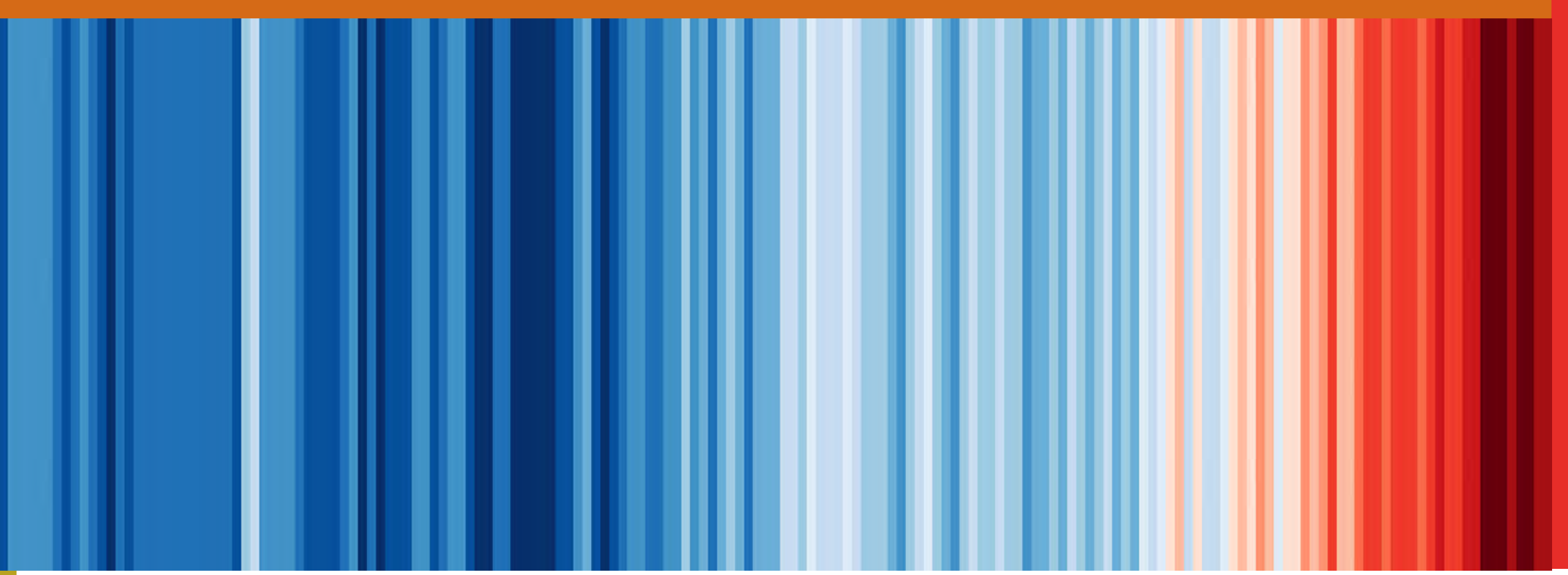

Climate Crisis: Impacts and Strategies

Claire Richards, PhD, RN | Washington State University College of Nursing | SEIU 775 Leadership Convention

SEIU 775 BENEFITS GROUP

Agenda

- Introduction to Causes of Climate Breakdown
- Direct and Indirect Impacts of Climate Change
- Social and Health Vulnerability
- Extreme Heat and Wildfire Smoke & Social and Health Vulnerability
- Adaptation, Mitigation, and Co-benefits: What can we do?

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What can we do?

WEATHER

Tells you what to wear each day

CLIMATE

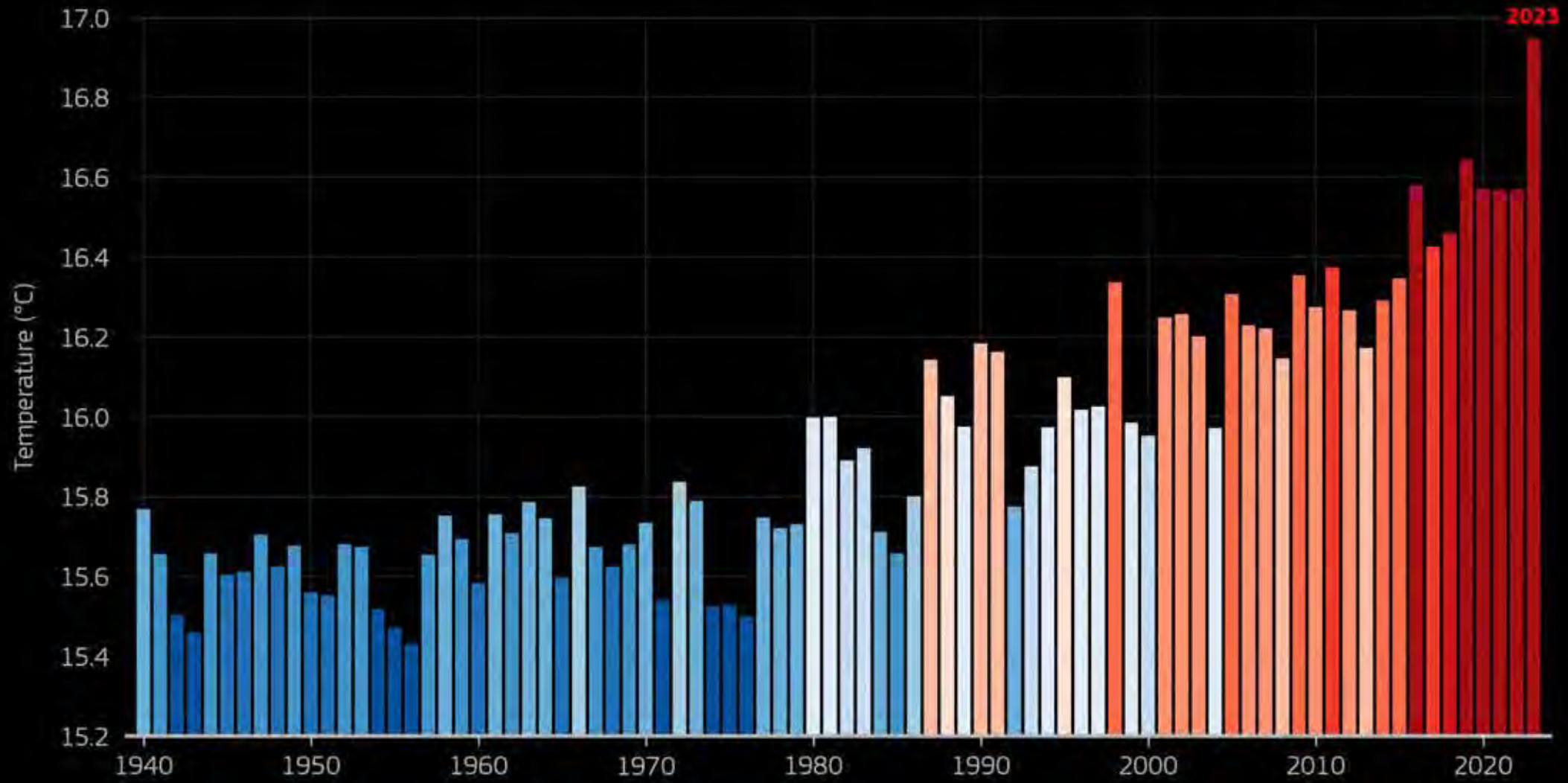
Tells you what types of clothes to have in your closet

