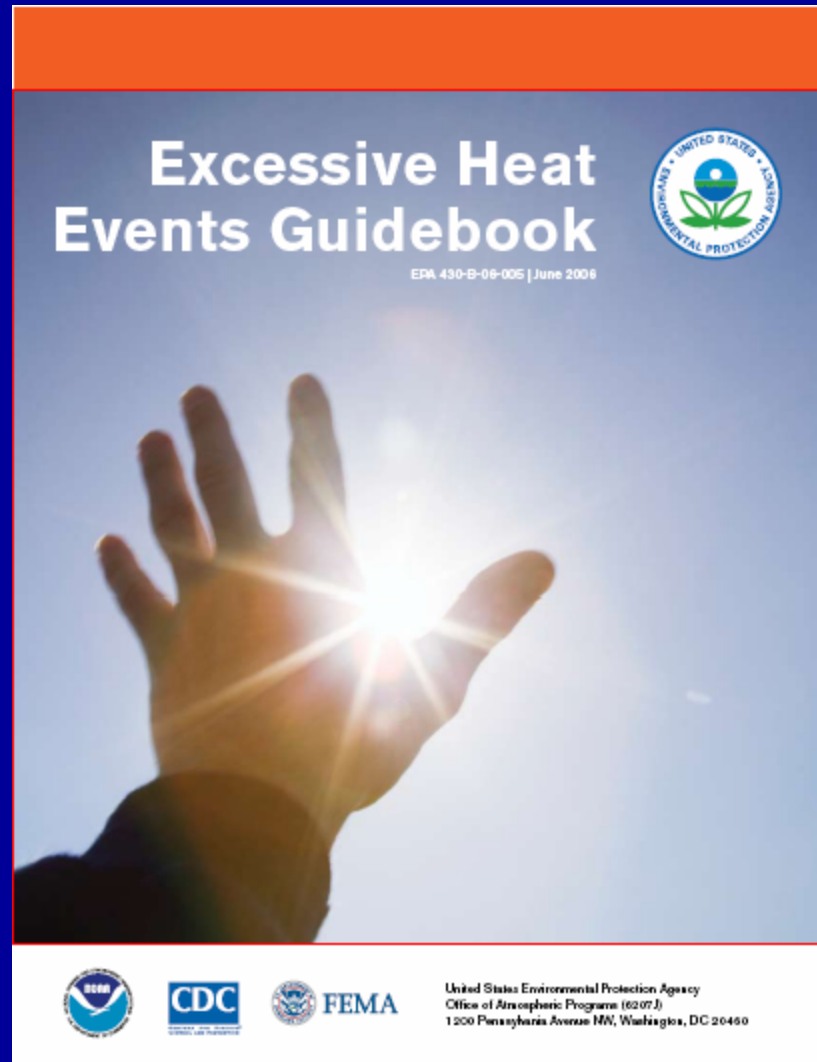
- Predicting threats to public health
- Acting to protect public health
- Communicating effectively
- Promoting co-benefits
- Mobilizing partnerships

Vulnerability analysis

Risk for Hyperthermia: Census & Thermal Model



Planning and acting to protect public health



Green health care



HEALTHY BUILDING
NETWORK
healthybuilding.net

Health Care Without Harm

Green Building Priorities for Healthcare

Health care institutions' core mission of protecting human health provides the basis for them to speak with their words and actions on the health implications of building construction and operation. The healthcare industry has a leadership opportunity to move the larger building industry toward a healthier approach by demonstrating the best in healthy, sustainable design, construction, operations and maintenance practices in its own buildings.

Whole system look to maximize impact: The optimal approach to green design involves a whole system look at the facility, incorporating all aspects of design and all disciplines working together to find the best building design for the patient. Our focus is on the design and construction of the building, not just the building itself.



