



Planetary Health & the Role of Nursing

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November 2, 2017



We'll Cover:

- Health improvements & consequences (planetary health)
- Health system resilience
- A call to action
- Discussion



ASK

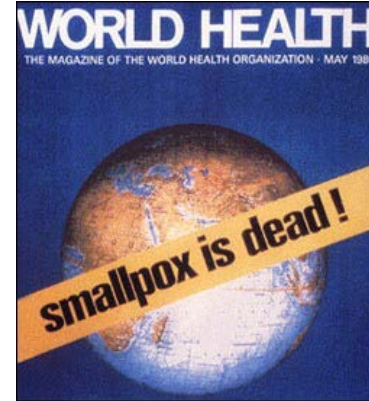
Why are we talking about this at an ANAC conference....

Global Health:
Improvements &
Consequences
(Planetary Health)



Global to Planetary Health: Nursing Engaged

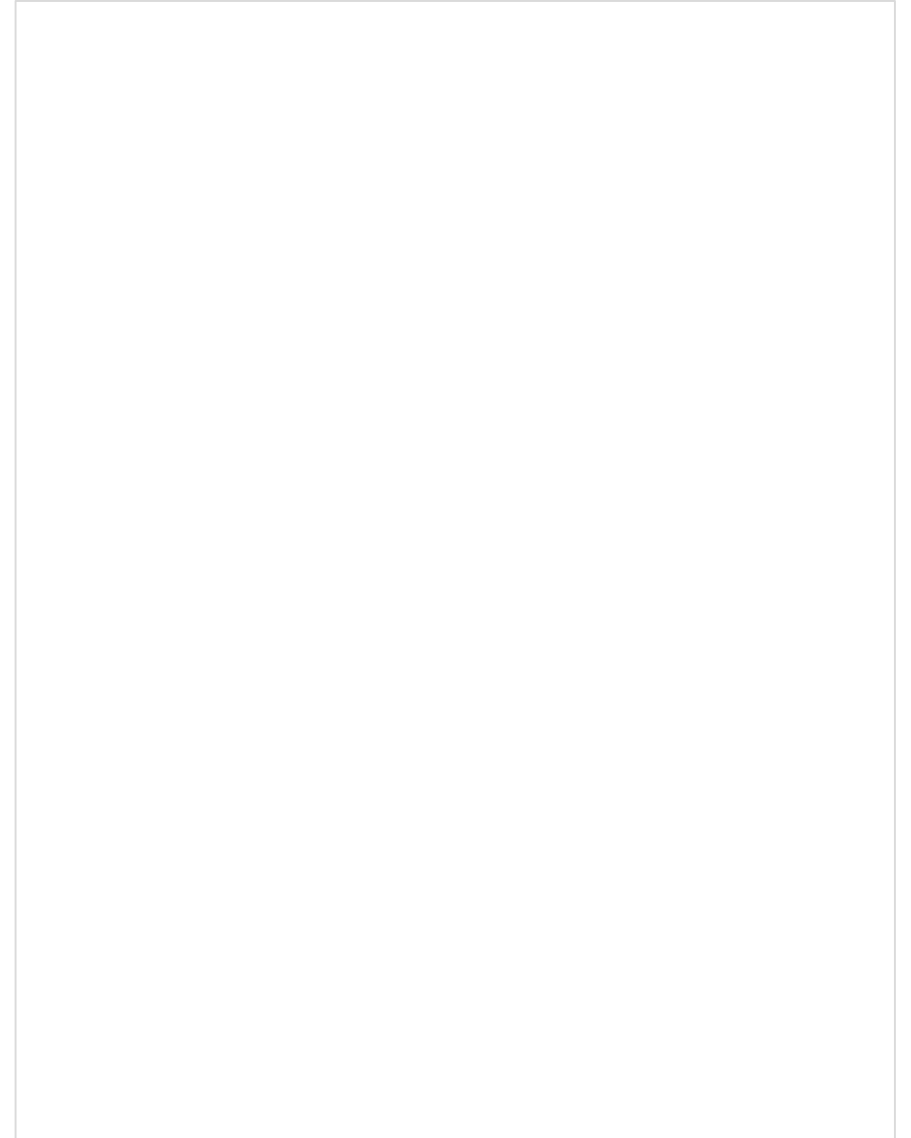
- 20th century - global health work in disease “silos”; public health nursing, wartime roles
- 21st century - resources, health progress, nurses in pandemics
- Focus on equity, economies & ecology
 - Sustainable Development Goals....



Planetary Health

Planetary Health – Intersecting Disciplines

NURSING

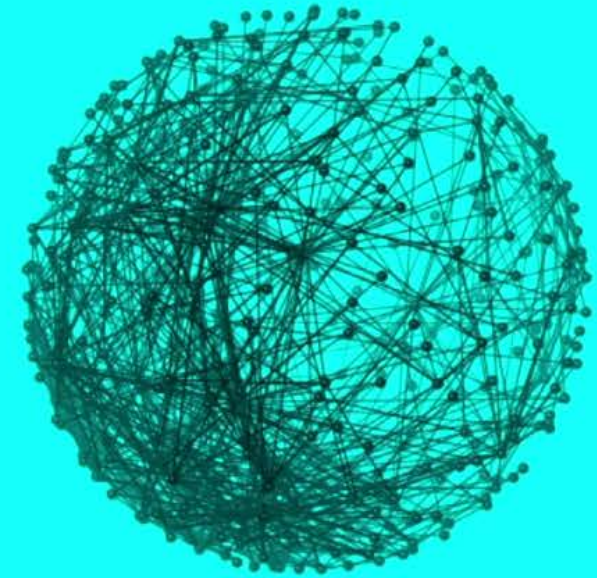


Planetary Health (Frumkin, '17)

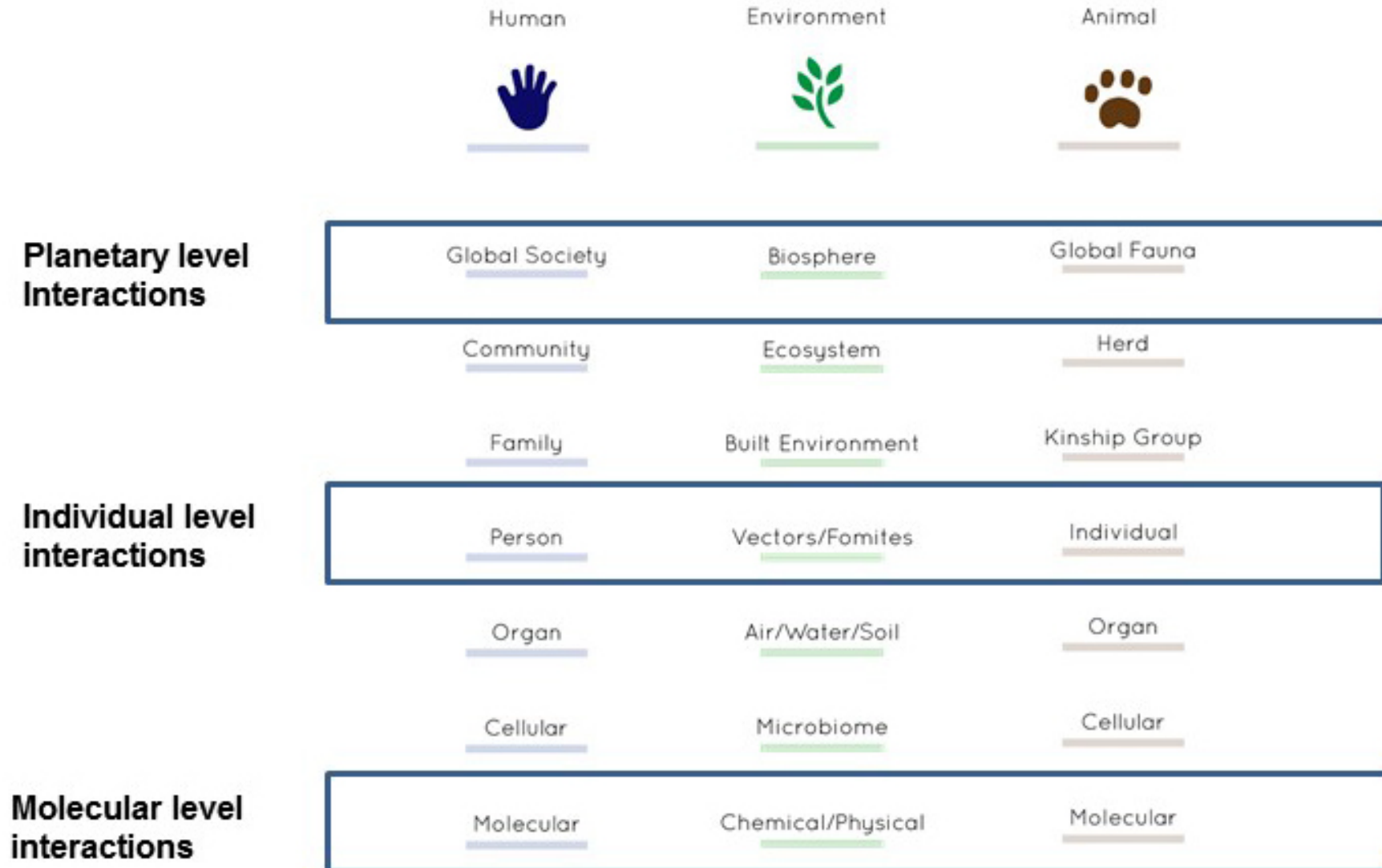
What is Planetary Health?

Planetary Health is the systematic application to human health, from global to local scales, of the Four Laws of Ecology:

1. Everything is connected to everything else.
2. Everything must go somewhere.
3. Nature knows best.
4. There is no such thing as a free lunch.



Planetary Health from 'One Health' (Rabinowitz, '16)

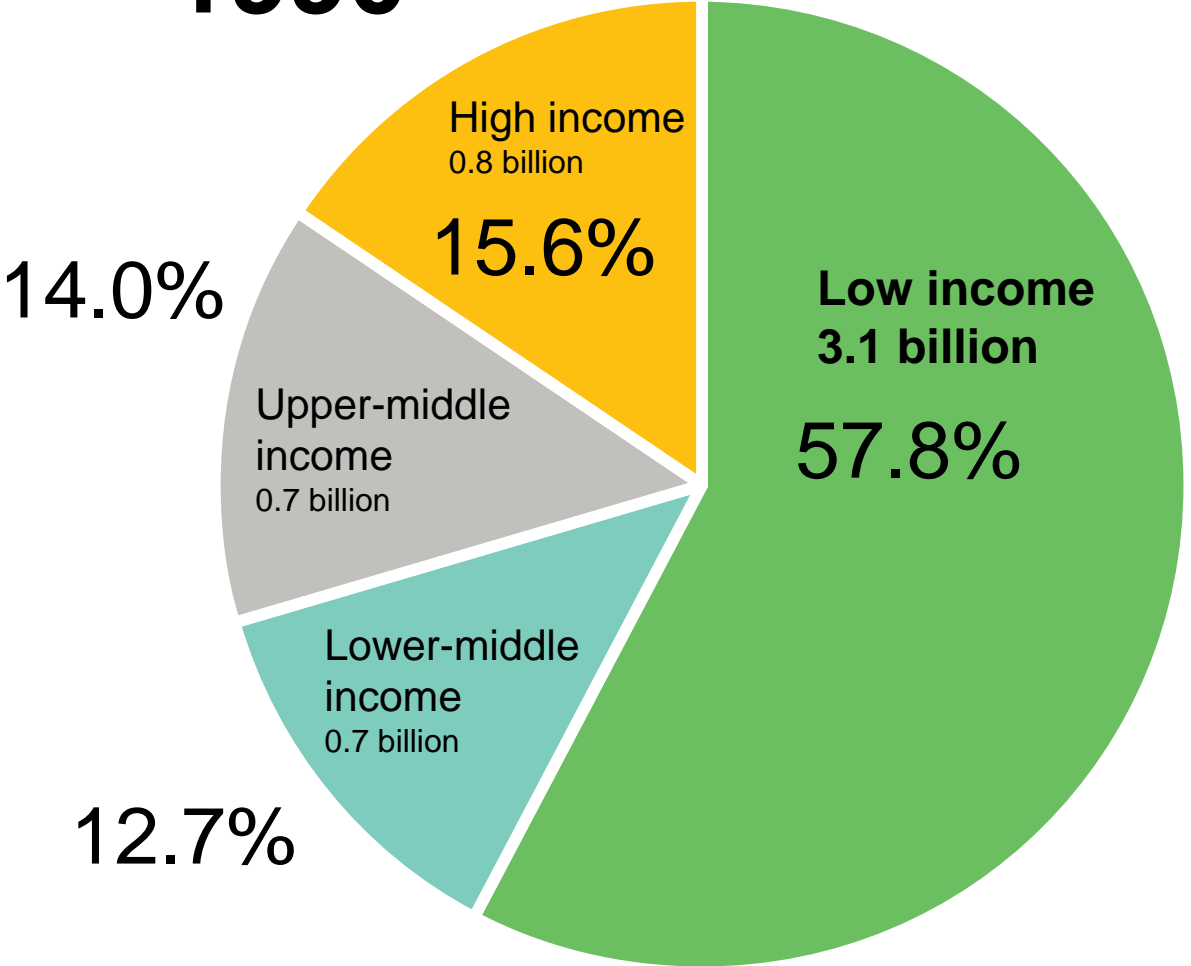


Health Trends Globally

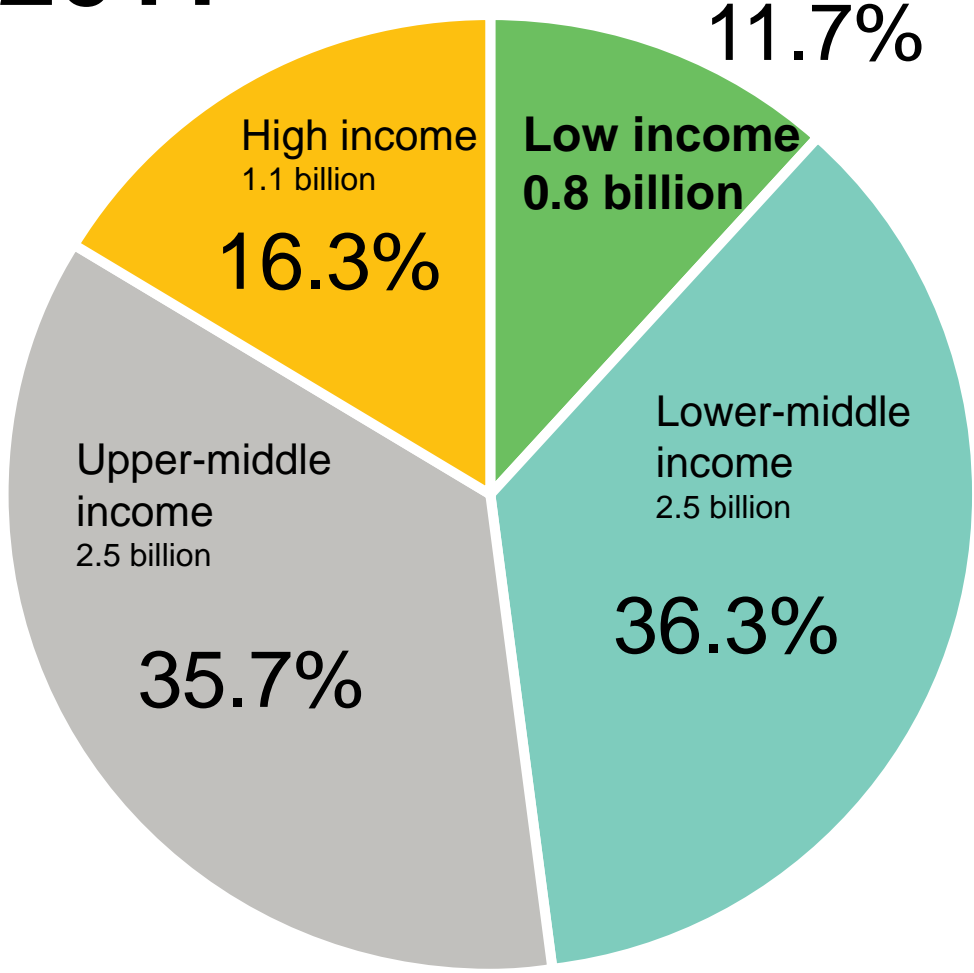
- Rising non-communicable diseases
- Aging populations
- Global urbanization
- Inequity
- Climate change, ecosystem strain