GLOBAL SURFACE AIR TEMPERATURE • 1–23 JULY

Average for first 23 days of July from 1940 to 2023 • Data: ERA5 • Credit: C3S/ECMWF

Climate Change Service

climate.copernicus.eu



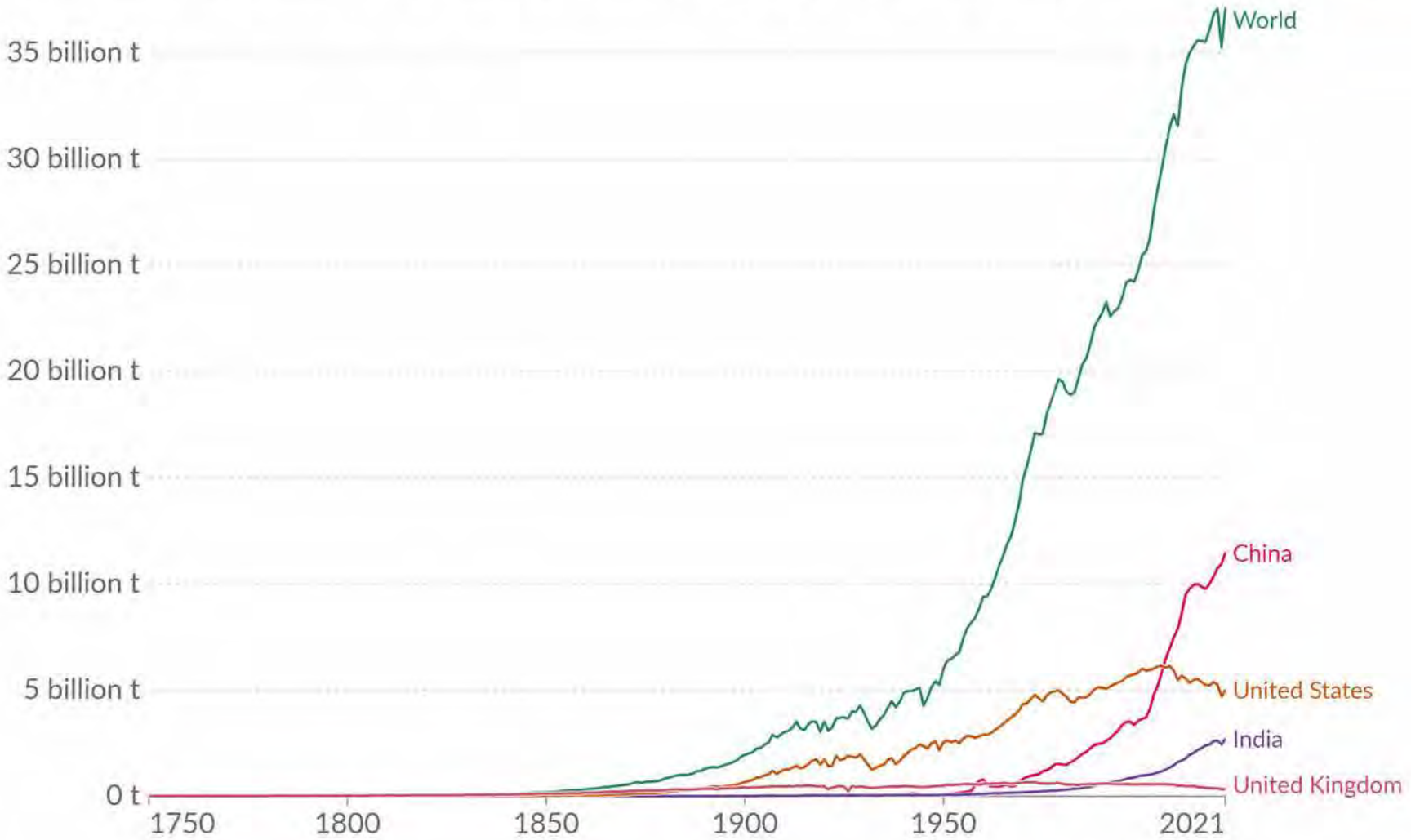
PROGRAMME OF THE EUROPEAN UNION

Copernicus Europe's eyes on Earth

IMPLEMENTED BY ECMWF

Annual CO_2 emissions

Carbon dioxide (CO_2) emissions from fossil fuels and industry[1] . Land use change is not included.