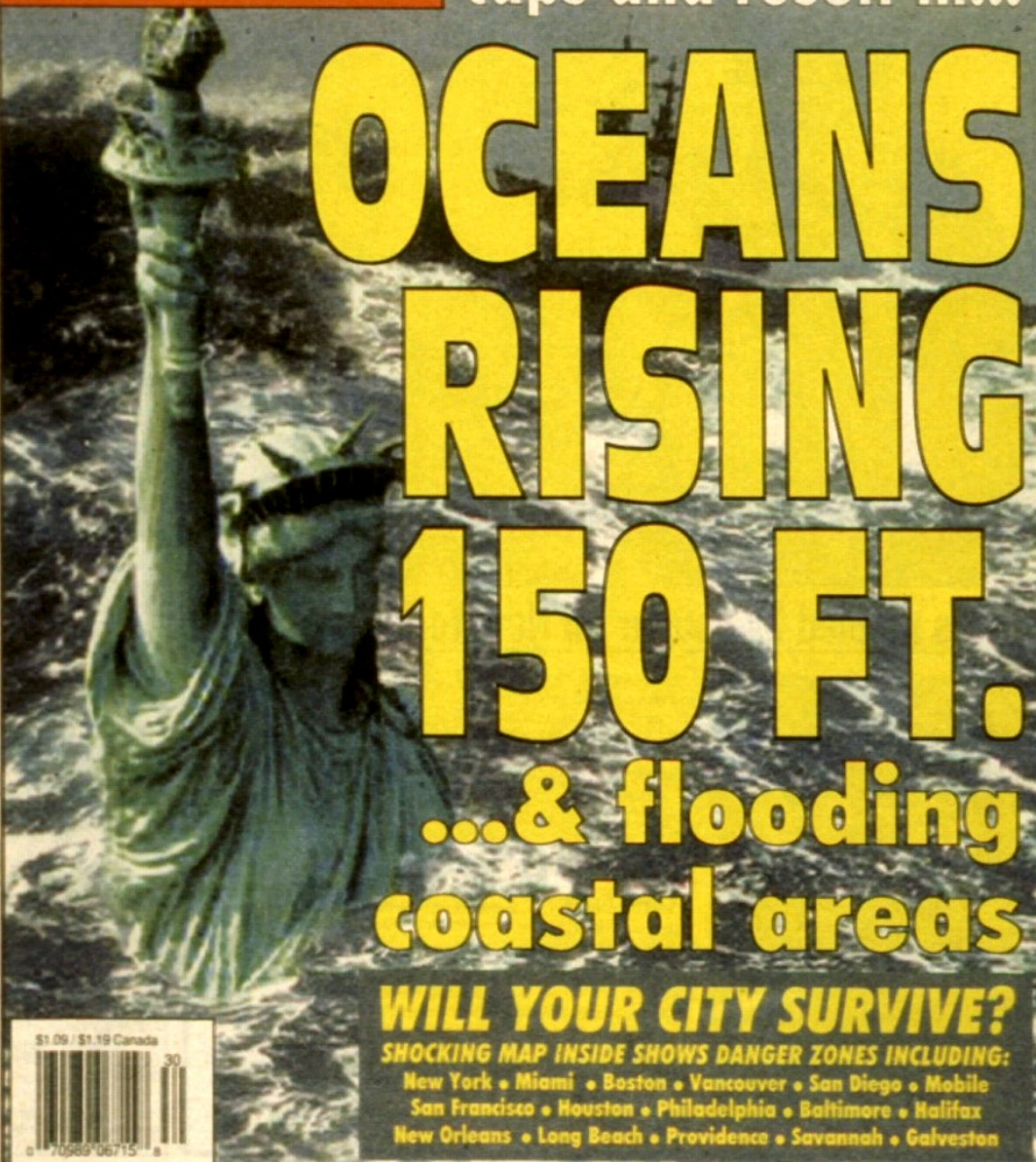
Communicating effectively





\$1.09/US/Canada
Vol. 13 - No. 30 July 25, 1995
Sun

Summer heat waves
will melt polar ice
caps and result in...

The background of the cover features a dramatic, high-contrast image of the Statue of Liberty. The statue is partially submerged in dark, turbulent water, with waves crashing against its base. The sky is dark and stormy, with a ship visible in the distance. The overall mood is one of impending disaster and environmental crisis.

OCEANS RISING 150 FT.

...& flooding
coastal areas

WILL YOUR CITY SURVIVE?