Global Escape from Extreme Poverty

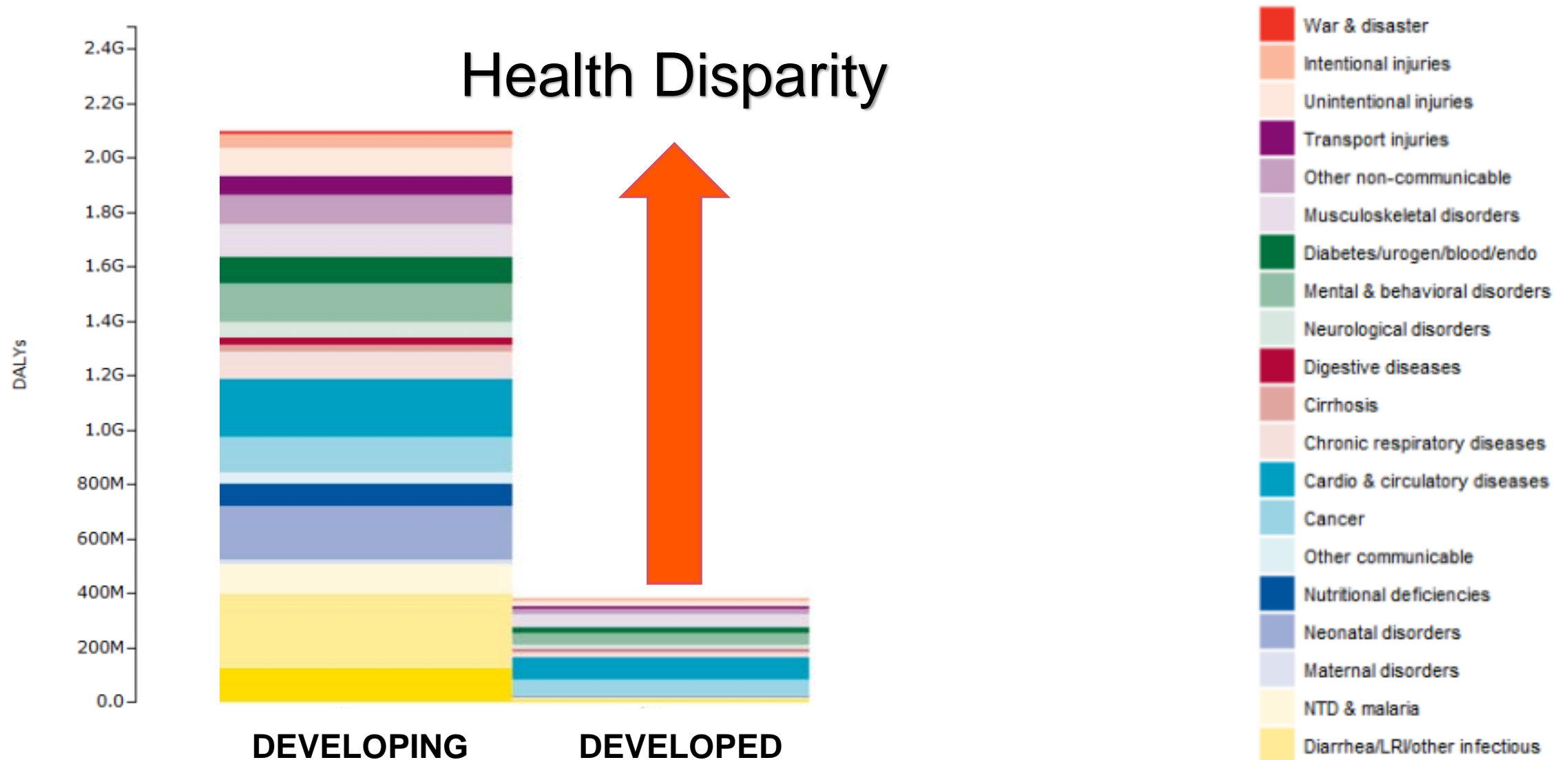
1990



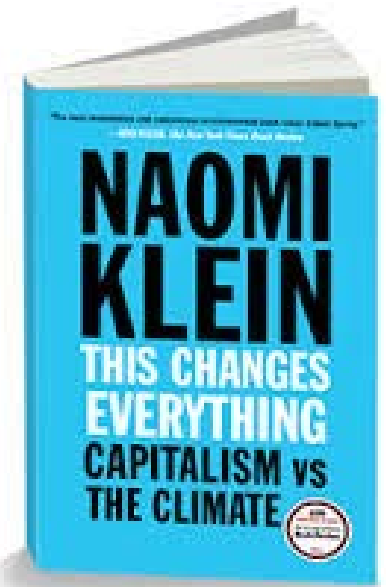
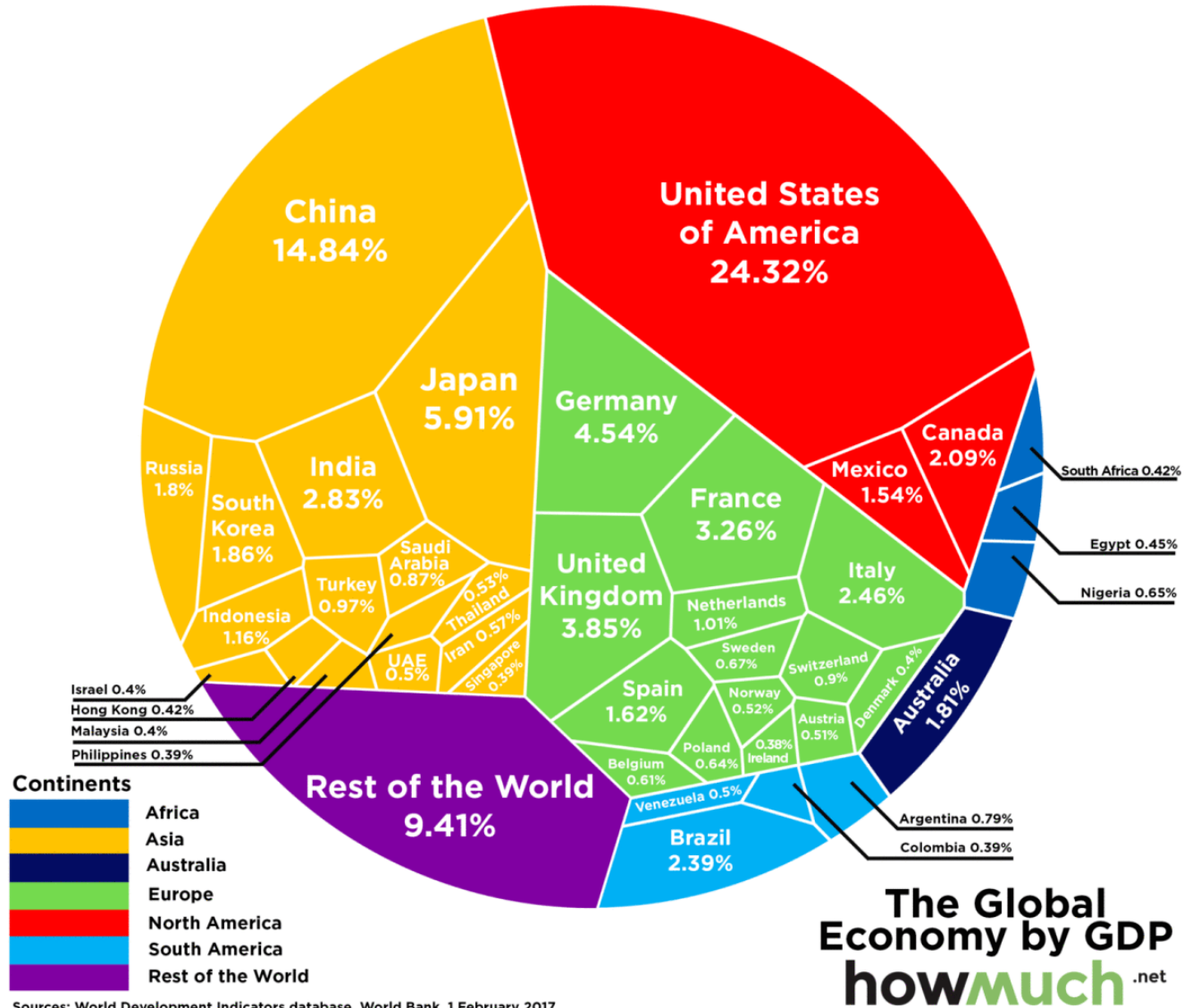
2011



Global Burden of Disease



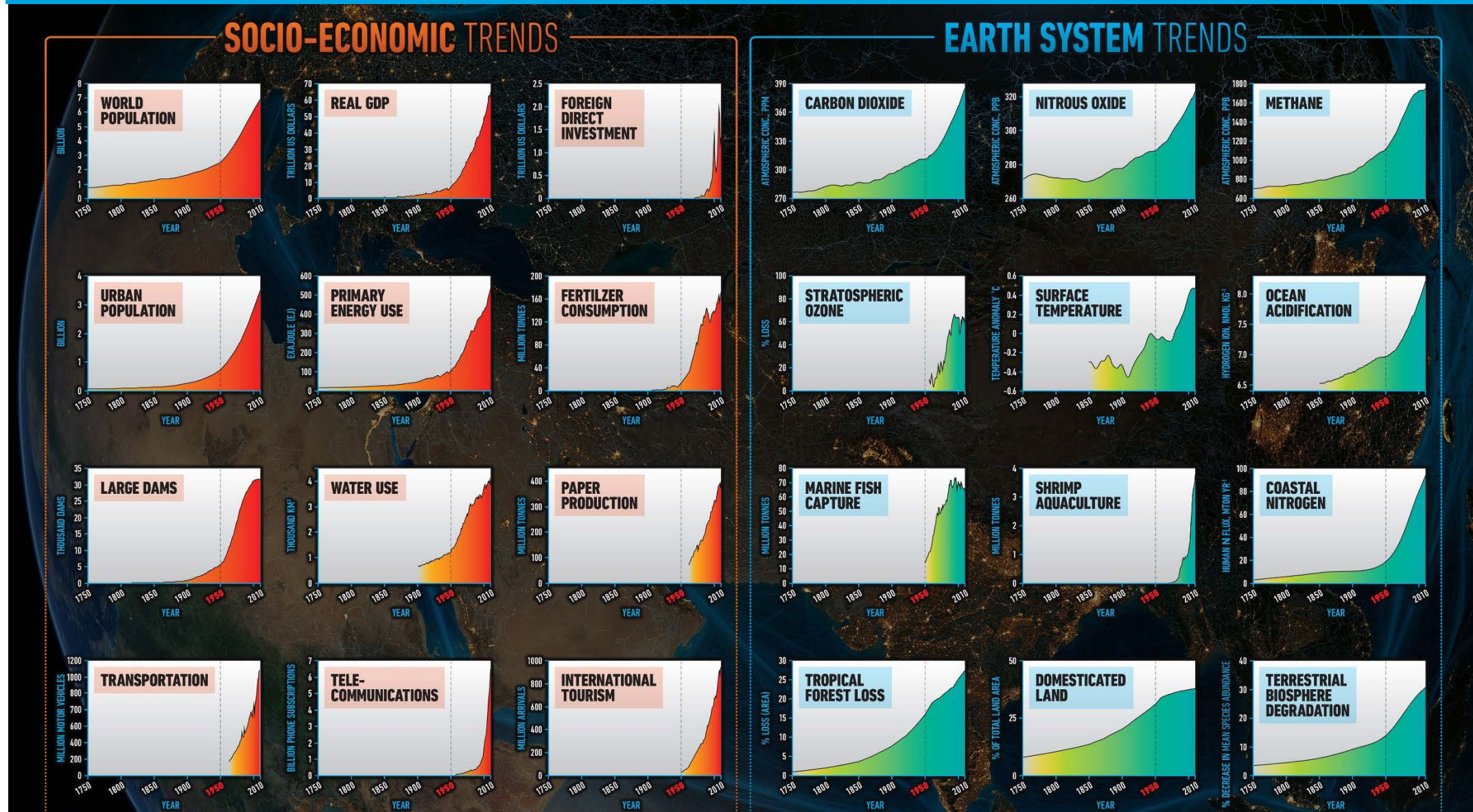
Unchecked Economic Growth - Unsustainable?



Health Trends Globally

- Rising non-communicable diseases
- Aging populations
- Global urbanization
- Inequity
- **Anthropocene era - Climate change, ecosystem strain**

The Great Acceleration (Steffan et al. '15)



Climate Change, Planet 'Vital Sign'

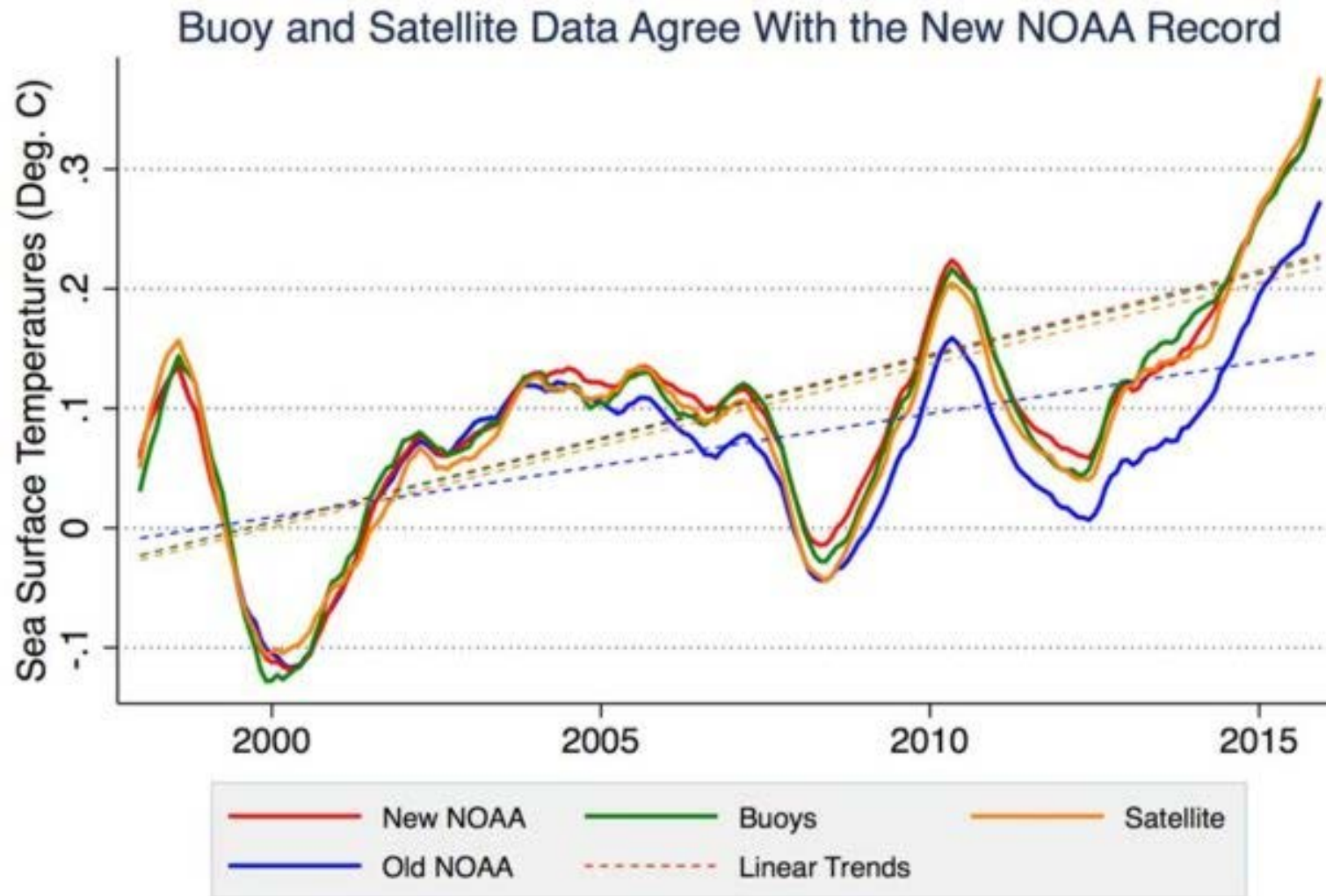
Scientific Consensus

Ninety-seven percent of climate scientists agree that climate-warming trends over the past century are very likely due to human activities, and most of the leading scientific organizations worldwide have issued public statements endorsing this position.