Source: Global Carbon Budget (2022)

OurWorldInData.org/co2-and-greenhouse-gas-emissions • CC BY

1. Fossil emissions: Fossil emissions measure the quantity of carbon dioxide (CO_2) emitted from the burning of fossil fuels, and directly from industrial processes such as cement and steel production. Fossil CO_2 includes emissions from coal, oil, gas, flaring, cement, steel, and other industrial processes. Fossil emissions do not include land use change, deforestation, soils, or vegetation.

Why Does 1.5 Degrees Celsius of Warming Matter?

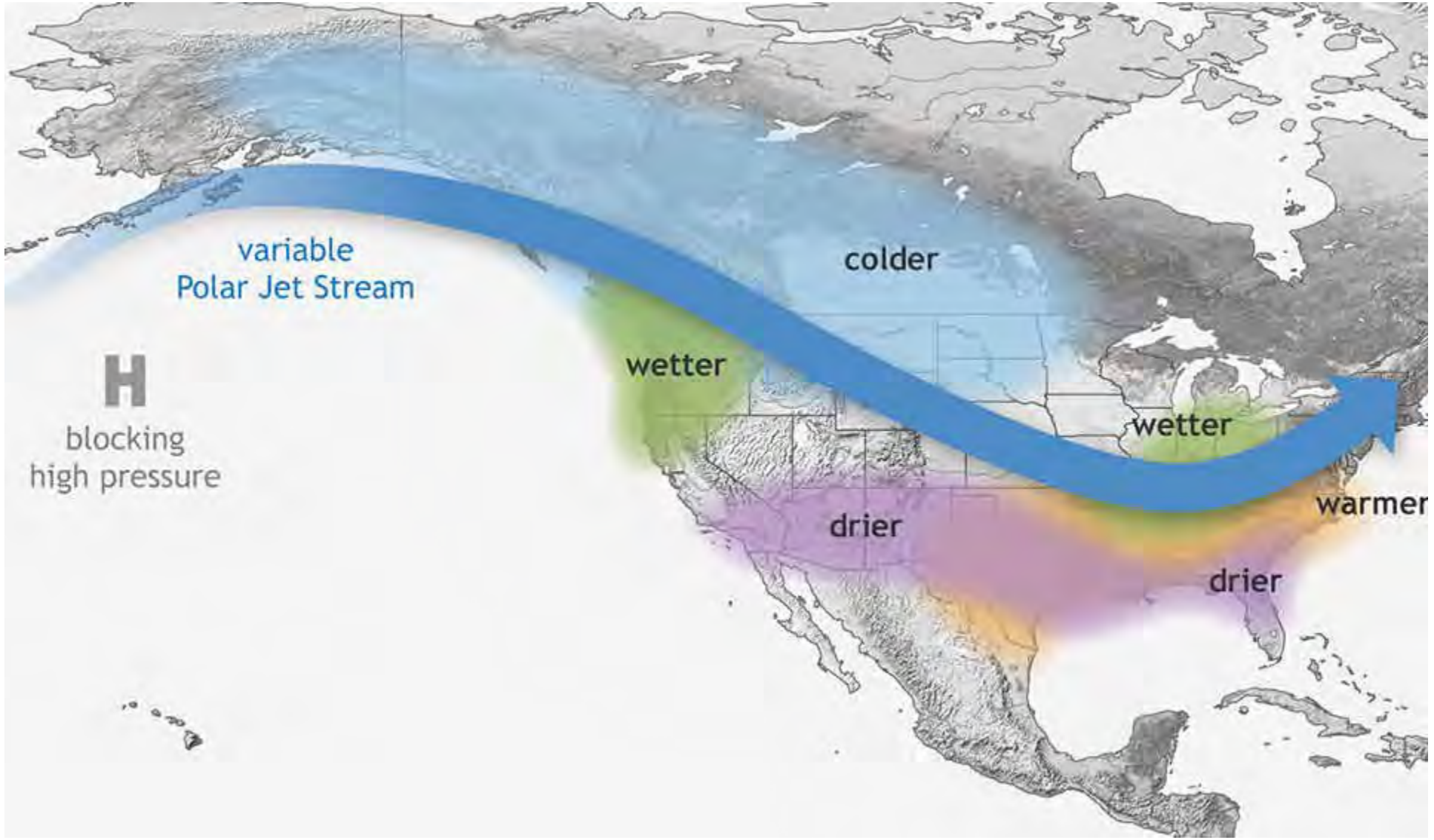
- A 2°C world will have more heat extremes, drought, extreme rain, coastal flooding, wildfires, food insecurity, vector-borne diseases, as well as economic impacts and risks to ecosystems compared to 1.5°C of warming.
- But we are on track to 3 degrees by 2100, and this represents catastrophic warming.