SHOCKING MAP INSIDE SHOWS DANGER ZONES INCLUDING:

New York • Miami • Boston • Vancouver • San Diego • Mobile
San Francisco • Houston • Philadelphia • Baltimore • Halifax
New Orleans • Long Beach • Providence • Savannah • Galveston

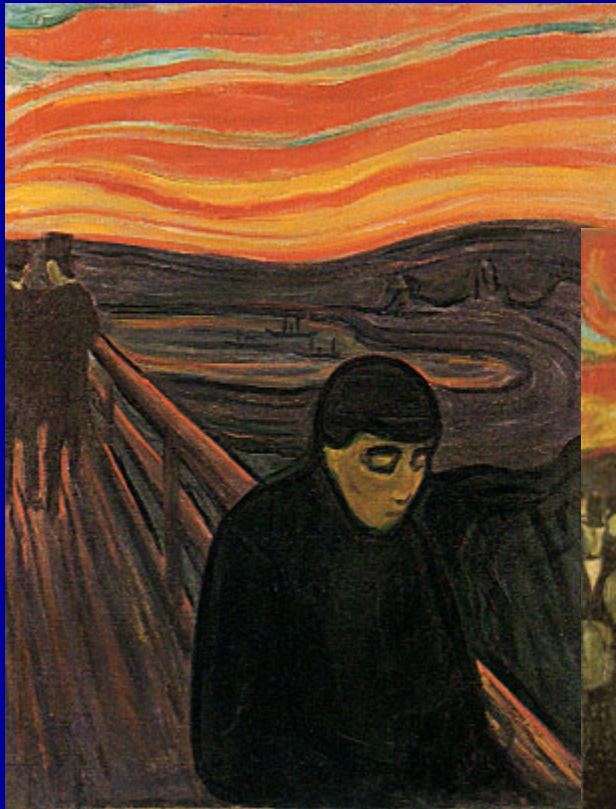


Climate change and human health: Challenges to our thinking

- Bad news, apocalyptic visions
- Highly technical and complex
- Beyond anyone's experience or imagination
- Terrifying to contemplate
- Resistance to behavioral changes
- Misinformation actively disseminated

When we don't communicate effectively...





Despair



Anxiety



The Scream

Edvard Munch does
Climate Change



"Hargrove, what's all this I hear about your living in constant fear of the polar ice caps melting?"

Climate Change Scenarios Scare, and Motivate, Kids

By [Darragh Johnson](#)


Washington Post Staff Writer

Monday, April 16, 2007; Page A01

The boy has drawn, in his third-grade class, a global warming timeline that is his equivalent of the mushroom cloud.

"That's the Earth now," the 9-year-old says, pointing to a dark shape at the bottom. "And then," he says, tracing the progressively lighter stripes across the page, "it's just starting to fade away."

Last Updated: Tuesday November 14 2006 11:15 GMT

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Climate change is kids' top fear



How we're damaging the environment is more of a worry to you than getting a girl or boyfriend, says a survey.

The results showed three quarters of 11 to 14-year-olds worry about climate change, compared to 41% who are worried about going out with someone.

And it looks like you lot aren't just all talk - 63% turn off the lights when you leave a room, 82% of you recycle, and 75% say we should recycle more.

The survey quizzed 1,554 kids on their views on the



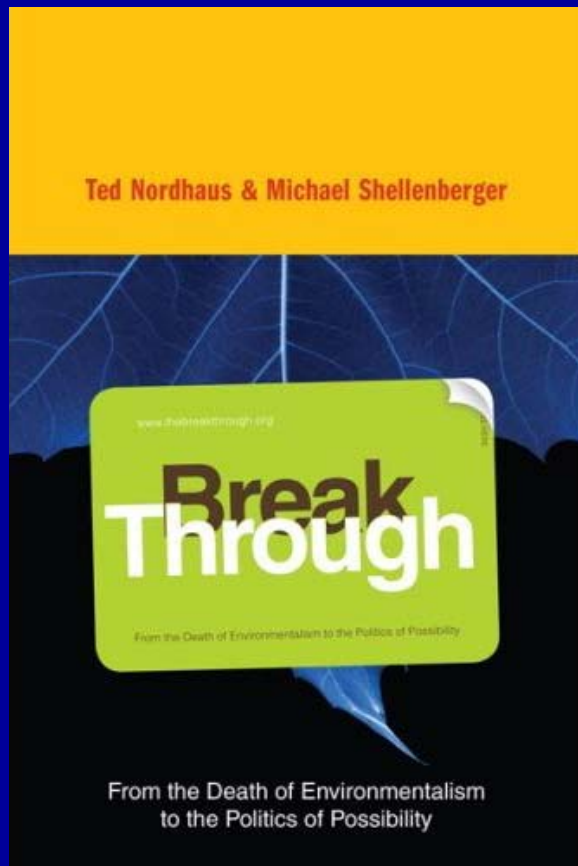
“This past summer, I got deeply depressed about our planet—as if I didn’t have enough problems of my own.”