<https://climate.nasa.gov/scientific-consensus/>

Rise in Global Ocean Temperatures Is Not Slowing



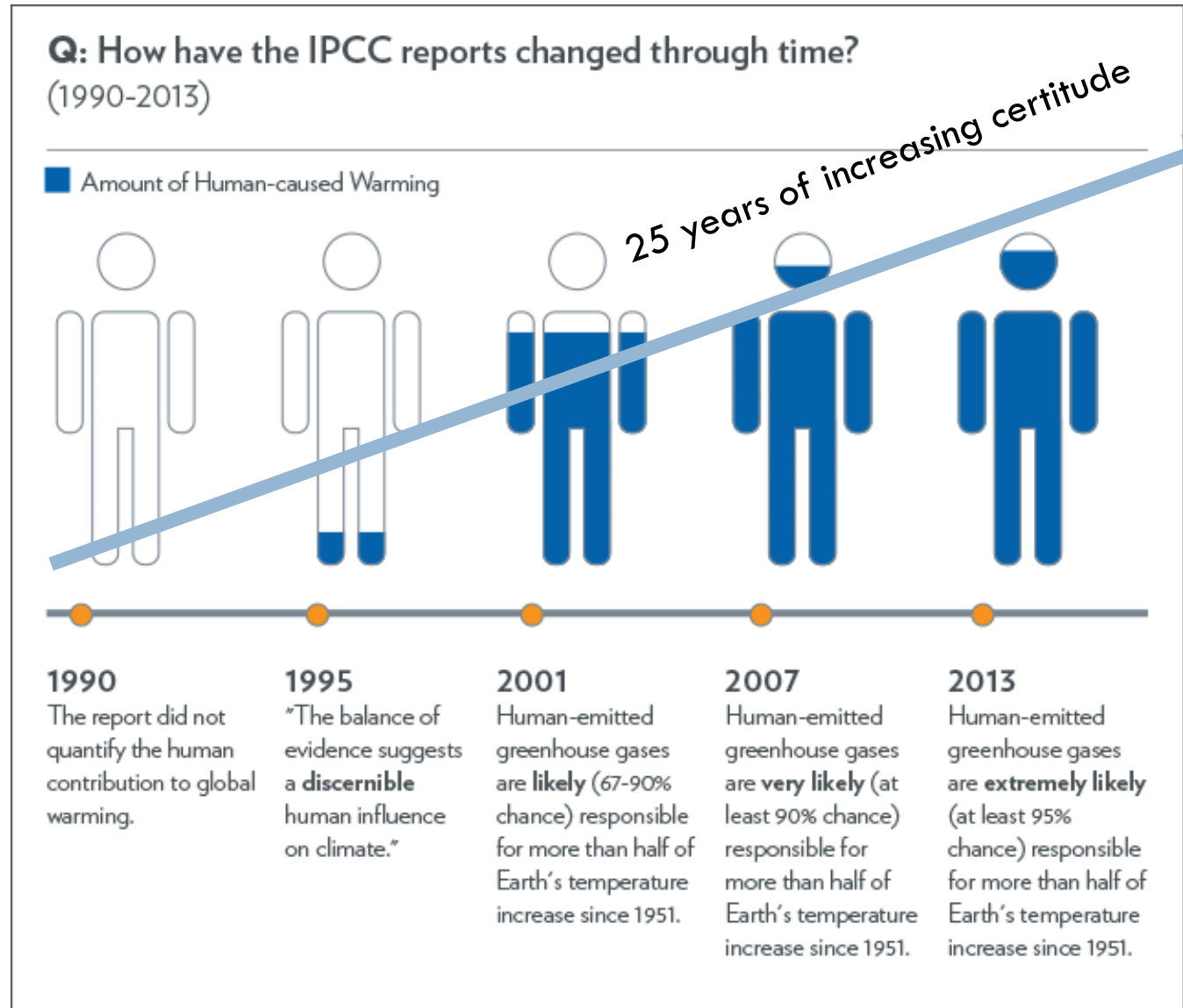
12-month lagging mean shown

IPCC: 5 Assessment Reports

1990
1995
2001
2007
2014
(2022)



Nobel Peace Prize
Winner, 2007



Climate Change, Rising Waters

- At present rate of climate change, IPCC projects by 2100:
 - Temperature increases of 2-11°F
 - Sea level rises of 7 to 23 inches
 - ~20 inches will displace 100 million people
- Implications of rising sea levels
 - Population displacement
 - Agriculture, water, tourism disruption
 - Disappearance of small island nations



A photograph of several Moai statues on a grassy hill overlooking the ocean. The sky is blue with scattered white clouds. The statues are dark, weathered stone figures with large heads and small bodies. One large Moai is in the foreground on the right, looking towards the left. Other smaller Moai are visible in the background on the left and center.

Human History

- Progress, innovation
- Strife, forced migration
- Accelerated stress on resource carrying capacity in Anthropocene era



The
ROCKEFELLER
FOUNDATION

THE LANCET

Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–*Lancet* Commission on planetary health

“we have been mortgaging the health of future generations to realize economic and development gains in the present. By unsustainably exploiting nature’s resources, human civilization has flourished but now risks substantial health effects from the degradation of nature’s life support systems...”

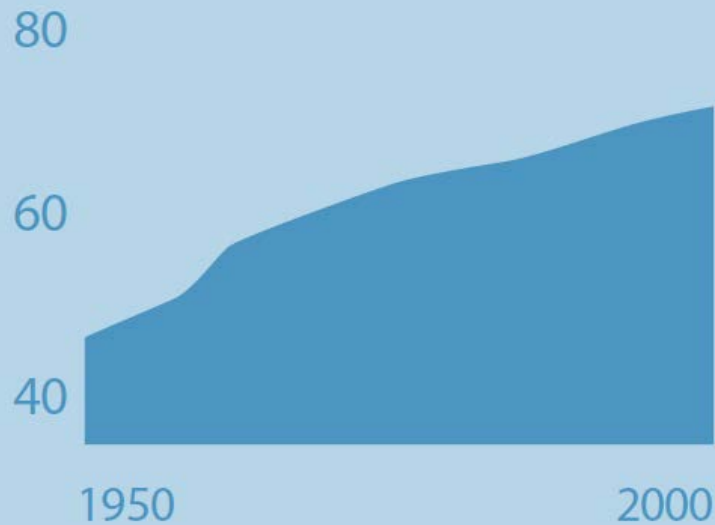
(Whitmee et al., 2015)

Things Are Getting Better...

www.thelancet.com/commissions/planetary-health

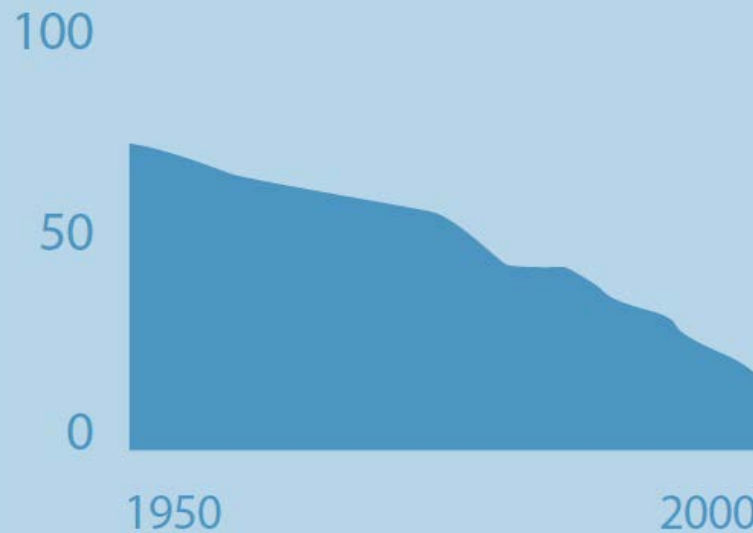
LIFE EXPECTANCY

Mean global life expectancy at birth (years)



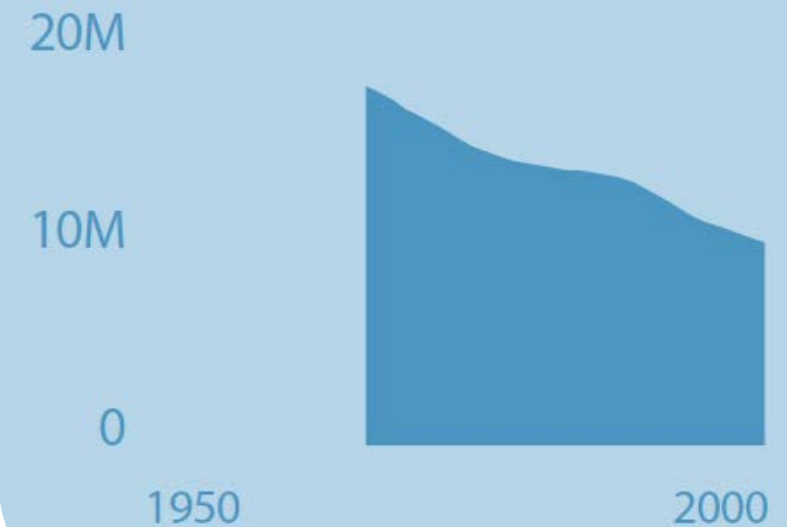
POVERTY

Population of world in poverty (%)



CHILD MORTALITY

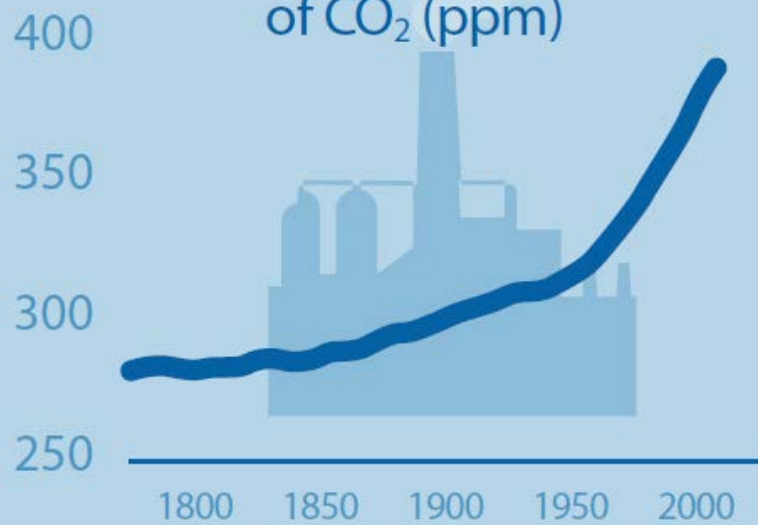
Recorded deaths of under-fives 1



But Ecologic Cost/Damage

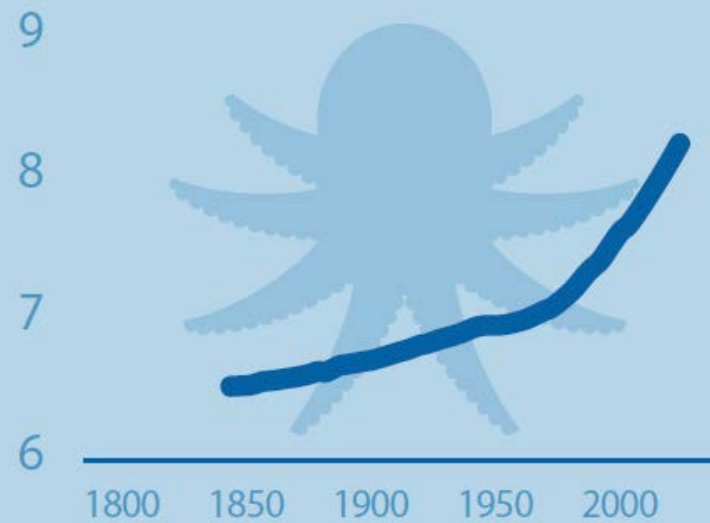
CARBON DIOXIDE EMISSIONS

Atmospheric concentration of CO₂ (ppm)



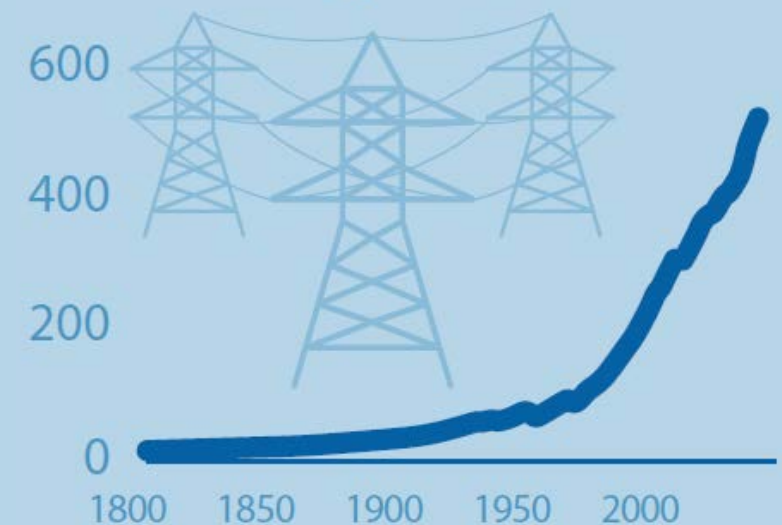
OCEAN ACIDIFICATION

Global ocean acidification (mean hydrogen ion concentration, nmol/kg)



ENERGY USE

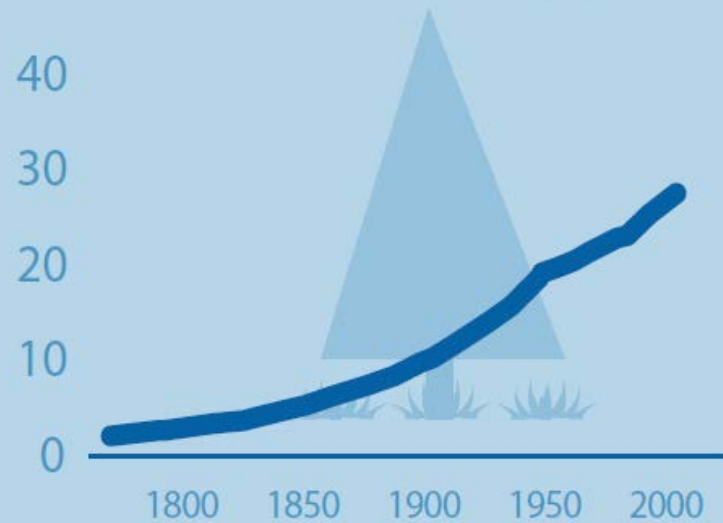
World primary energy use (EJ)



Ecologic Cost

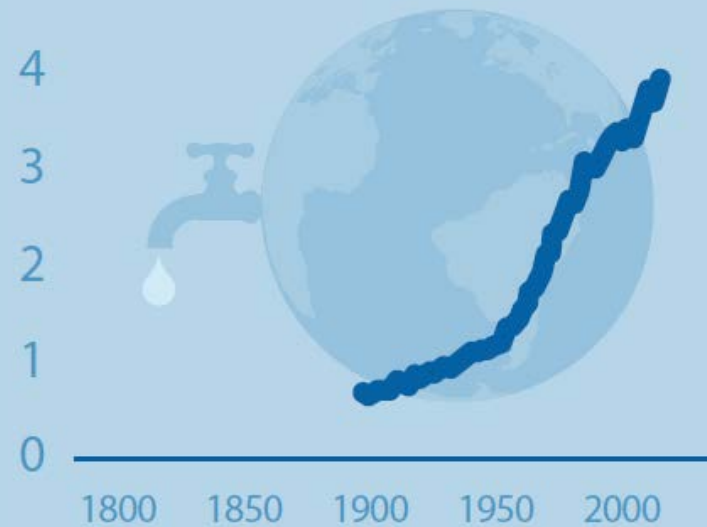
TROPICAL FOREST LOSS

Global tropical forest loss compared with 1700 baseline (%)



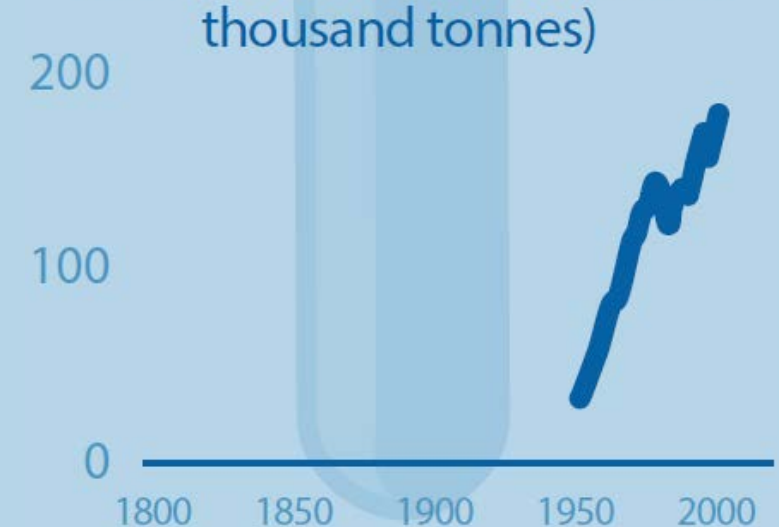
WATER USE

Water use (thousand km³)