IPCC, https://www.ipcc.ch/sr15/

The El Niño-Southern Oscillation

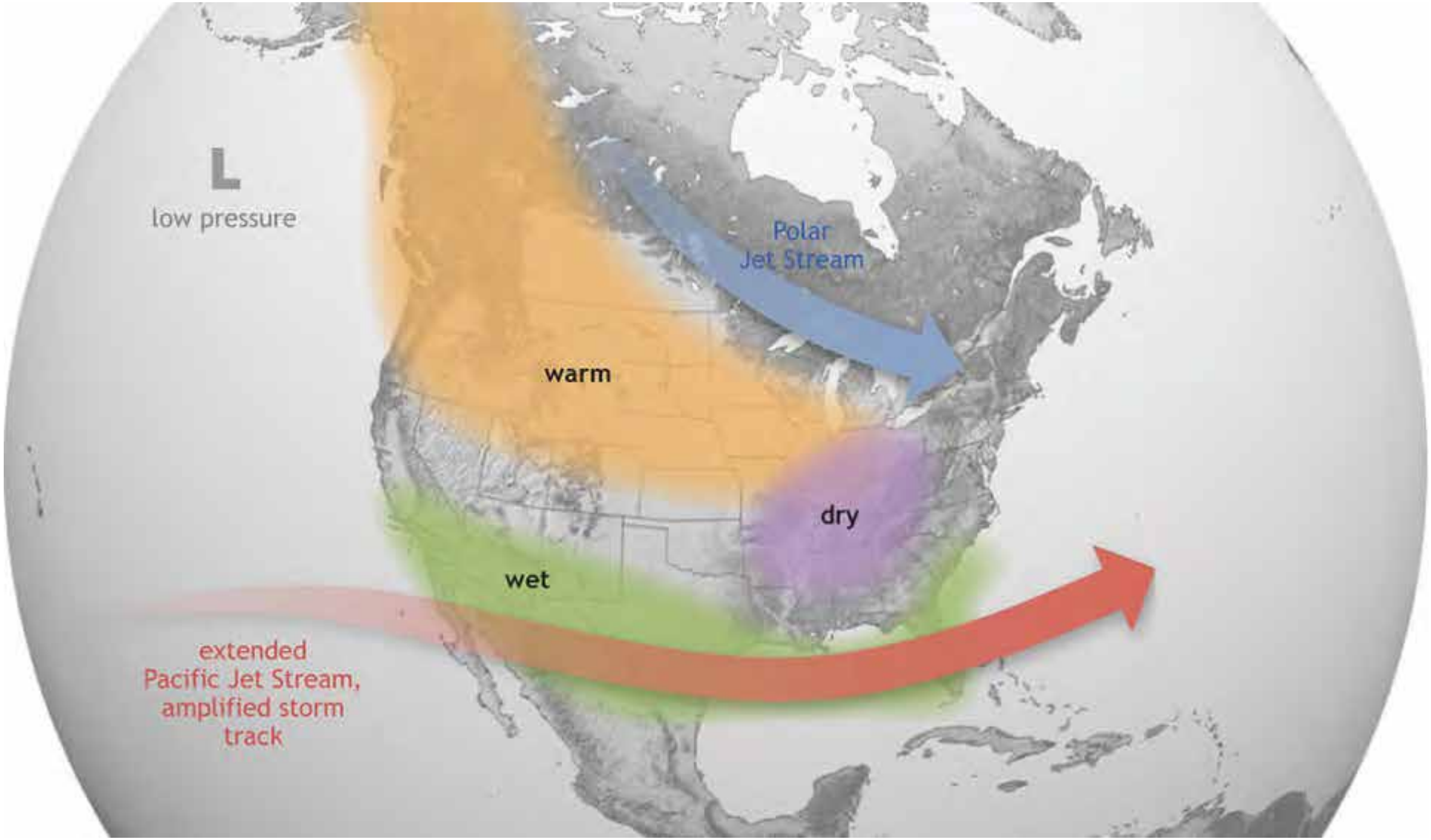
CLIMATE PATTERNS IN THE PACIFIC OCEAN THAT CAN AFFECT WEATHER WORLDWIDE

La Niña



https://oceanservice.noaa.gov/facts/ninonina.html

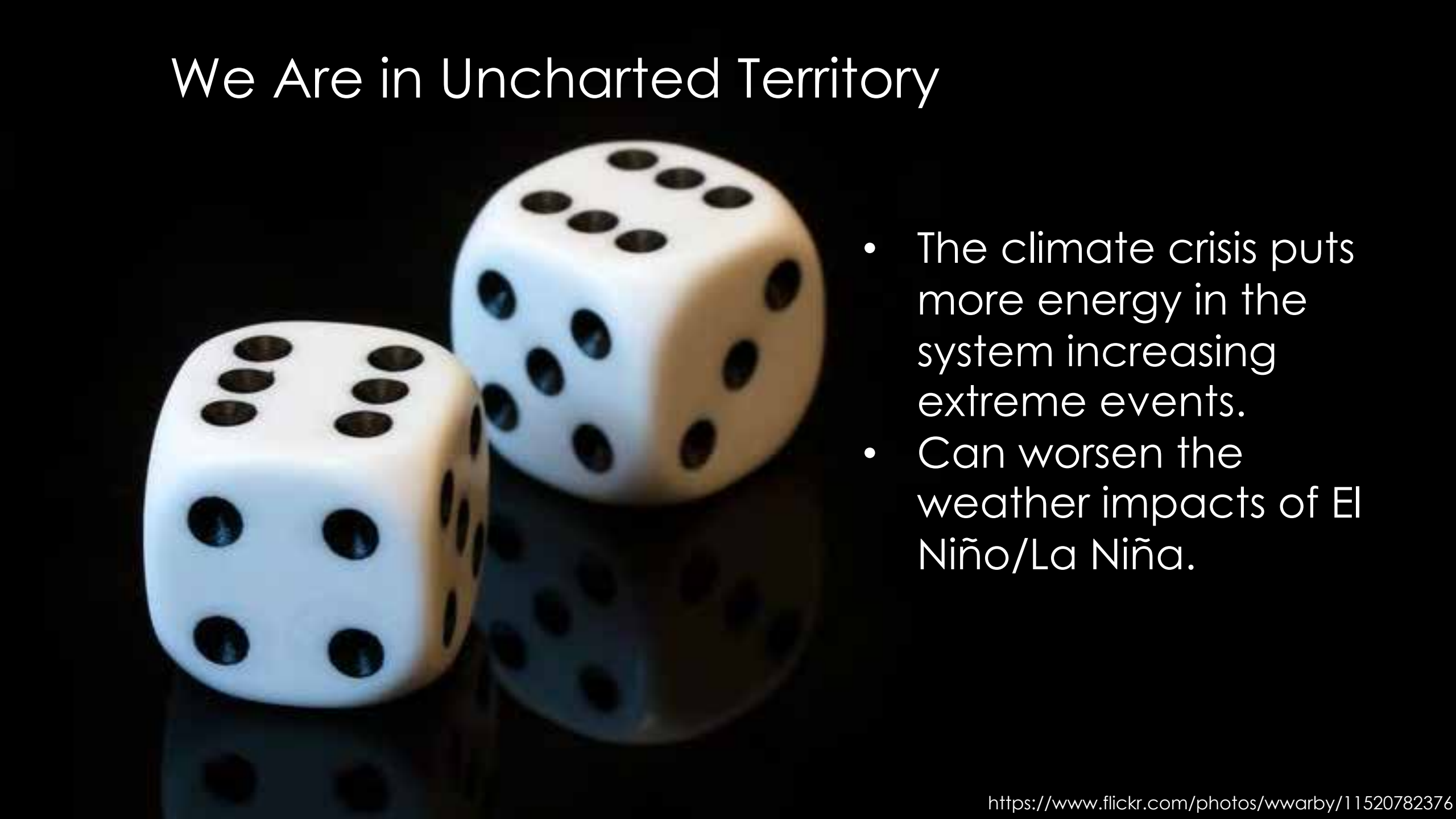
El Niño



More training on El Niño

https://oceanservice.noaa.gov/facts/ninonina.html

We Are in Uncharted Territory



- The climate crisis puts more energy in the system increasing extreme events.
- Can worsen the weather impacts of El Niño/La Niña.

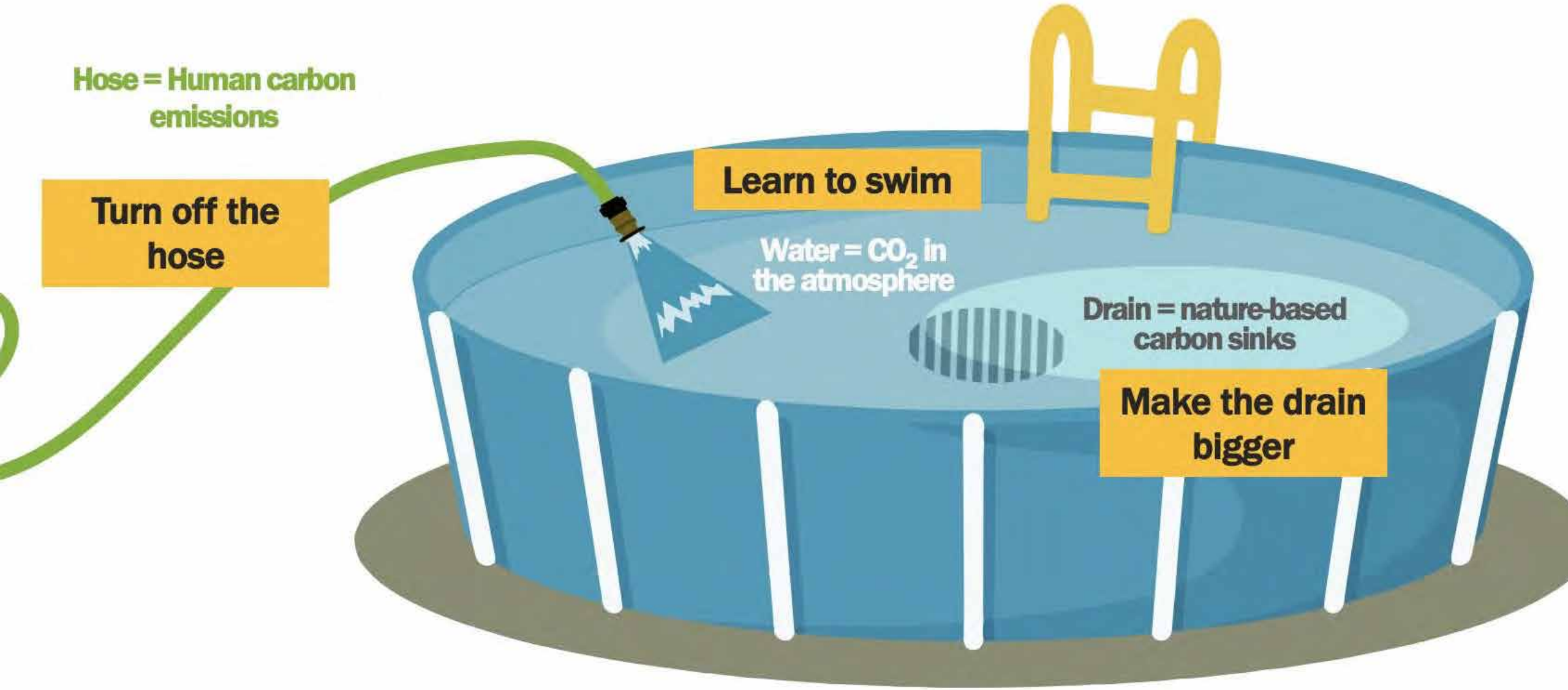
https://www.flickr.com/photos/wwarby/11520782376

Climate Overshoot

- Temporary overshoot of climate change due to a slow rate of reduction in emissions will result in changes that will take years, decades, and hundreds to thousands of years to reverse.
  - We can stabilize global surface temperatures within years of reaching net zero.
  - But it will take decades to reverse the thawing of permafrost.
  - It will take hundreds or thousands of years to slow the rise of the oceans.
  - In the meantime, the impacts of climate change will get worse.