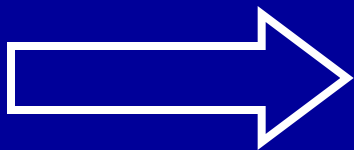
Elements of Social Marketing

- Understanding the competition
- Understanding target markets
- Creating mutually beneficial exchanges
- Segmenting markets and targeting based on anticipated return

Maibach E. Recreating communities to support active living: A new role for social marketing. *Am J Health Promot* 2003;18:114-19.



“Think of the verbs associated with environmentalism and conservation: ‘stop,’ ‘restrict,’ ‘reverse,’ ‘prevent,’ ‘regulate,’ and ‘constrain.’ All of them direct our thinking to stopping the bad, not creating the good.”



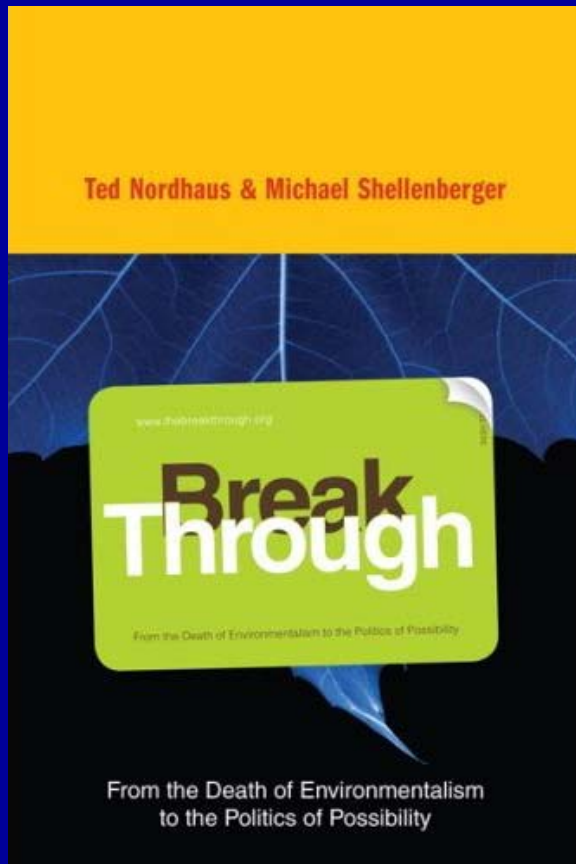
The need for positive, aspirational messages.



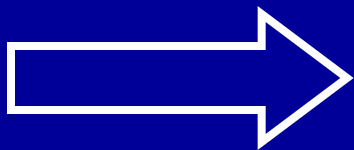
“I have a nightmare...”

“I have a dream...”





“The challenge of climate change is so massive, so global, and so complex that it can only be overcome if we look beyond the issue categories of the past and embrace a grand new vision for the future.”