FERTILISER USE

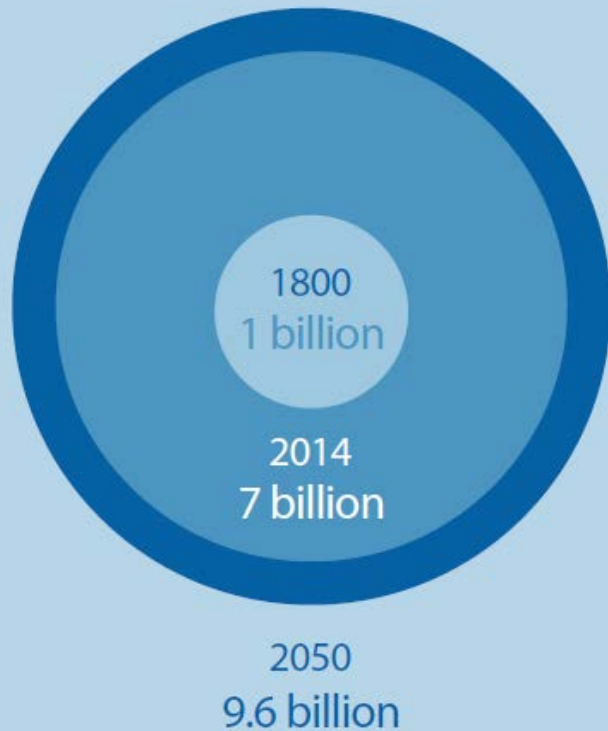
Global fertiliser use (nitrogen, phosphorus, and potassium; thousand tonnes)



Ecologic Cost

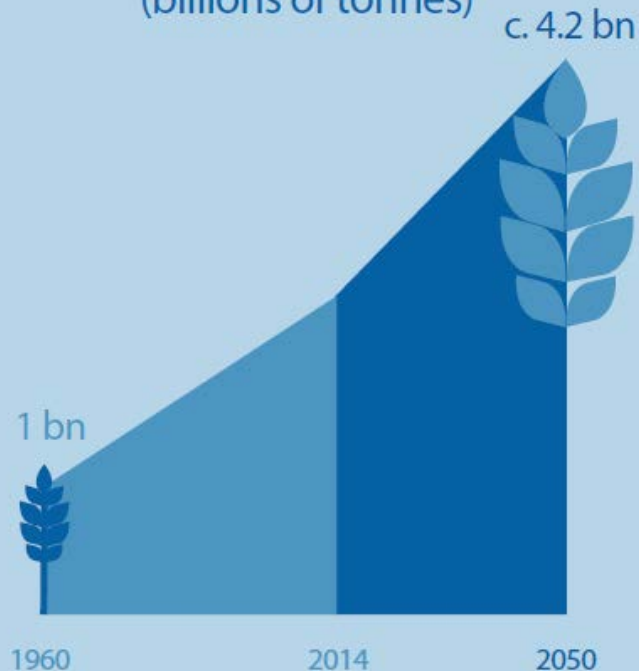
POPULATION

World population (billions)



GRAIN PRODUCTION REQUIREMENTS

Total global cereal production (billions of tonnes)



WATER DEMAND²

2000 2050



Ecologic Cost

(www.thelancet.com/commissions/planetary-health)



This leads to a loss of

1-2

million hectares
of agricultural land
per annum



If unchecked climate change related
impacts could cause an extra

250,000

deaths per year
between 2030 and 2050³



Overfishing together with
increasing acidity and other
environmental changes threaten
fish supplies



Ecologic Cost

(<http://www.thelancet.com/commissions/planetary-health>)



**WATER
USE**

By 2050 over

40%

of the world's population could
be living in areas under severe
water stress



**UNDER
NUTRITION**

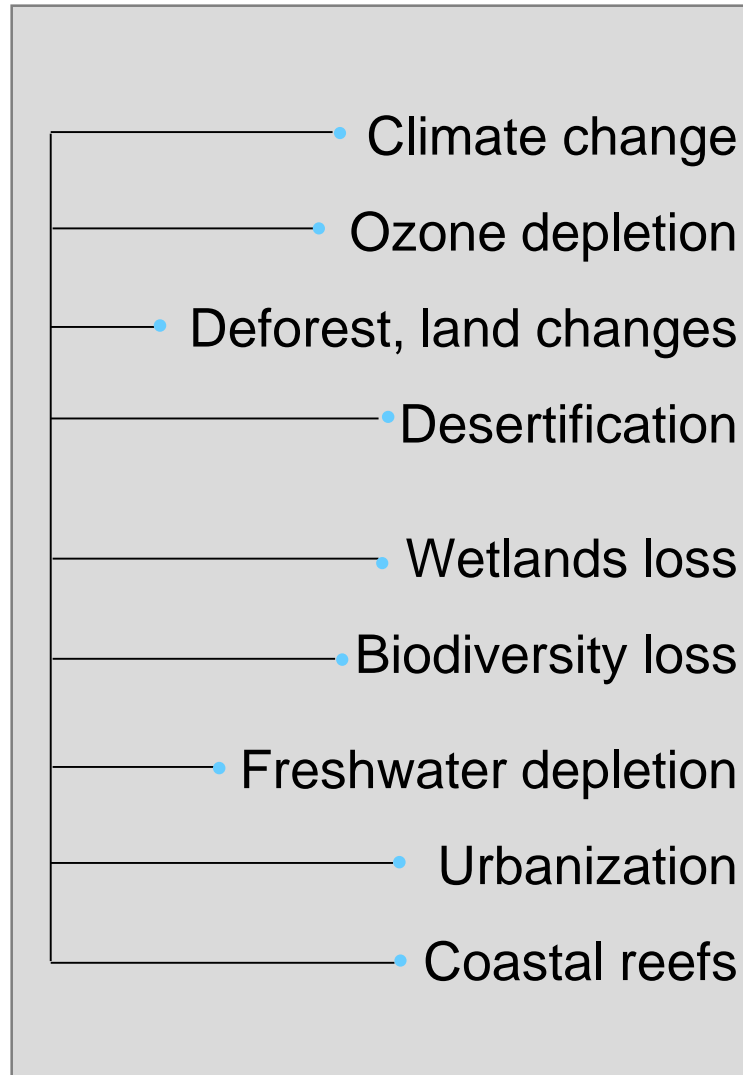
Millions of people are at risk of
under nutrition due to the
combined effects of
climate change and other
environmental changes

May see reversal of
progress, government
destabilization due to
unsustainable resource
consumption, inequities

Planetary Health Effects

(WHO, in Corvalan 2005)

Environmental changes and ecosystem impairment



**Escalating
human
pressure
on global
environment**



Examples of health impacts



1. Direct health impacts

Floods, heatwaves, pollutants, etc.



2. Ecosystem-mediated health impacts

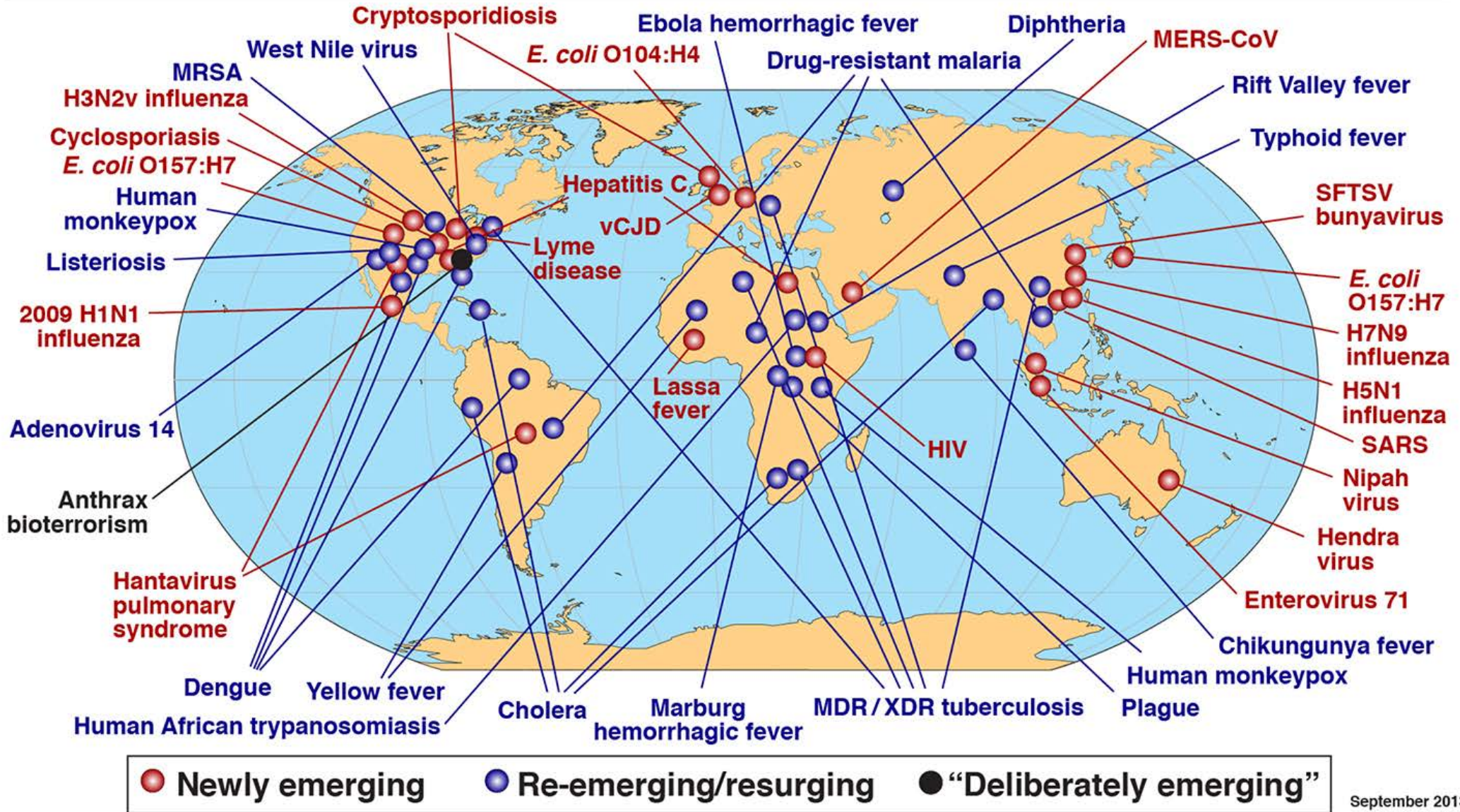
Infectious disease, undernutrition, etc.



3. Indirect, deferred, & displaced health impacts

Populations displaced, conflict, etc.

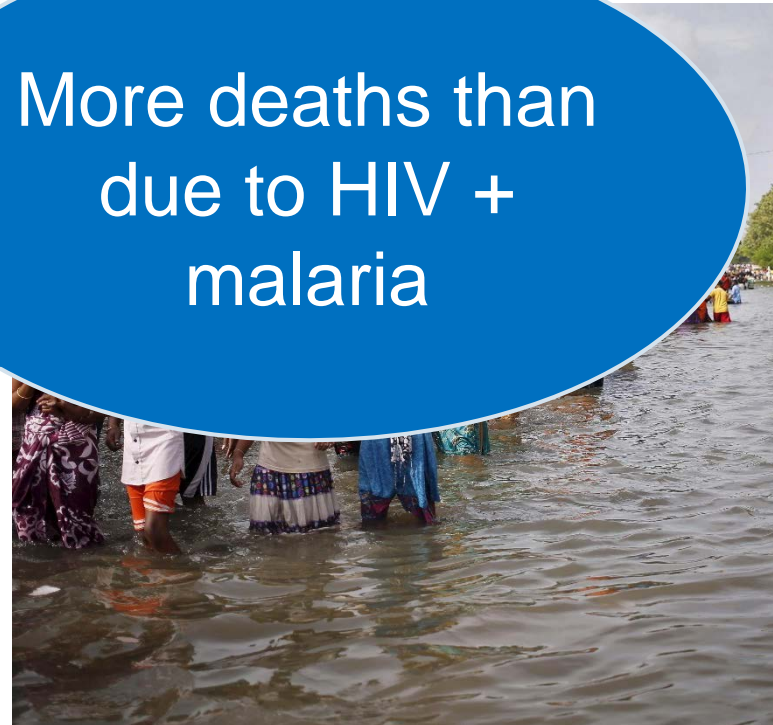
Global Examples of Emerging and Re-Emerging Infectious Diseases



Planetary Health - Direct Health Impacts

- Floods – up to 250 million affected
- Drought – climate refugees in and between countries
- Heatwaves - affecting elderly, vulnerable
- Pollutants
 - 5.5 million excess deaths globally 2016
 - Coal emissions → major cause of deaths (heart disease, cancer, stroke, respiratory)

More deaths than
due to HIV +
malaria



Ecosystem-Mediated Health Impacts

- Changes in disease – dengue, Lyme endemic mid-latitudes, 100s millions more malaria exposure
- Mental health – loss of social networks, trauma/PTSD, anxiety, depression
- Changes in food availability, cost – malnutrition



PH Effects - Indirect Health Impacts

- Displaced populations — shifts to cities straining health services
- Conflict



Conflicts

For each standard deviation in temperature and rainfall...



14 % increase in violence between groups

4% increase in violence between individuals

Mental Health Impact

- Displaced populations
 - Loss of social networks
- Strife, competition
 - Trauma, IPV
 - Political & armed conflict
- PTSD, anxiety, depression