(IPCC, 2018)

How do we tackle climate change?



https://twitter.com/KHayhoe/status/1537479370817867776/photo/1

EMISSIONS SOURCES & NATURAL SINKS

PROJECT DRAWDOWN

Source: IPCC (2014) & Global Carbon Project (2019)

Increase in global temperatures are largely a result of the burning of fossil fuels including coal, oil, and gas.

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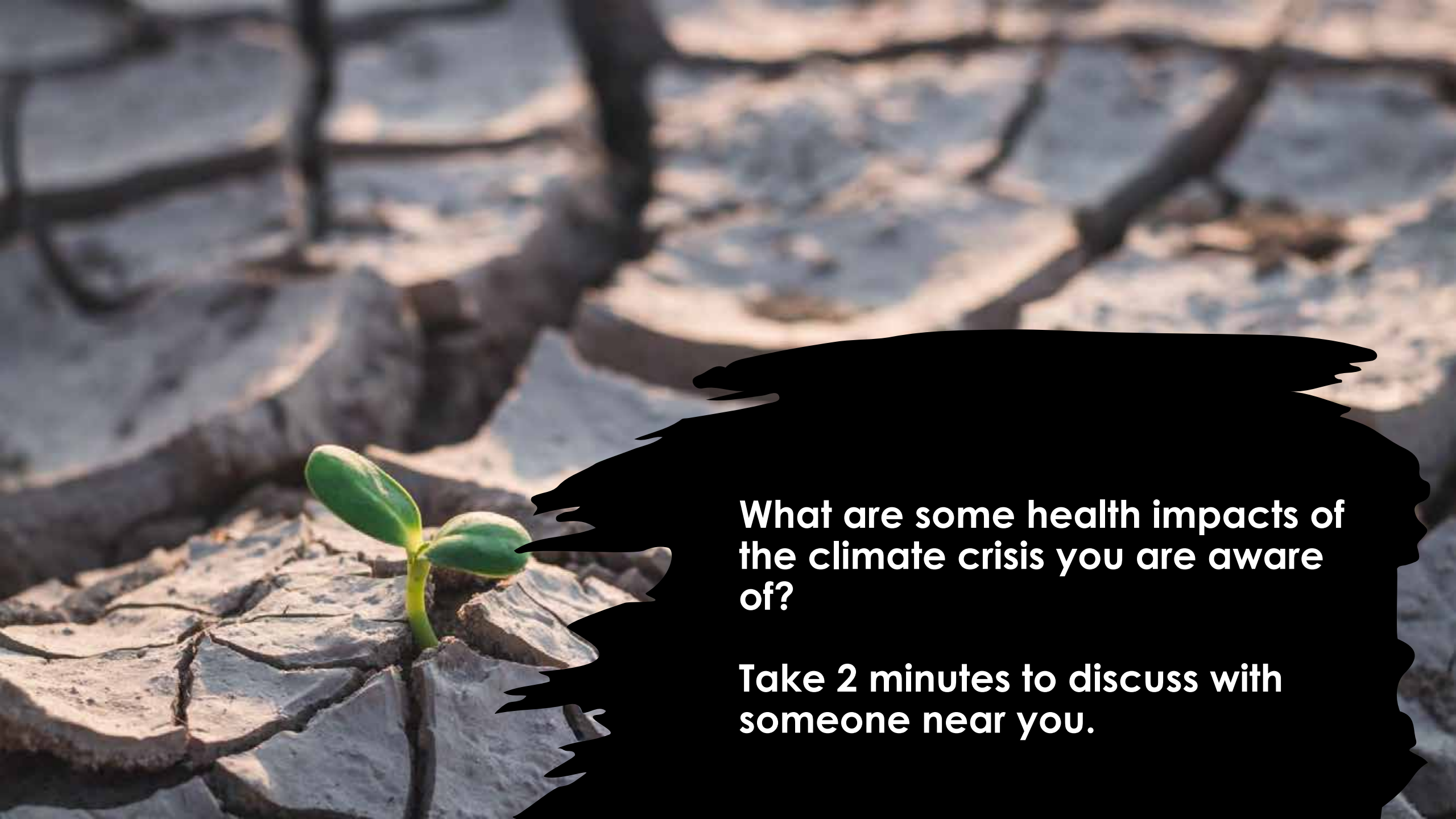
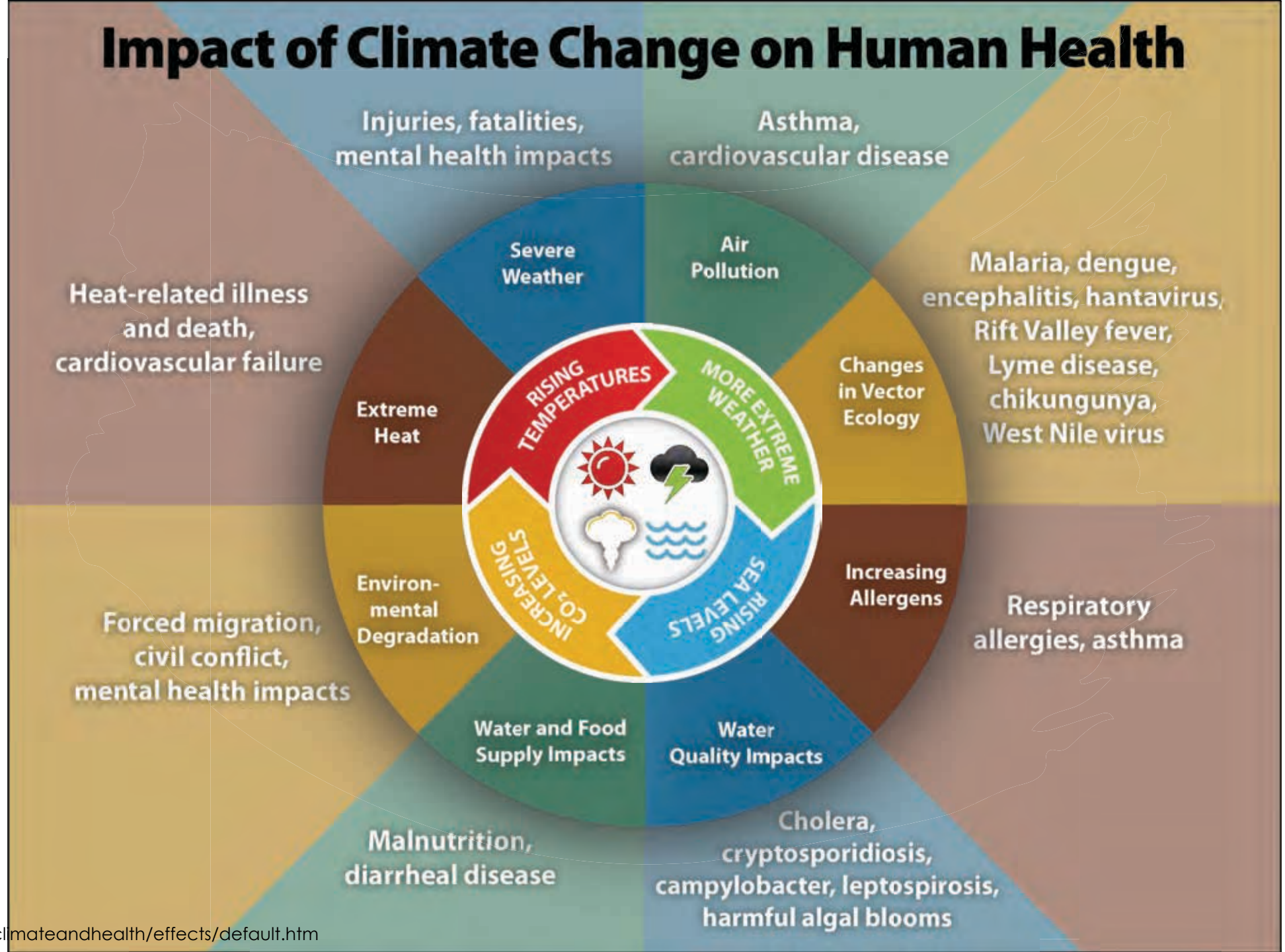
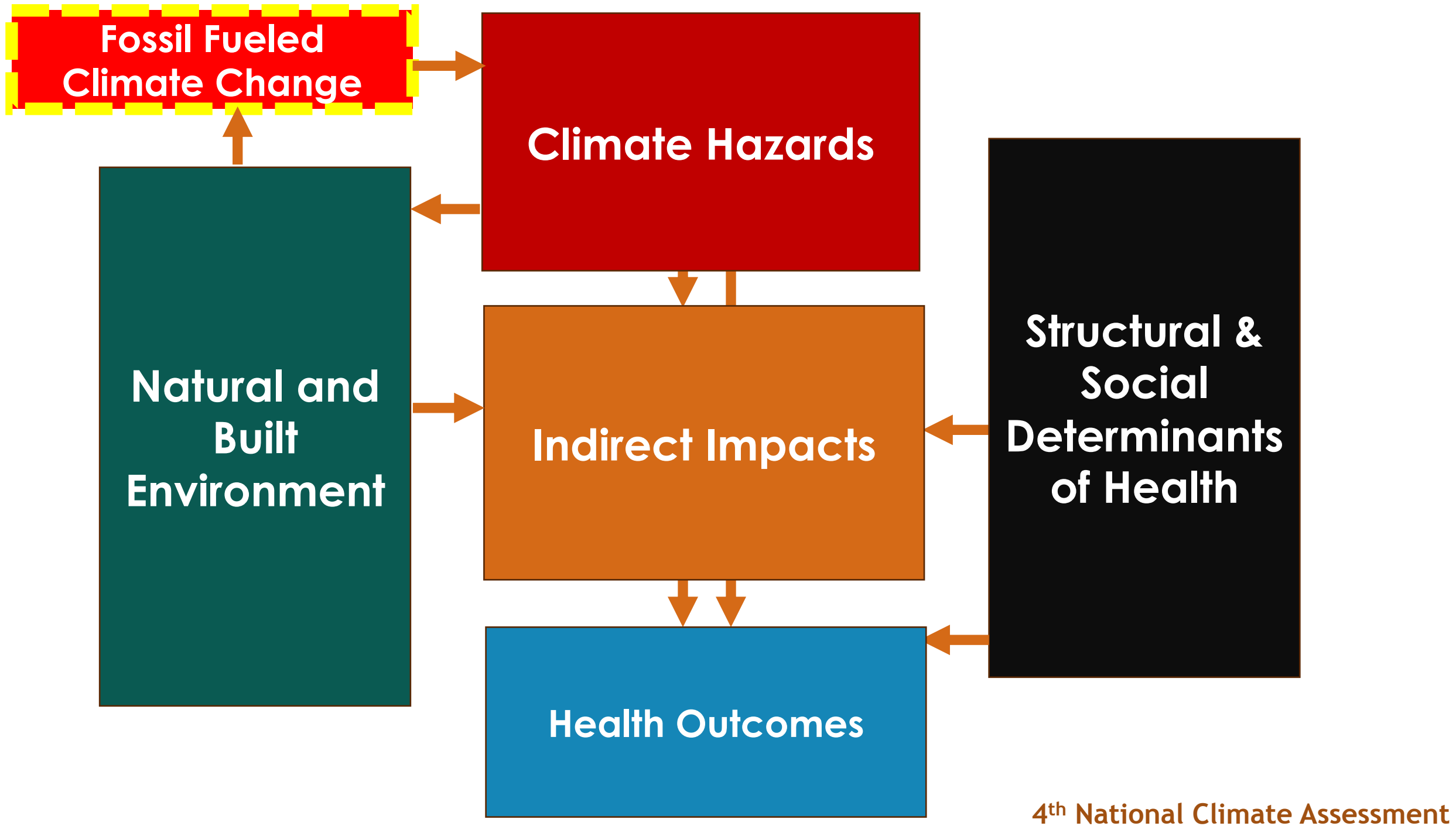