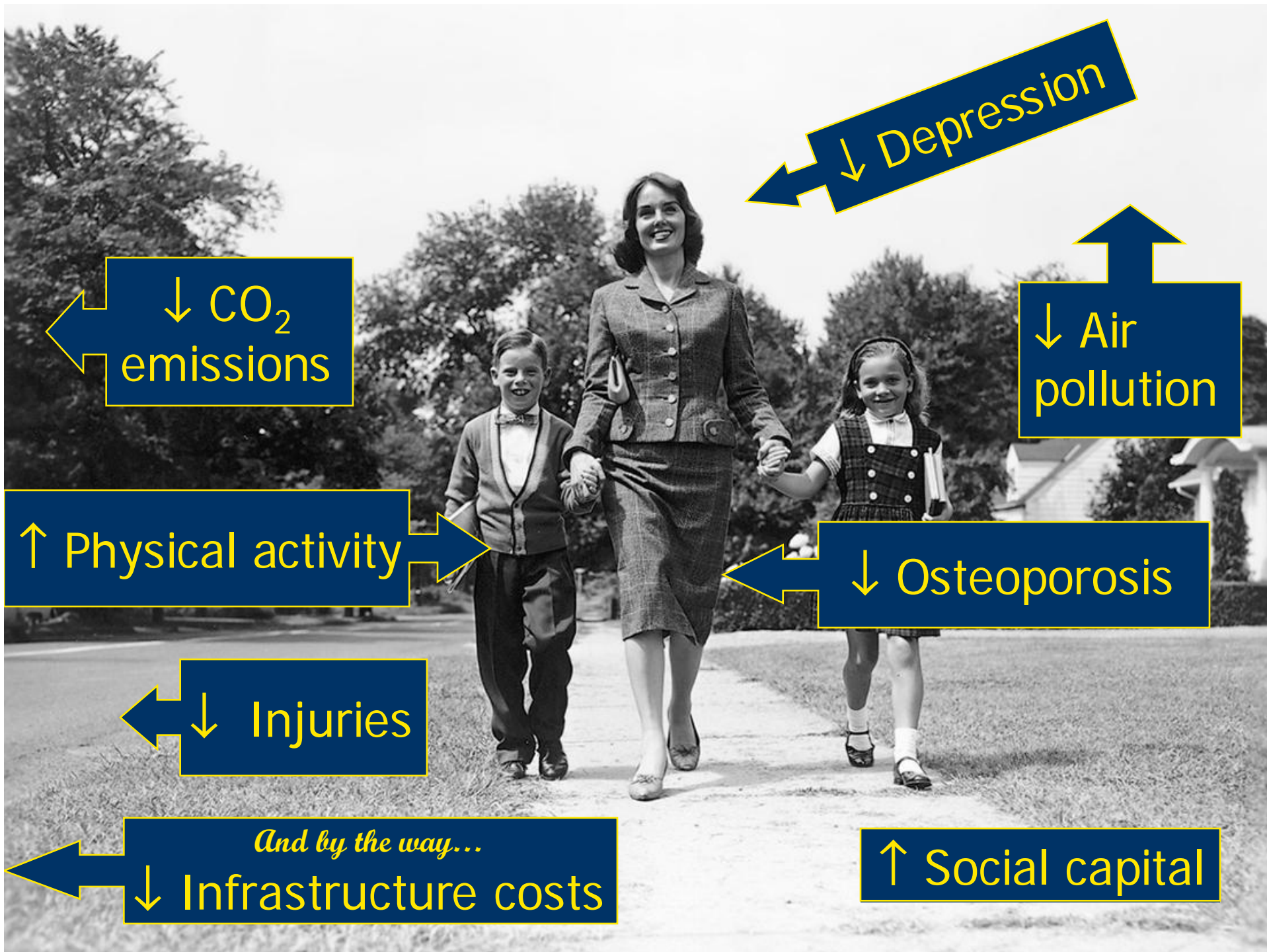
The need for bold, cross-cutting thinking.

Promoting co-benefits



Climate Change Synergies

Heat wave plans including “buddy systems”	↑ social capital
↓ Vehicular travel	↓ car crashes; clean air; ↑ physical activity
↑ Fuel efficiency	↓ air pollution
Locally grown food	Fresh food; ↓ pesticide exposure; local business
Energy-efficient buildings	↓ operating costs
Alternative energy sources	Business opportunities