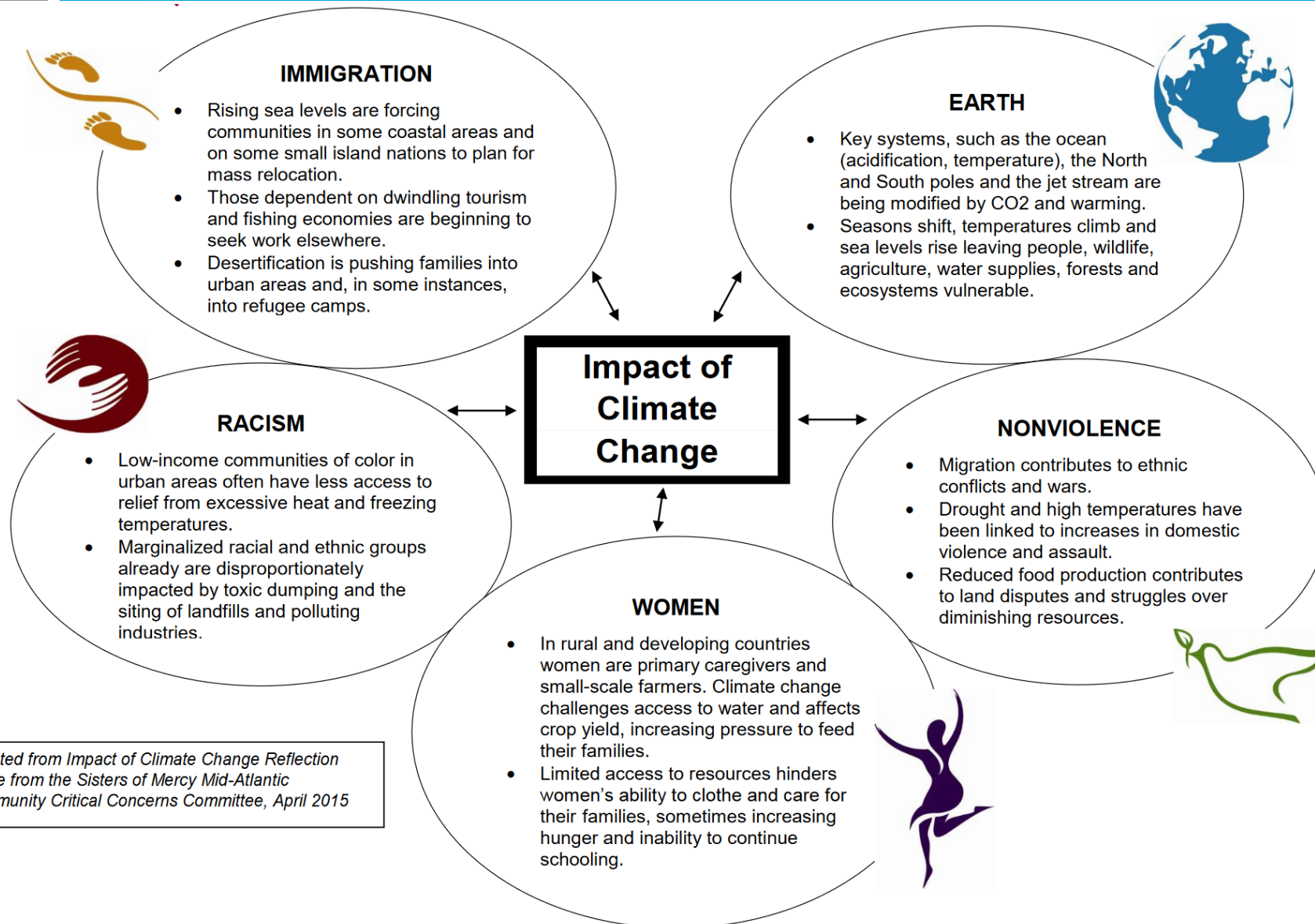


Planetary Health Ethics

- Disproportionate impact on poorest – **health inequities**

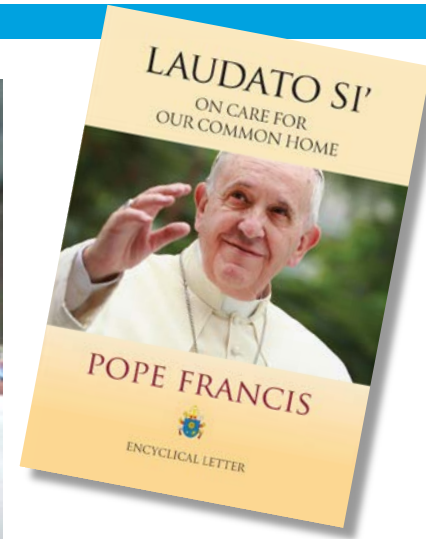


All Major Faiths Have Addressed Climate

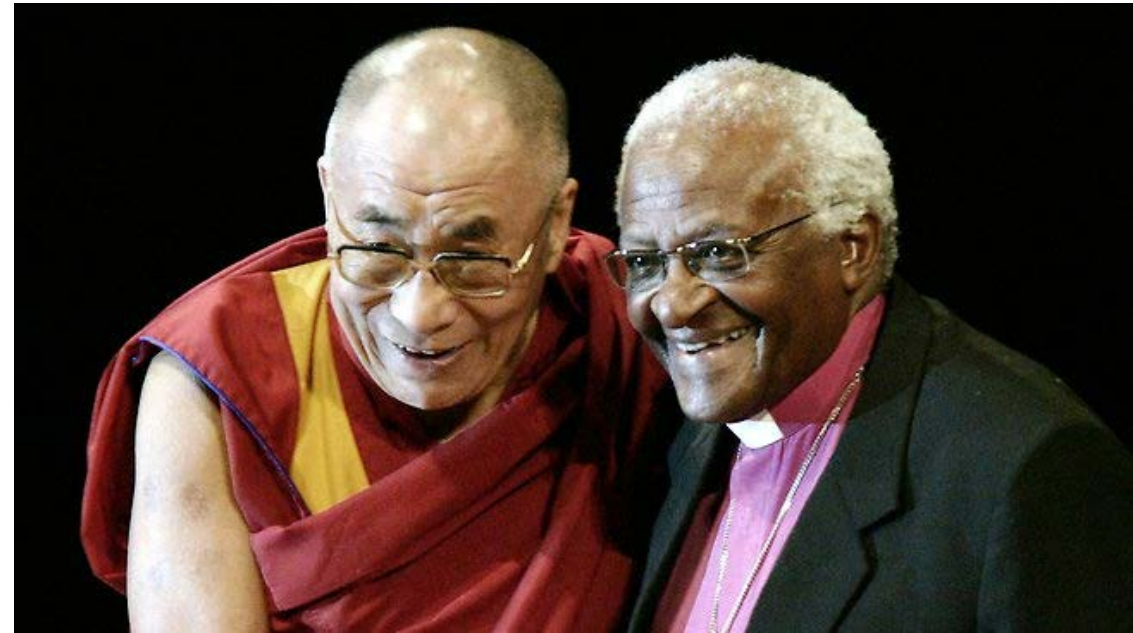


Adapted from *Impact of Climate Change Reflection Guide from the Sisters of Mercy Mid-Atlantic Community Critical Concerns Committee, April 2015*

Common Ground – Leadership Examples



“Environmental impact assessment should...be linked to a study of working conditions and possible effects on people’s physical and mental health, on the local economy and on public safety.”



How Does This Relate to Where I Live?

Climate impacts in the Great Plains

- Warmer winters = crop changes, drought/stress on aquifer

- m
th



Search EPA.gov



- Decl

Environmental Topics

Laws & Regulations

About EPA

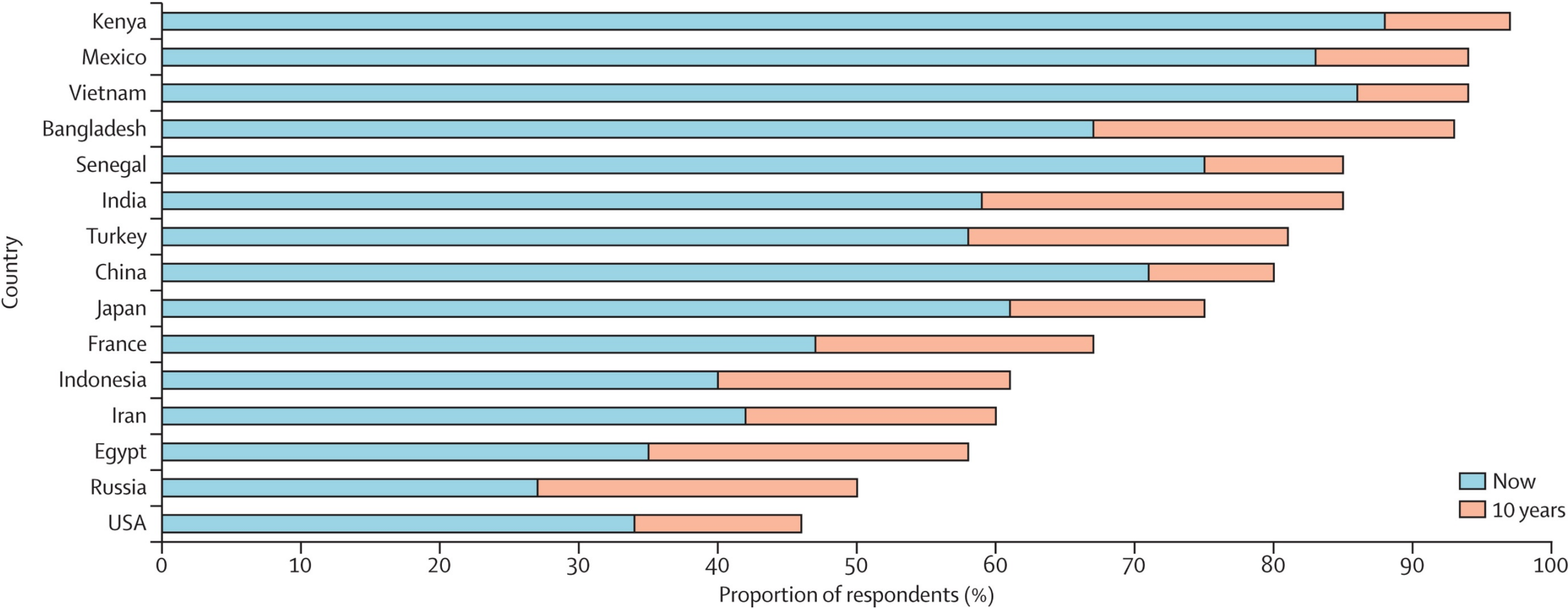
- Vuln

- Along
weat

This page is being updated.

Thank you for your interest in this topic. We are currently updating our website to reflect EPA's priorities under the leadership of President Trump and Administrator Pruitt. If you're looking for an archived version of this page, you can find it on the [January 19 snapshot](#).

Awareness of Climate Harm



Talking about Planetary Health

1. Keep emotions even-keeled

2. Avoid apocalyptic focus

- Addressing it now improves economies, jobs, social justice, & population health
– GAIN FRAME!

3. Seek common ground

- Leverage beliefs (religious leaders; business green economy; military security)

4. Tell personal stories

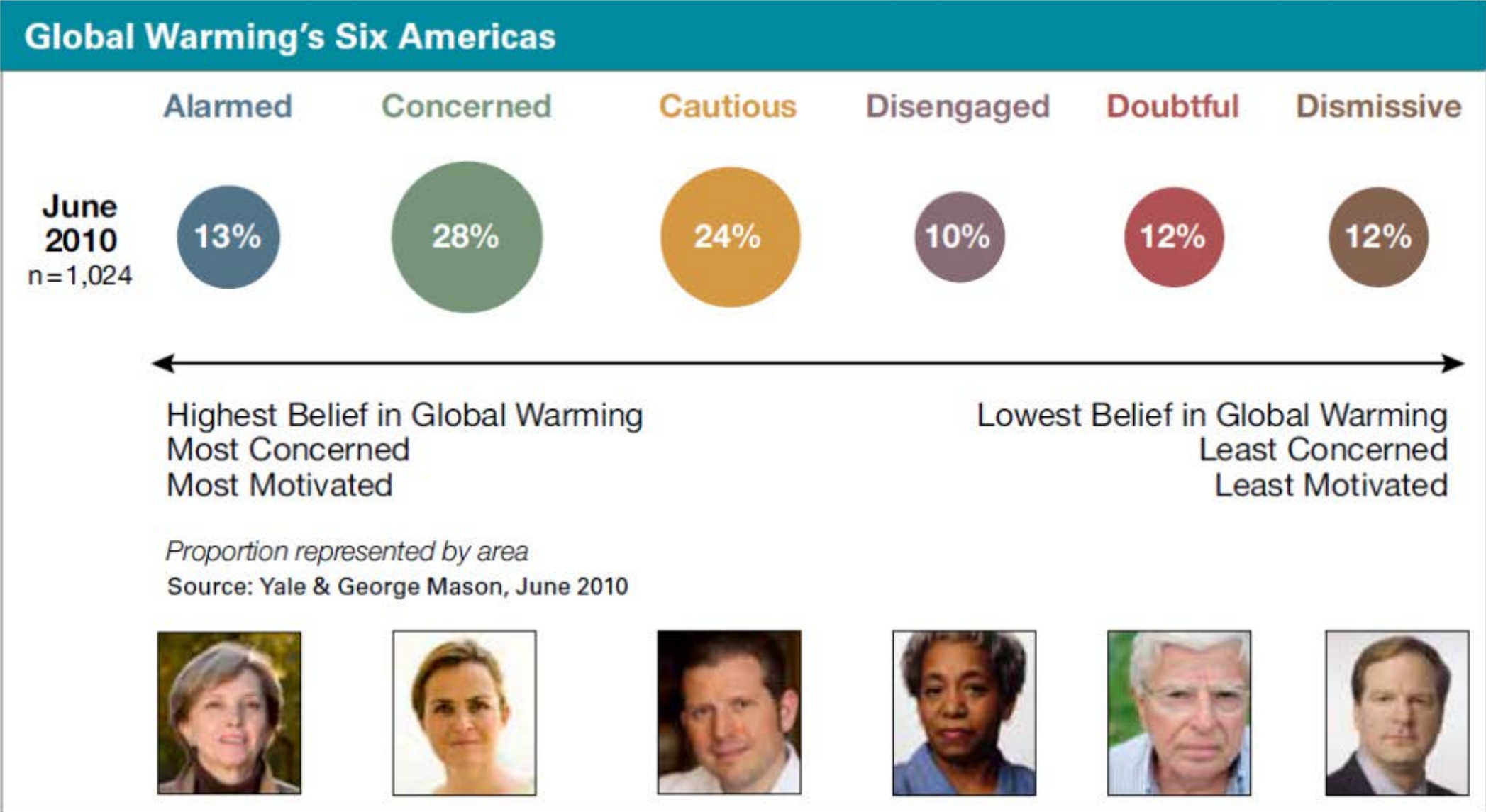
5. Emphasize facts

- 97% scientists agree climate change is happening & due to humans

Talking about Planetary Health

Psychological Lesson	Policy Guideline
<ul style="list-style-type: none">■ Brain prefers experience over analysis	<ul style="list-style-type: none">■ Tell stories
<ul style="list-style-type: none">■ Social beings	<ul style="list-style-type: none">■ Activate group norms for collective action
<ul style="list-style-type: none">■ Out of sight out of mind	<ul style="list-style-type: none">■ Emphasize present impacts & local solutions
<ul style="list-style-type: none">■ Nobody likes losing	<ul style="list-style-type: none">■ Frame policy around what's gained (not lost)
<ul style="list-style-type: none">■ Tap potential	<ul style="list-style-type: none">■ Leverage intrinsic motivation for environment goals

Communicating with a Continuum



Communicating with a Continuum

Global Warming's Six Americas: Communicating the Health Implications of Climate Change

"If you could ask an expert on global warming one question, which question would you ask?"

What can the US do to reduce global warming?



What harm will global warming cause?



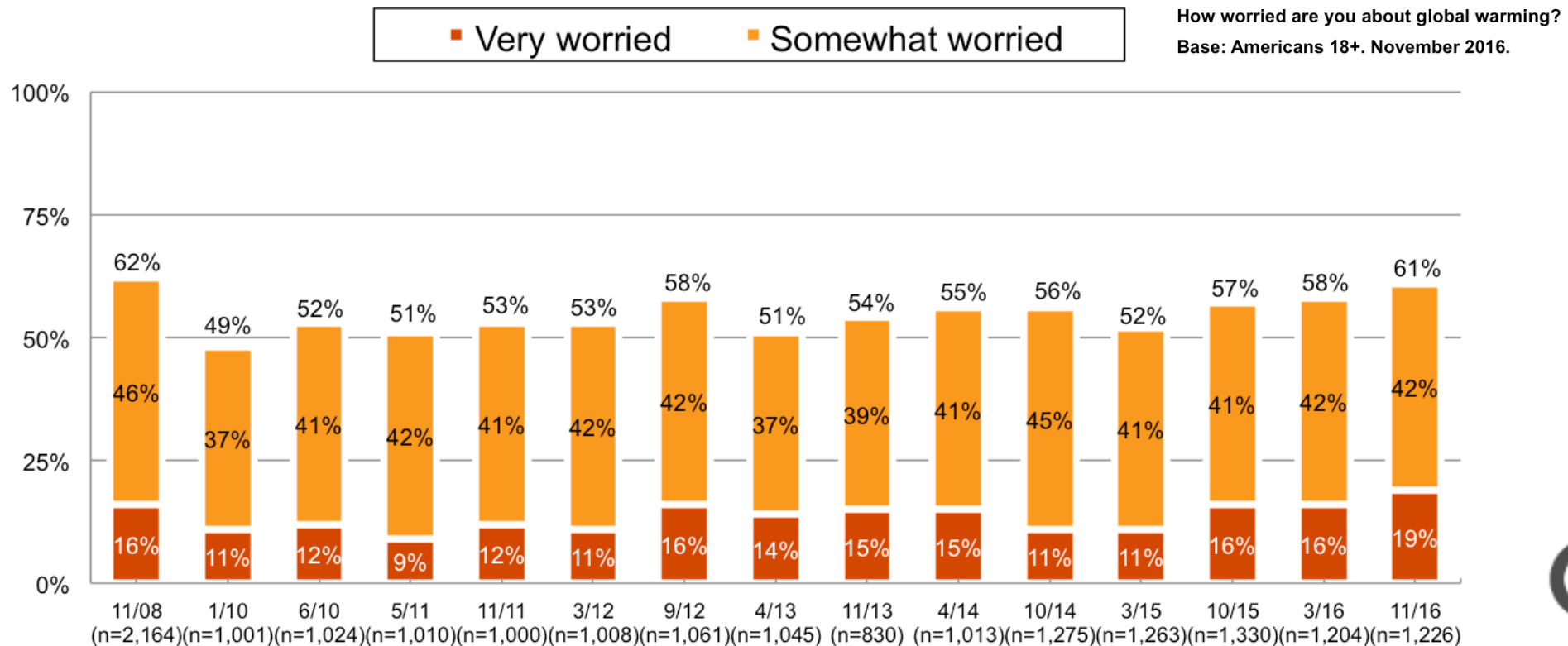
How do you know that global warming is occurring?



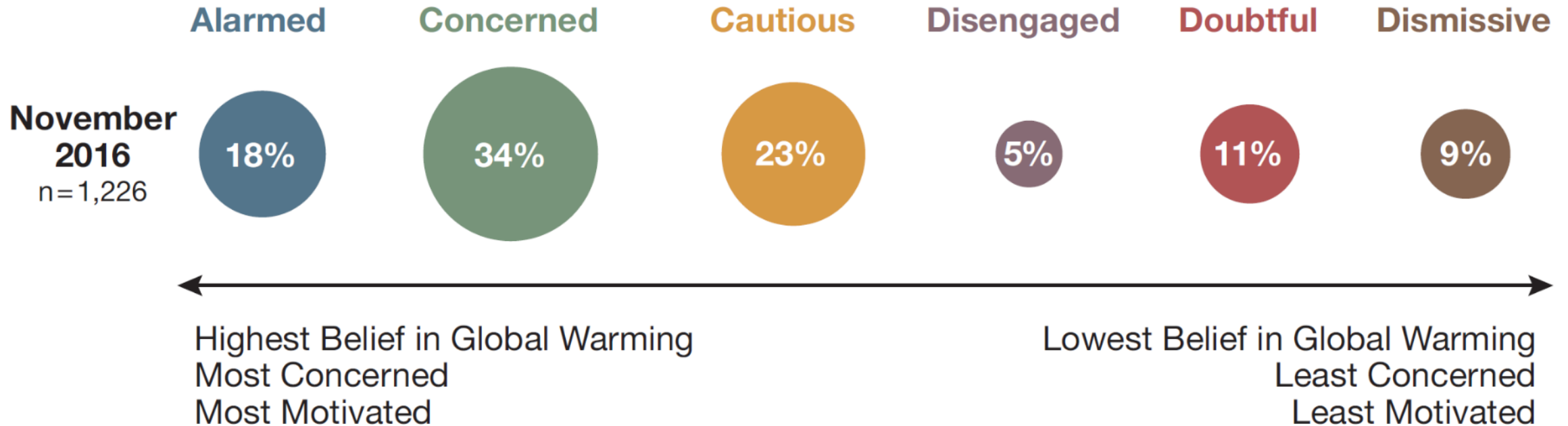
Survey Data

Six in Ten Americans Are Worried About Global Warming; About One in Five Are “Very” Worried

- Highest level of worry since November 2008 -



Post-Election Survey Data



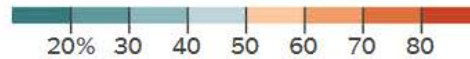
Proportion represented by area

Source: Yale / George Mason University

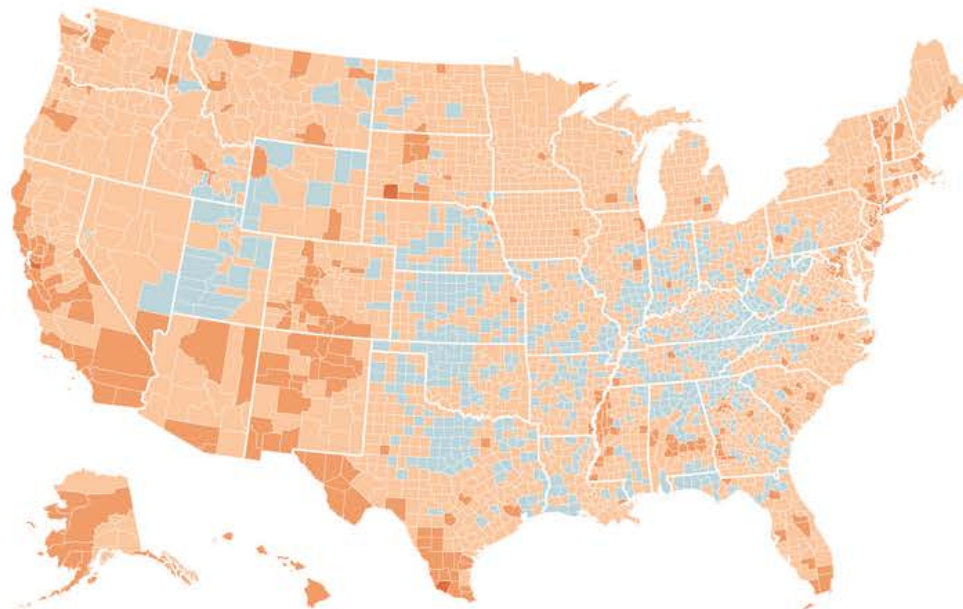
Survey Data, Yale Program on Climate Change Communication

Most people think that climate change will harm Americans, but they don't think it will happen to them.

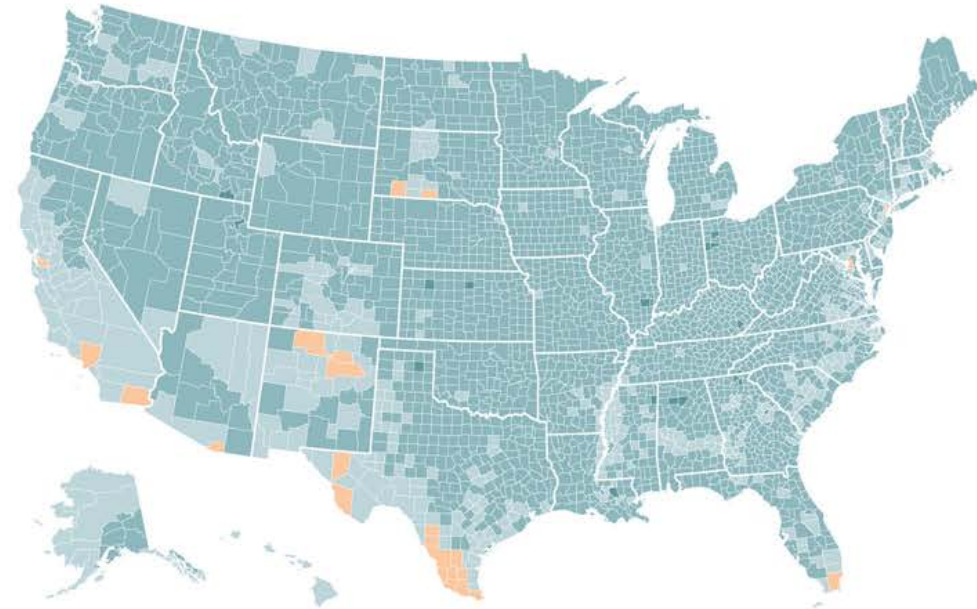
Percentage of adults per county who think ...



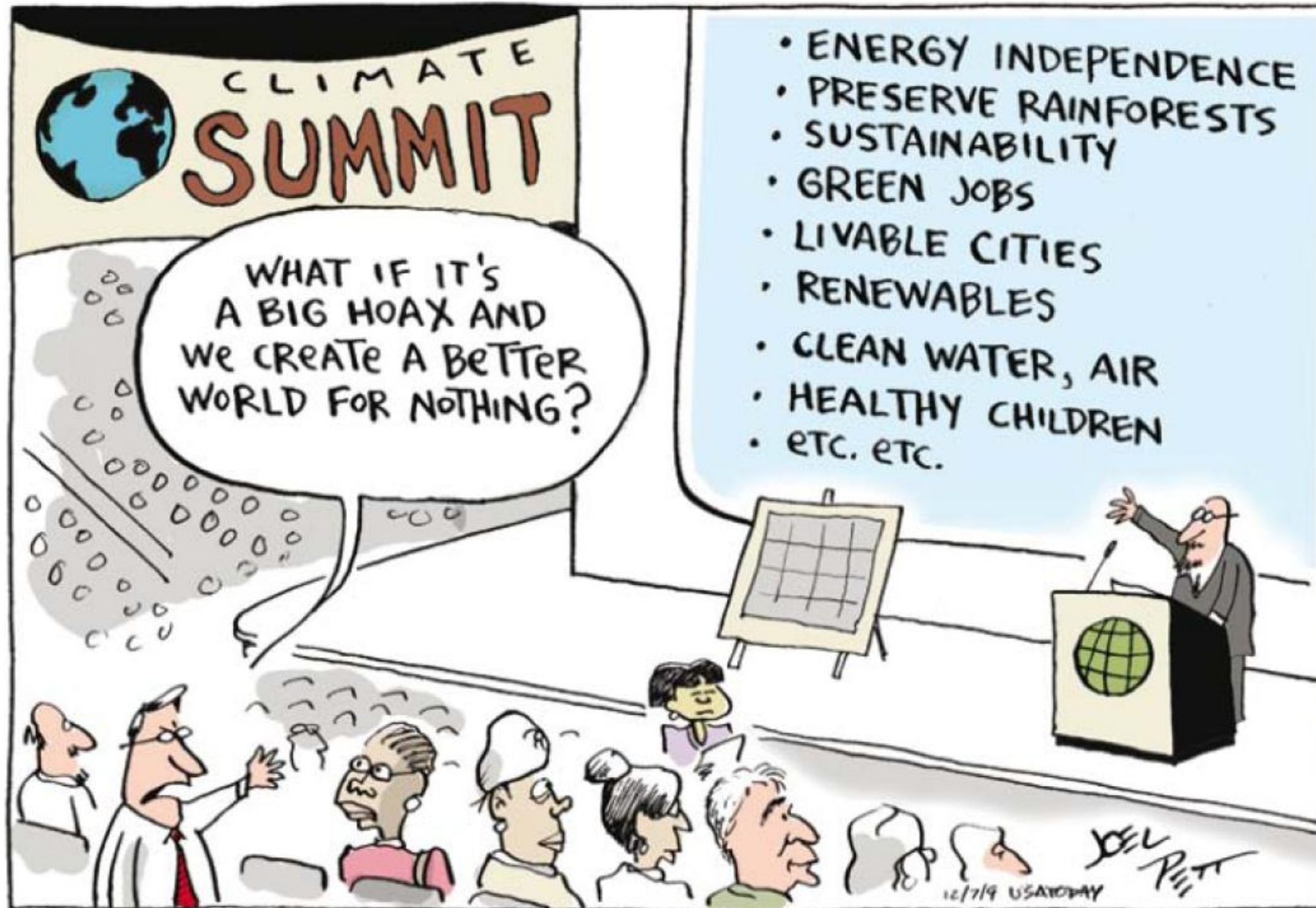
Global warming will harm people in the United States



Global warming will harm me, personally



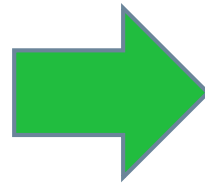
A Path Forward



Emphasize SOLUTIONS



Mad Max: Fury Road, 2015



“Climate change solutions
benefit mental health.”

– APA 2017

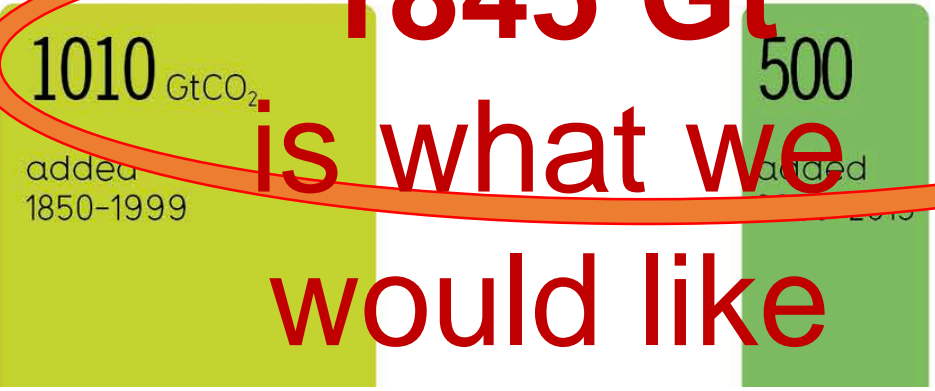
Remember the **opportunity** in crisis...

Mitigation & adaptation efforts now
will have benefits

**A green economy
(and health system) is strong**

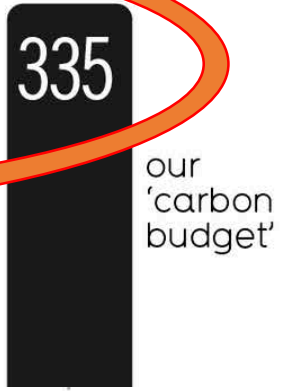
How Many Gigatons of Carbon Dioxide...?

have we released to date?



1845 Gt is what we would like to take back, if we could.

more can we "safely" release*?



TIME BEFORE WE BREAK OUR 'CARBON BUDGET'



8 YEARS
if emissions continue to increase at 2.5% per year

are left to release?



GLOBAL WARMING IF RELEASED



over pre-industrial average temperature

SCENARIO

Best ideas, in various categories (Kahr, '16)

- Energy
- Food
- Women and Girls
- Cities and Buildings
- Land Use
- Transportation
- Materials

Green Investments

- x2 the investment in renewables versus fossil fuel capacity... fifth year in a row
- World now adds more renewable capacity annually than from all fossil fuels combined



YALE CLIMATE
CONFERENCE

Decoupling economic progress and CO₂

2016

2015

2014









Global energy-related CO₂ emissions remained stable last 3 years – even during 3% growth in economy and increased demand for energy



Green Investments, China



Annual Investment / Net Capacity Additions / Production in 2016

	1	2	3	4	5
Investment in renewable power and fuels (not including hydro > 50 MW)	China	United States	United Kingdom	Japan	Germany
Investment in renewable power and fuels per unit GDP ¹	Bolivia	Senegal	Jordan	Honduras	Iceland
 Geothermal power capacity	Indonesia	Turkey	Kenya	Mexico	Japan
 Hydropower capacity	China	Brazil	Ecuador	Ethopia	Vietnam
 Solar PV capacity	China	United States	Japan	India	United Kingdom
 Concentrating solar thermal power (CSP) capacity ²	South Africa	China	-	-	-
 Wind power capacity	China	United States	Germany	India	Brazil
 Solar water heating capacity	China	Turkey	Brazil	India	United States
 Biodiesel production	United States	Brazil	Argentina/Germany/Indonesia		
 Fuel ethanol production	United States	Brazil	China	Canada	Thailand

Green Jobs

- Wind turbine technician is fastest growing job in US: 108% growth through 2024... (in same period, nurse practitioners 35% growth rate)



“We have 1,200 people in Grand Forks North Dakota that make wind turbine blades. They’re making close to \$30 an hour. Their parents worked in mines. They worked on farms.”