↓ CO₂ emissions

↓ Depression

↓ Air pollution

↑ Physical activity

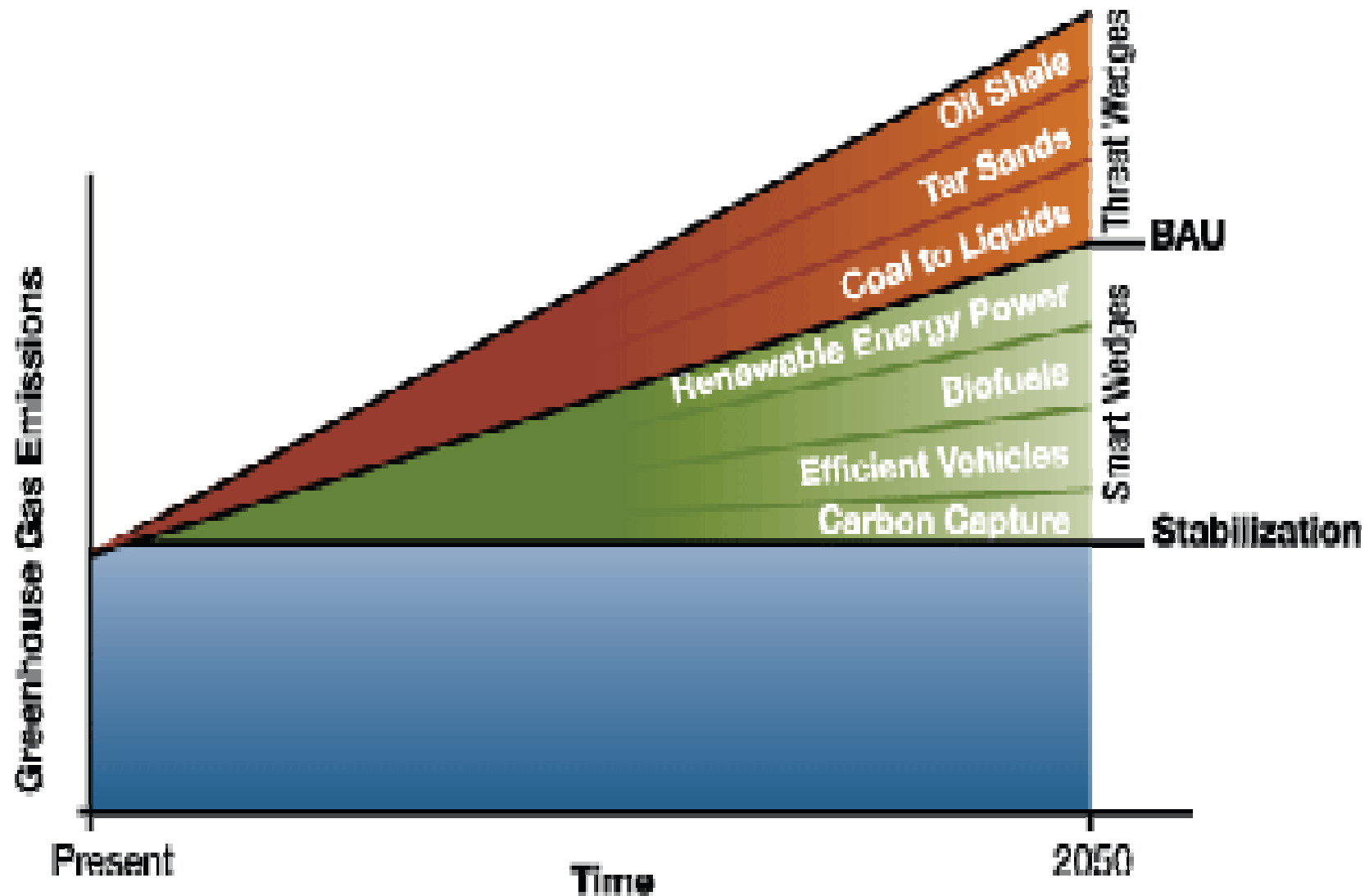
↓ Osteoporosis

↓ Injuries

And by the way...
↓ Infrastructure costs

↑ Social capital

Mitigation: Climate stabilization wedges



Pacala S, Socolow R. Stabilization wedges: Solving the climate problem for the next 50 years with current technologies. *Science* 2004;305:968-72

Health Impact Assessment

World Health Organization

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Health Impact Assessment



QUICK LINKS

Information package on environmental and occupational health

This brochure outlines WHO's strategy to tackle two major energy and health challenges: household energy and indoor air pollution, and transport and health for the developing world. World Health Organization, 2005. [Full text](#)

Guidance on evaluating an HIA

[More information](#)

Evidence that HIA works

[More information](#)

What is a WHO collaborating centre?