Jeff Immelt, Chair of General Electric
Yale Climate Conference, September 2017


Green Jobs



JOBS 2016

Jobs in Renewable Energy

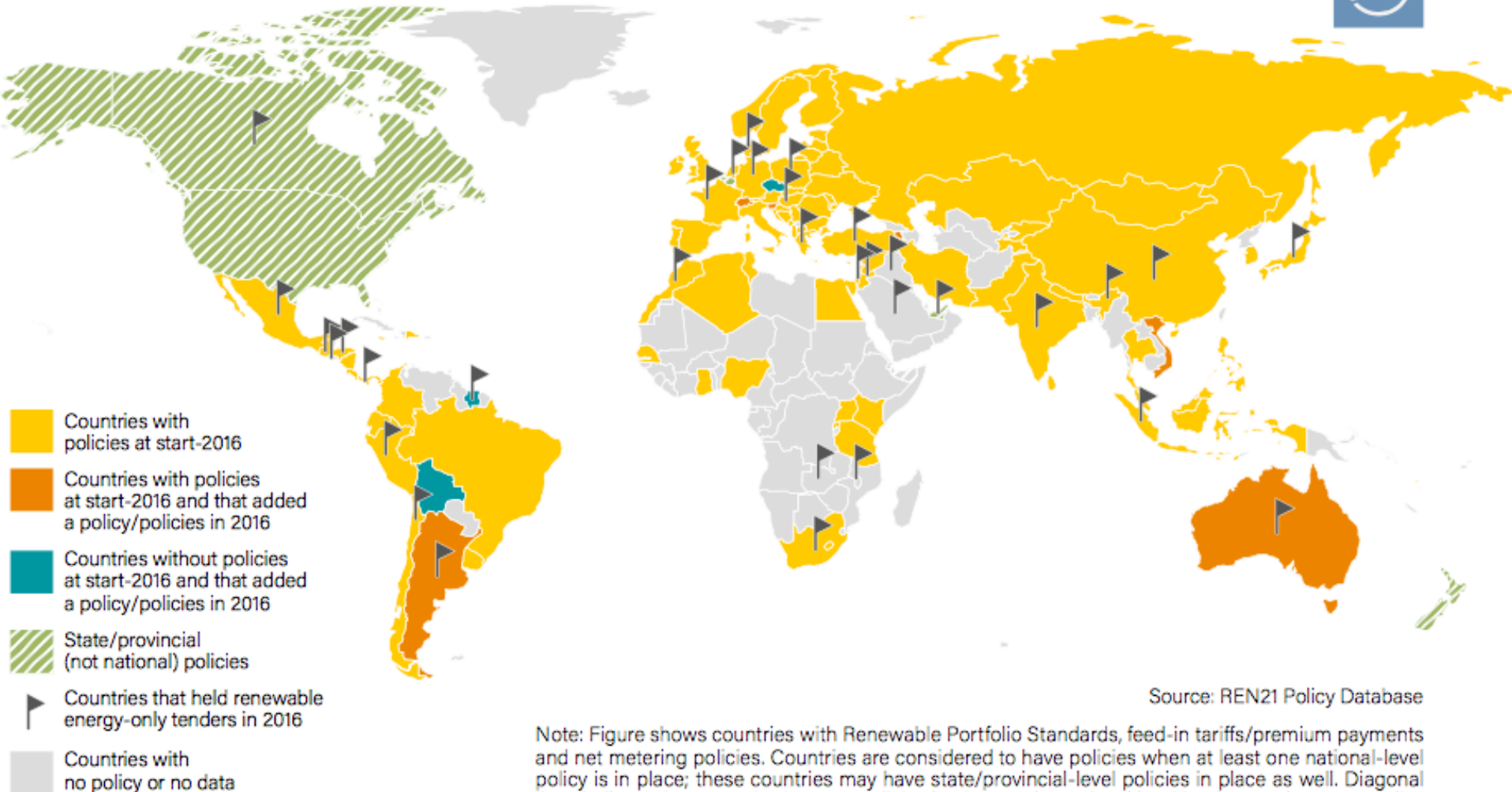


 = 50,000 jobs

world total
9.8
million
jobs

Green Regulation: Energy Efficiency

Countries with Renewable Energy Power Policies, by Type, 2016



Energy Efficiency



India will not sell internal combustion engines by 2030

China has similar plan in the works

France and **Britain** will end internal combustion engine sales by 2040

VW will release pure electric vehicles for all of its car models



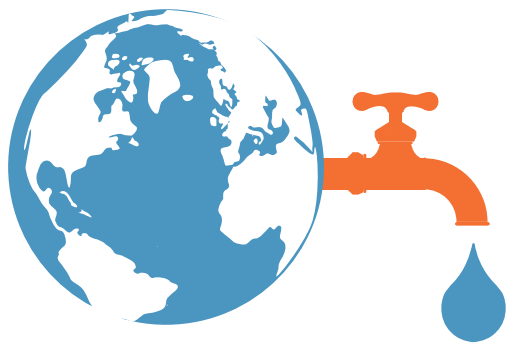
How to Act on Planetary Health

To safeguard human health we need to maintain the health of the planet on which we depend





How to Act on Planetary Health



Use More
Water
Efficiently



Family
Planning



End
Deforestation



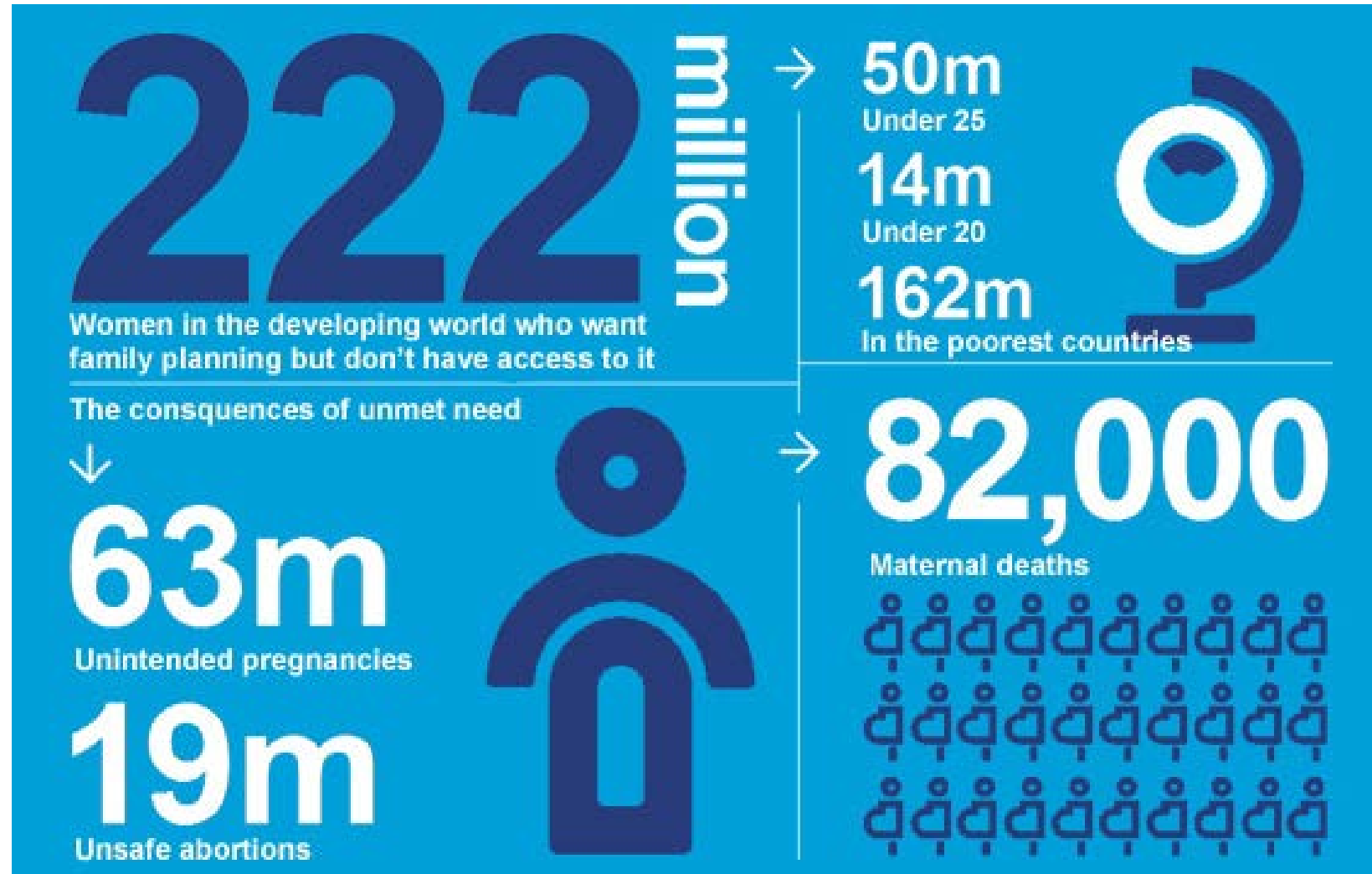
City Planning

Population - Gender Equity Issue

Education
(girls/women) →

family planning
(improved
maternal/child
survival) →

Sustainable
economic
empowerment

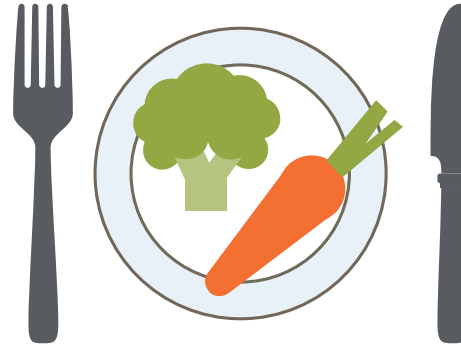




How to Act on Planetary Health



Learn about
Planetary
Health



Healthy Diets
With Low
Environmental
Impact



Reduce
Food
Waste



Better
Governance

Policy/Action to Stabilize CO₂ Atmospheric Levels

- Efficient transportation
- Energy conservation
- Sustainable energy sources
- Sustainable land use
- Population stabilization
- Economic incentives (cap and trade; carbon credits)
- Political change and commitment
 - Moratorium on fossil fuel exploration
 - Massive shift to alternative energy sources
 - Commitment to conservation, e.g., mass transit, LEED buildings, policy shifts (68°F. in winter, 72°F. in summer) (Vermund '16)

Policy/Action to Address Climate & Health

Economics of Planetary Health

“...when we compromise the environment, we compromise human health...We need to turn this around, and we can...prosperity and good health should go hand-in-hand...mindful that we have only one earth.”

- Ernesto Zedillo, chair of Rockefeller Foundation
Economic Council on Planetary Health

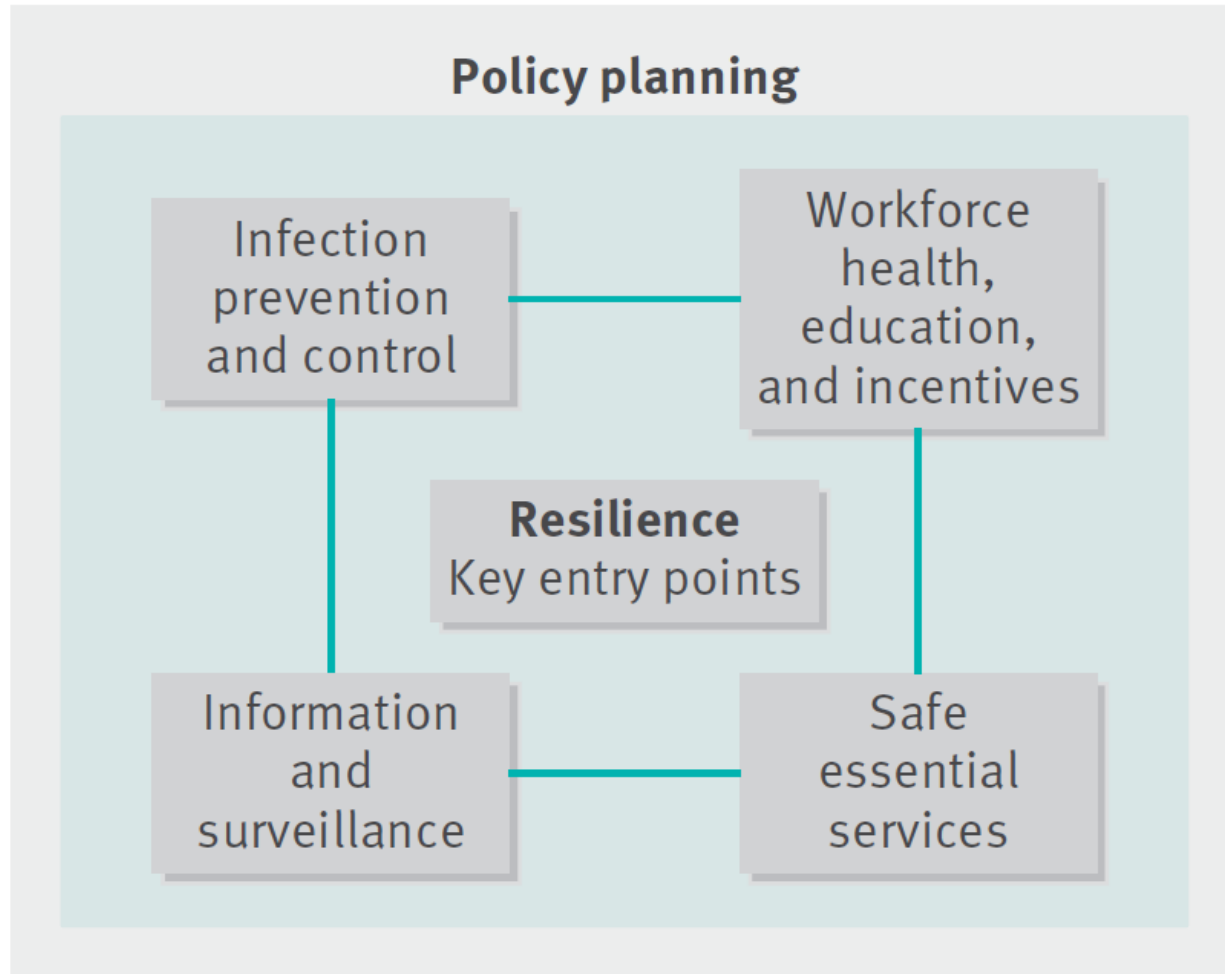
Resilient Health Systems

Health Trends Globally

- **Climate change, ecosystem strain**

Strengthen Health Systems

Health System Resilience



Entry points to health system resilience

capacity to respond, adapt, and strengthen when exposed to a shock...

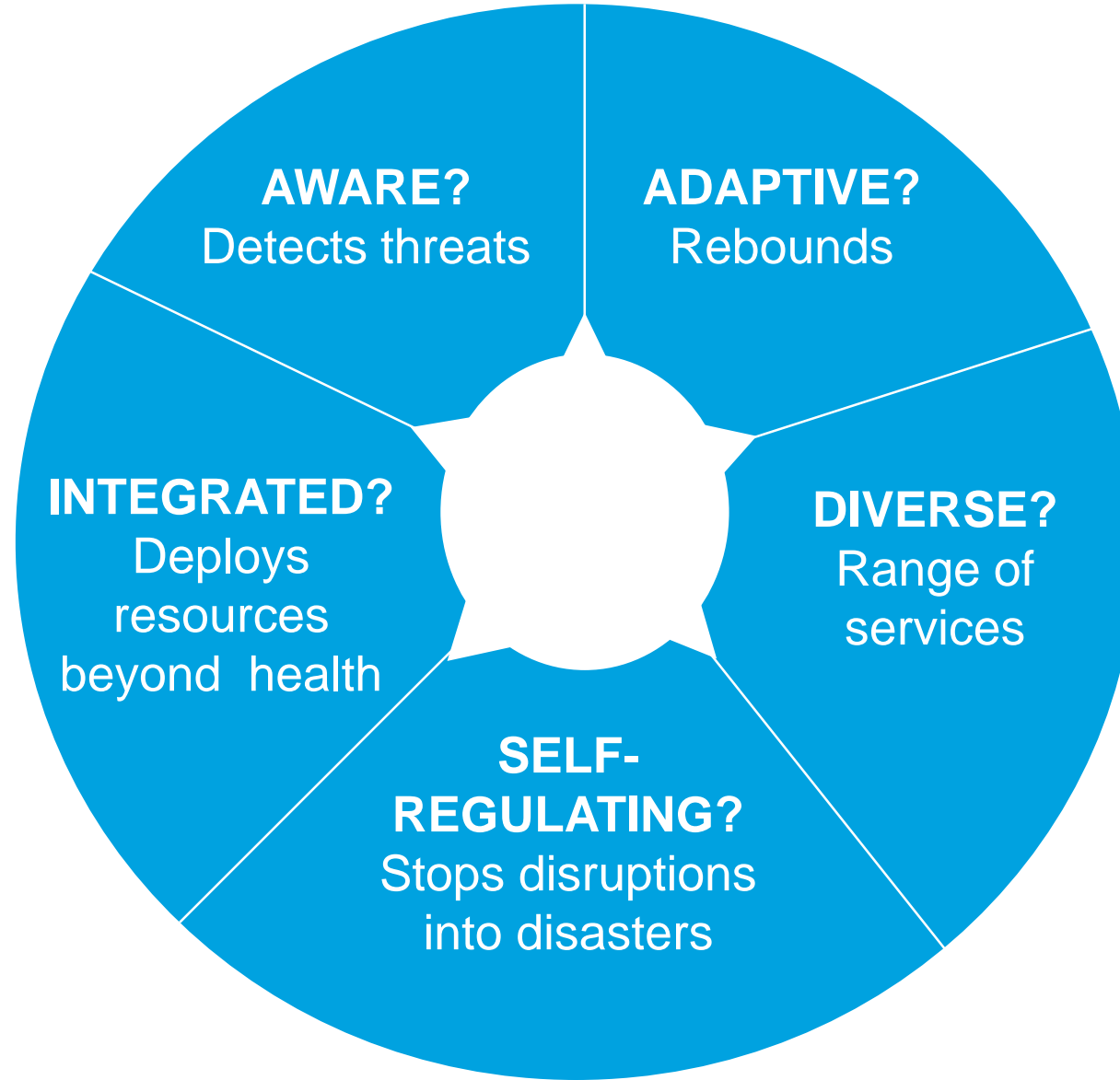
Health System Resilience



capacity to respond, adapt, and strengthen when exposed to a shock...