[More information](#)

Frequently Asked

Environmental and Health Impact Assessment of Development Projects
A Handbook for Practitioners

Edited by
Robert G. H. Turnbull

OXFORD

health impact assessment

edited by
JOHN KEMM | JAYNE PARRY | STEPHEN PALMER

HIA provides decision makers with information about how any policy, programme or project may affect the health of people. HIA seeks to influence decision makers to improve the proposal. WHO supports the use of HIA because of its ability to influence policies, programmes and/or projects. This provides a foundation for improved health and wellbeing of people likely to be affected by such proposals

On this web site, we provide information:

About HIA

- [Why use HIA](#)
- [Short guides](#)
- [Definitions of HIA](#)

Mobilizing partnerships

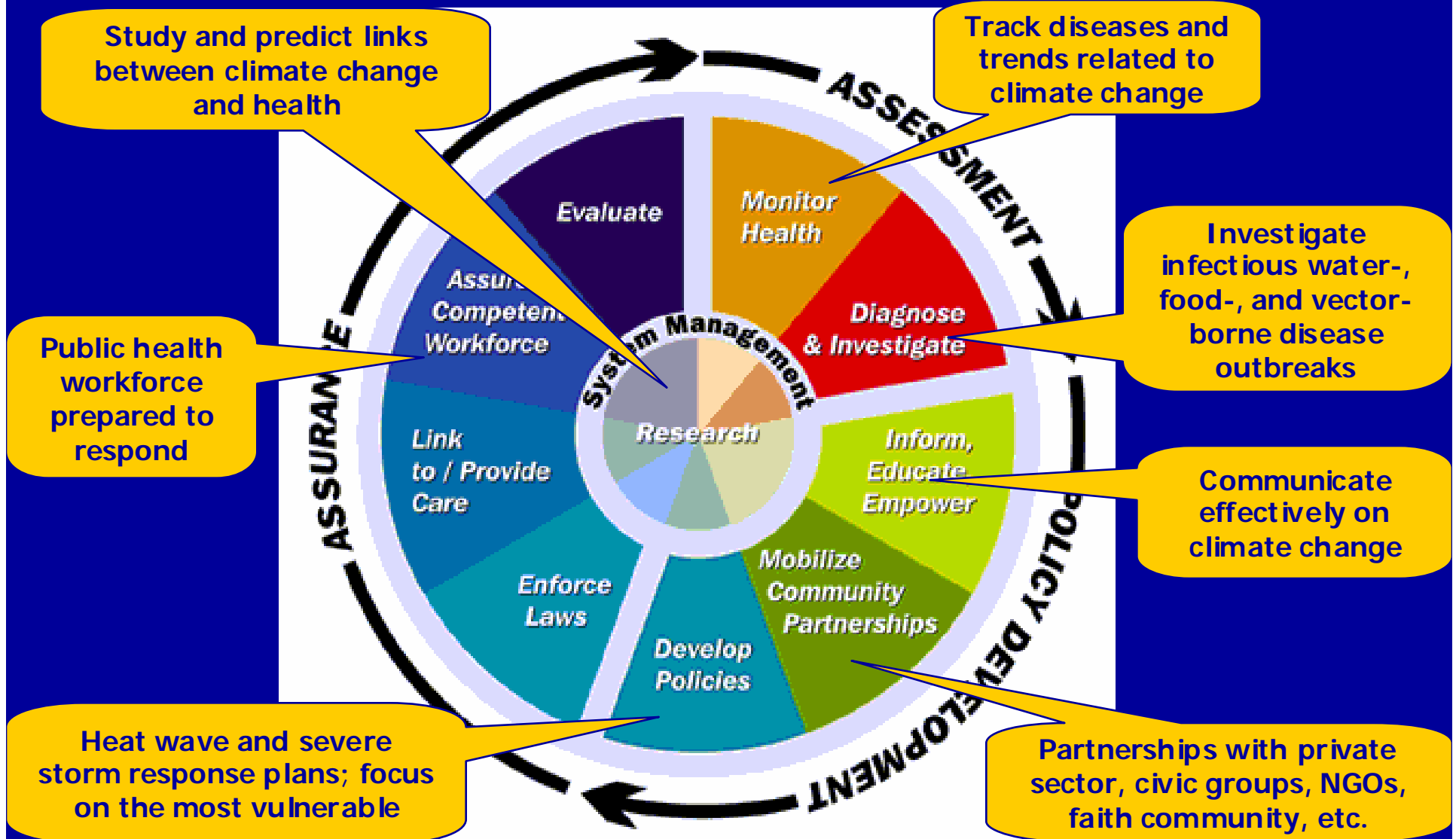
- Within government: Federal – state – local
- More broadly:
 - Energy
 - Transportation
 - Urban planning
 - Manufacturing
 - Architecture
 - Faith
 - Environmental



Public health thinking about climate change

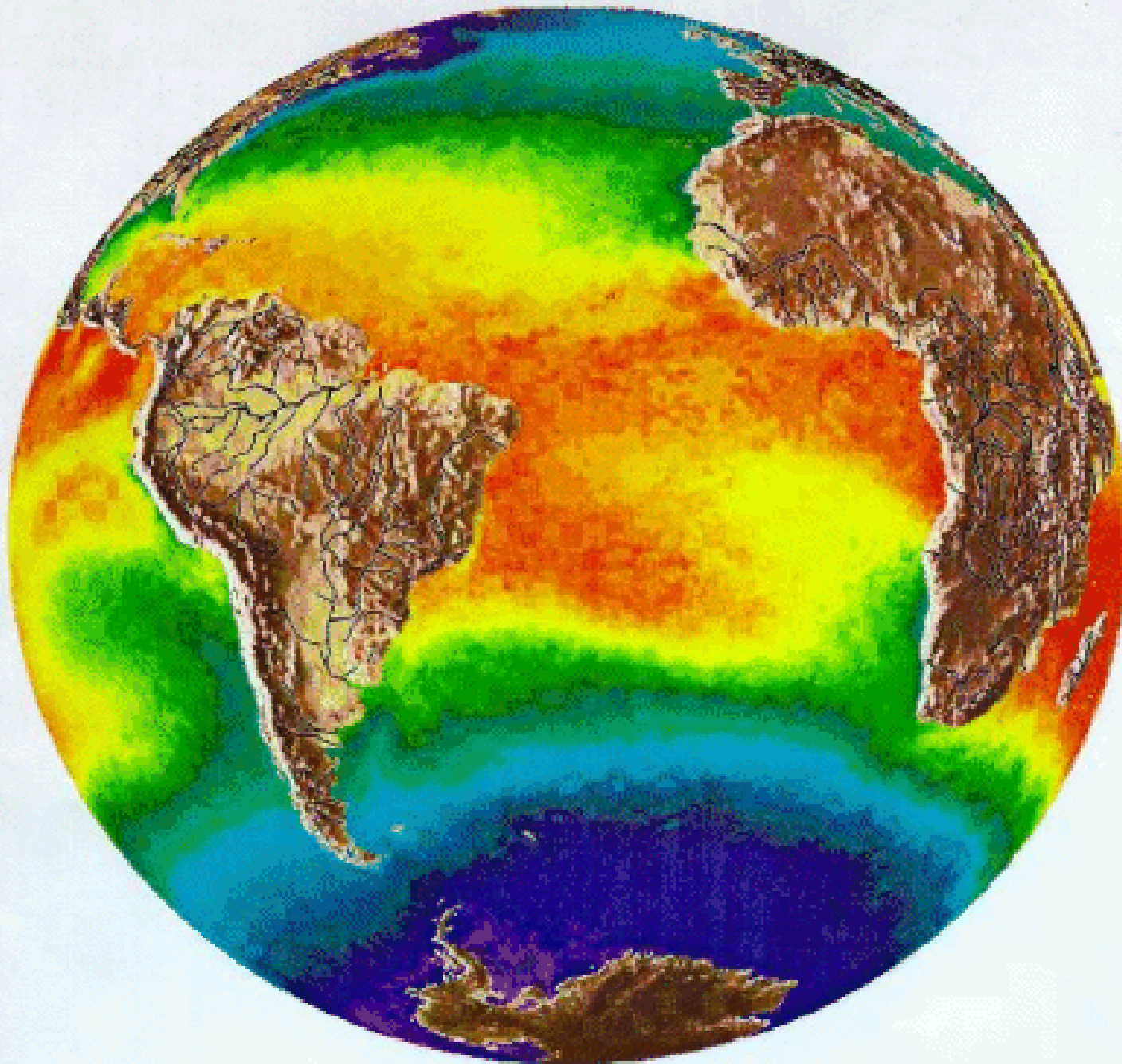
- Thinking on a long time frame
- Broad systems thinking

Public Health Action on Climate Change



Public Health Action on Climate Change

- Predicting threats to public health
- Acting to protect public health
- Communicating effectively
- Promoting co-benefits
- Mobilizing partnerships



Thank
you!