Planetary Health & Health Systems

**Is Your
Health System
Resilient?**

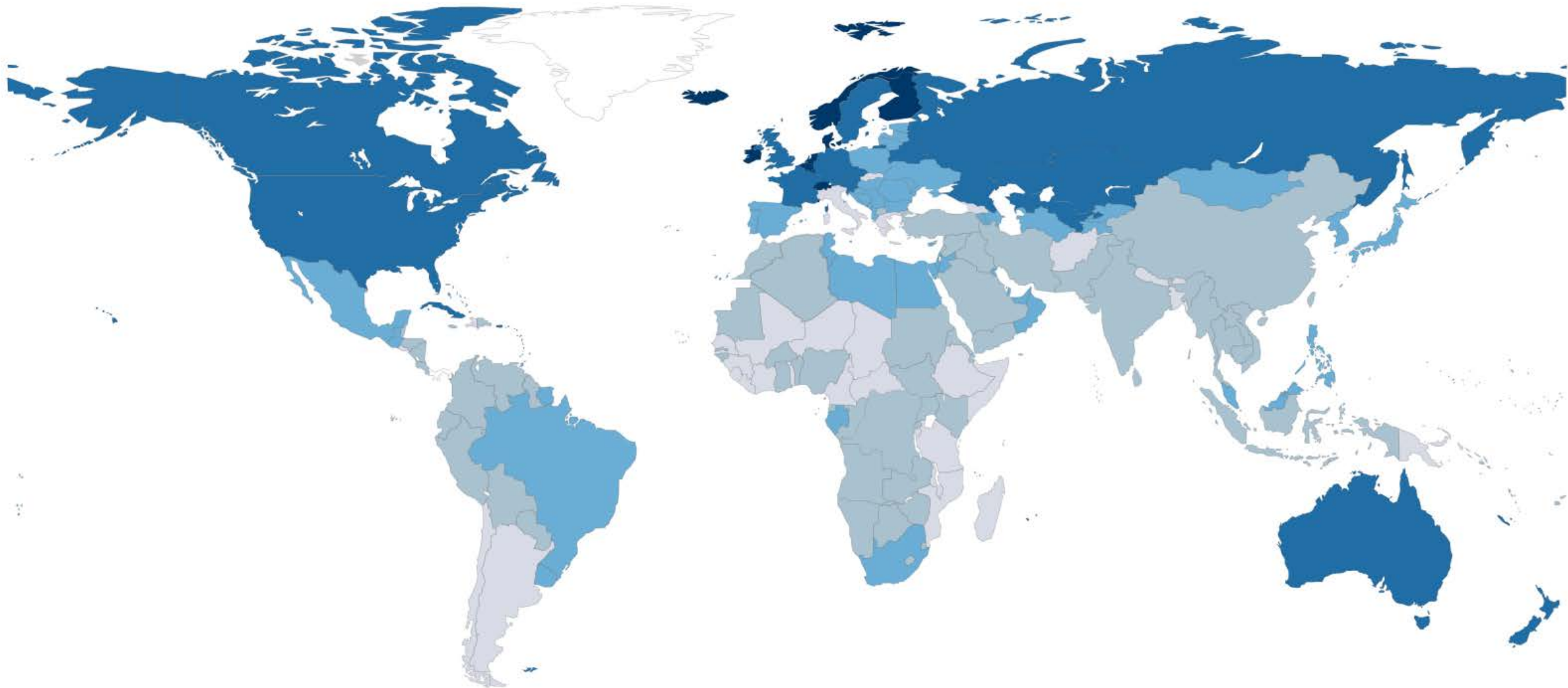


Health System Strengthening

6 key components of strong health systems:



Health Workforce – Nurses & Midwives



Health System & Worker Resilience

■ Resilient health systems

- Organizational structure, leadership, stakeholders, networks
- Positive practice environment
- Risk management, communications

■ Resilient nurses ICN 2016

- Adaptability, confidence, purposefulness, social support
(Cooper model)

Climate Change Impact on Health in US

Crimmins 2016

How Will My Health System Respond

Connection with VNS, health dept. assess geri pts needs for group cooling shelter

Warning and communication systems, expect asthma visits ED

Temporary or permanent population movements. Coordinate intersectorally

Ambulatory, community-based, and in-pt impact as disease burden shifts

Climate Change Impact on Health in US

Crimmins et al. 2016

How Will My Health System Respond

Health dept. surveillance & health service impact planning

Health dept. surveillance & health service impact planning

Acute visits as well as outpatient needs; consider group and telemental health delivery

Resilience for the Health Industry

- Some global warming will continue
(2.5 – 7.7°F rise inevitable, this century)
- Nurses can lead local, regional adaptation efforts
 - Partner with local decision makers
 - Identify at-risk populations, emergency plans, monitoring
 - Provide guidance to patients & families
 - Posters, brochures
 - Health facility preparation
 - Anticipate demand surges (ED, out-pt), generators, emergency transport

Resilience for the Health Industry

- Health is 1/7th of US economy
 - Medical centers spend \$5.3 billion on energy alone (Sayre 2010)
 - Cost savings as driver (KPMG 2011)
 - Business & Sustainable Development 2017 report
 - Achieving SDGs good: gender equity alone add \$28 trillion to global GDP, 2025
- WHO hospitals guide (2015)



Sustainability in the Health Industry

- Healthier Hospitals Initiative
 - >1000 US hospitals
- Global Green & Healthy Hospitals
 - >750 members on 6 continents, >20,000 hospitals
- Green teams on units

Seven elements of a climate-friendly hospital

- 1 Energy efficiency**
Reduce hospital energy consumption and costs through efficiency and conservation measures.
- 2 Green building design**
Build hospitals that are responsive to local climate conditions and optimized for reduced energy and resource demands.
- 3 Alternative energy generation**
Produce and/or consume clean, renewable energy onsite to ensure reliable and resilient operation.
- 4 Transportation**
Use alternative fuels for hospital vehicle fleets; encourage walking and cycling to the facility; promote staff, patient and community use of public transport; site health-care buildings to minimize the need for staff and patient transportation.
- 5 Food**
Provide sustainably grown local food for staff and patients.
- 6 Waste**
Reduce, re-use, recycle, compost; employ alternatives to waste incineration.
- 7 Water**
Conserve water; avoid bottled water when safe alternatives exist.

Sustainability in the Health Industry

■ Combat barriers to 'greening' your clinical site:

- Competing investment/
- Inadequate staffing
- Underfunded operation
- Perceived higher costs
- Time limitations (AHE, '13)

BENEFITS ACHIEVED BY GREEN HOSPITALS

- Better Indoor air quality.
- 20-40% energy savings.
- 35-40% water savings.
- Good day lighting.
- No sick building syndrome.
- Faster patient recovery.



Sustainability in the Health Industry

- **Transportation** – avoid unnecessary trips, public transport, local suppliers
- **Energy** – EPA says 30% reduction just through efficiency/renewables
- **Alternative energy** – solar, biomass, on-site heat/power plant
- **Green buildings** – carbon-neutral hospital design but also ORs, supply chain
- **Waste management** – reduce/reuse/recycle, incineration alternatives
- **Food service** – less meat, local
- **Water conservation** – low-flow, drought-resistant plants, fix leaks (Sayre 2010)

Sustainability in the Health Industry

- NHS (UK) 5 steps for low-carbon healthcare system
 1. Support people in taking responsibility for their own health
 2. Build greater acceptance of ICT in health provision
 3. Find low-carbon, high QOL sweetspot
 4. Allocate resources to promote health not tx illness
 5. Ensure health system takes leadership in **radical change needed to face climate change**

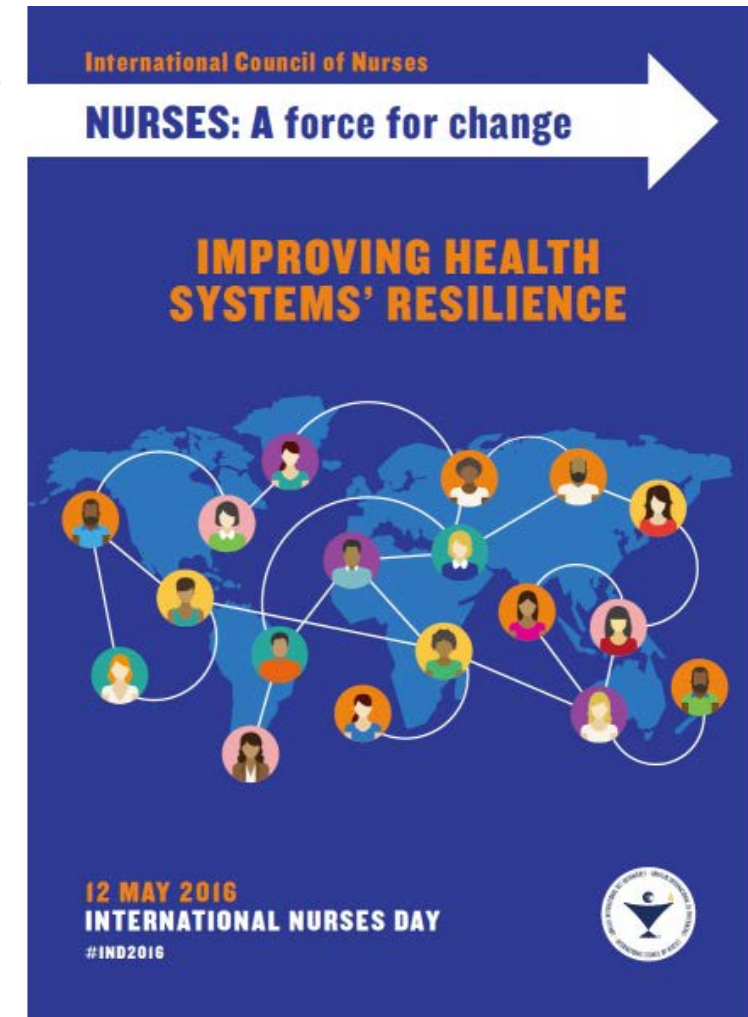


Nursing Has Taken a Stand

Policy statements on environment, resilience

■ Int'l Council of Nurses

- 2016 position nat'l nurse associations, nurses
- 2008 statement nurses/climate change/health:
 - *“[nat'l nurse associations and nurses must be involved in developing national action plans and policies and be part of disaster preparedness teams to mitigate the impact of climate change on health”*
- 1999, '07, '11 statements environmental hazards



Nursing Has Taken a Stand

Policy statements on environment, resilience

- Canadian Nurses Association (2008)
- AACN environmental sustainability task force
- Alliance of Nurses for Healthy Environments (2009)
 - 'Human health connected with every aspect of natural, built environment'
- ANA (2008)
 - Global climate change as a threat to human health, mandates and obligates action, advocacy and a "united" nursing voice
- Nurses as force for resilient health systems



Nursing Has Taken a Stand

"The registered nurse practices in an environmentally safe and healthy manner."

Standard 17 of the Standards of Professional Nursing Practice found in **Nursing: Scope and Standards of Practice**, 3rd Edition

Planetary Health Summary

- Health progress has been made but an ecological price has been paid
- Need action now, including strengthening health systems
 - Nursing is key – frontline responder, trusted voices
 - Nursing role in mitigation, adaptation, policy, leadership
 - As HIV nurses, we **KNOW HOW TO ADVOCATE & DELIVER**

CALL TO ACTION

Nurses for Planetary Health



CALL TO ACTION – Nurses for Planetary Health

- Educate ourselves
- Communicate with our patients
- Take action at local level –
university, hospital, health system
sustainability & readiness
- Engage in political/policy process



Nursing Education - Curriculum Thread

5: Political and broader engagement (Lancet PH, 2015)

5.1 Public engagement with health and climate change

5.2 Academic publications on health and climate change

5.3 Inclusion of health and climate change within...health curricula

Global Consortium on Climate and Health Education

<https://www.mailman.columbia.edu/research/global-consortium-climate-and-health-education/mission>



Tell the Right Story

"If we don't transition quickly to a sustainable way of life humanity is doomed?"

OR

"We are transitioning to a more sustainable and resilient way of life that will offer tremendous benefits to humanity."



Why are we talking about this at an ANAC conference?

HIV nurses have unique skills needed to address this crisis

- Optimism in the face of despair
- Righteous anger – and advocacy skills – to address injustice, inequity
- Leadership to organize, for research and for health care delivery
- Innate proclivity to work with and for people
- Alliance with communities, building on strengths
- Belief that life of each is worth fighting for, and that we are stronger when working together

This is the Challenge of Our Time

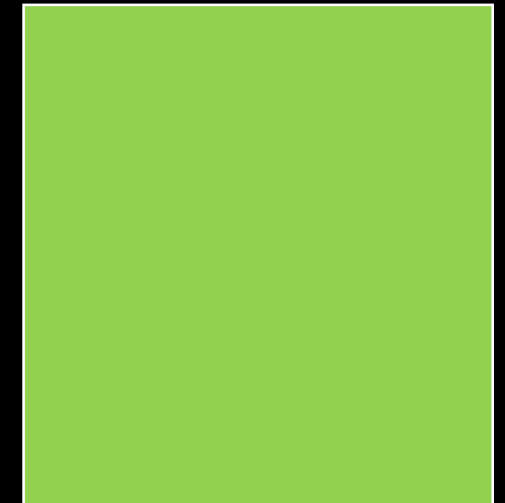
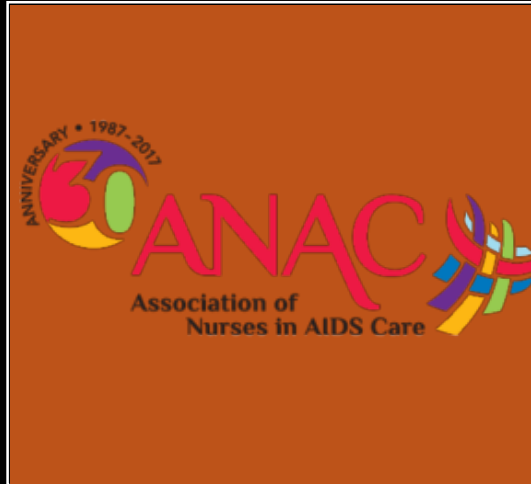


“If you look at the science about what is happening and aren’t pessimistic, you don’t understand data.

But if you meet the people who are working to restore this earth and the lives of the poor, and you aren’t optimistic, you haven’t got a pulse.”

- Paul Hawken, environmentalist

We Have Only
One Home...



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Resources

- Whitmee S, Haines A, Beyrer C, et al. Safeguarding human health in the Anthropocene epoch: report of the Rockefeller Foundation–*Lancet* Commission on planetary health. *Lancet* 2015; [http://dx.doi.org/10.1016/S0140-6736\(15\)60901-1](http://dx.doi.org/10.1016/S0140-6736(15)60901-1)
- Sayre L, Rhazi N, Carpenter H, Hughes NL. Climate change and human health: the role of nurses. *Nurs Adm Q.* 2010; 34(4):334-42.
- Squarzoni P. Climate changed: a personal journey through the science. Abrams, NY, 2014.
- Metadata Access Tool for Climate and Health <https://match.globalchange.gov/geoportal/catalog/main/home.page>
- Alliance of Nurses for Healthy Environments <http://envirn.org/pg/groups/7007/climate-change-and-health/>
- Climate Change Nursing Toolkit
<https://noharm-uscanada.org/content/us-canada/nurses-climate-change-toolkit>
- <http://www.climatechangeandnursing.org/>
- Healthcare Without Harm <https://noharm.org/>
- Green Hospitals
<https://practicegreenhealth.org/initiatives/healthier-hospitals-initiative>
<https://noharm-global.org/issues/global/global-green-and-healthy-hospitals>
http://www.who.int/globalchange/publications/healthcare_settings/en/
http://www.who.int/globalchange/publications/climatefootprint_report.pdf?ua=1



PLANETARY
HEALTH NOW!

HOME

NOW! NEWS

RESOURCES

PARTNERS

WHAT WE DO

CONTACT

TAKE ACTION

PLANETARY HEALTH NOW!

...advocacy & action to build resilient health systems

Discussion – How are/can you be a leader ...

Engaged to 'green' your org, SoN, clinical sites?

1. _____
2. _____

Develop curricular concepts?

1. _____
2. _____

Develop interdisciplinary collaborations?

1. _____
2. _____

Top opportunities & strategies, lessons learned?

1. _____
2. _____