What are some health impacts of the climate crisis you are aware of?

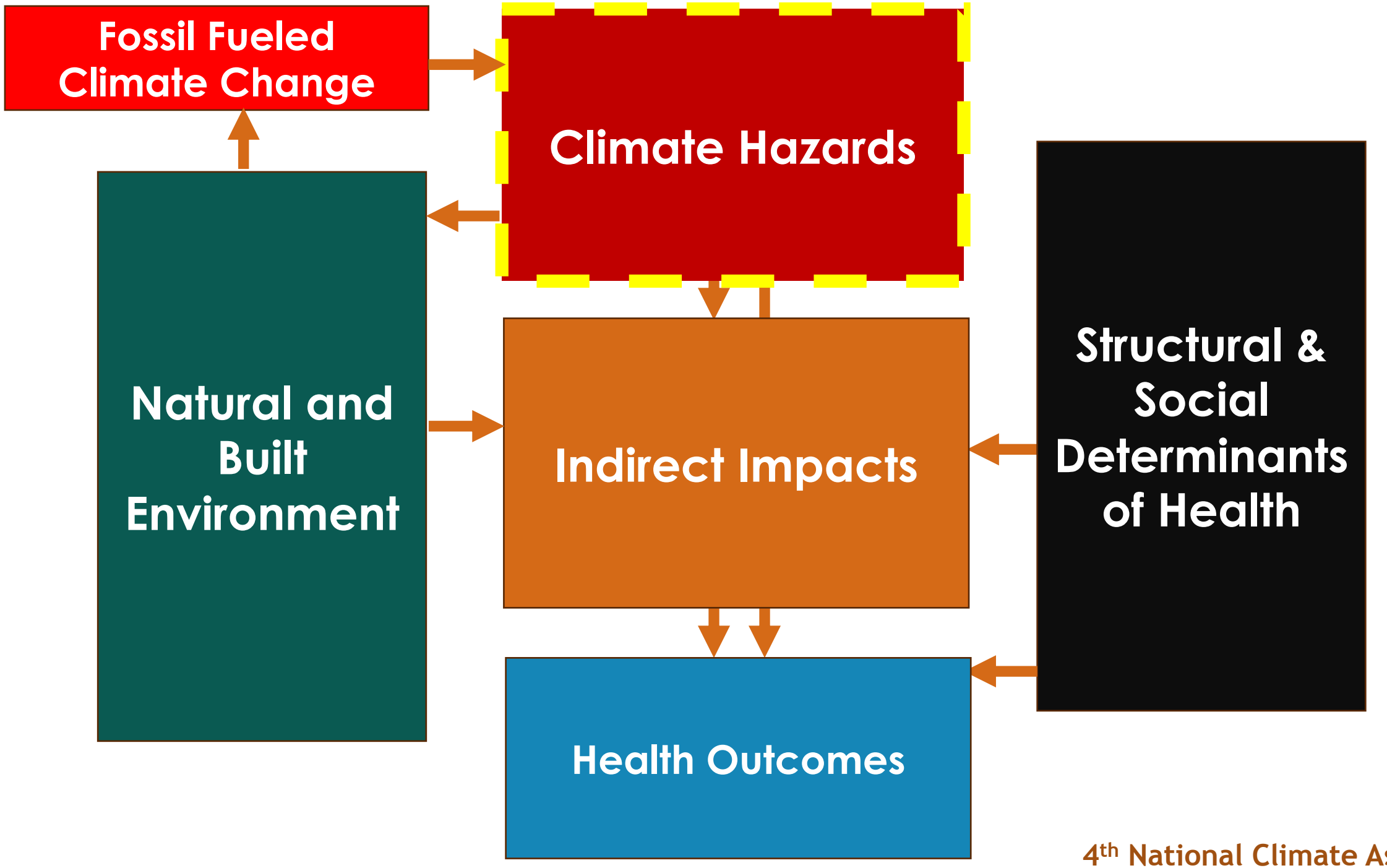
Take 2 minutes to discuss with someone near you.



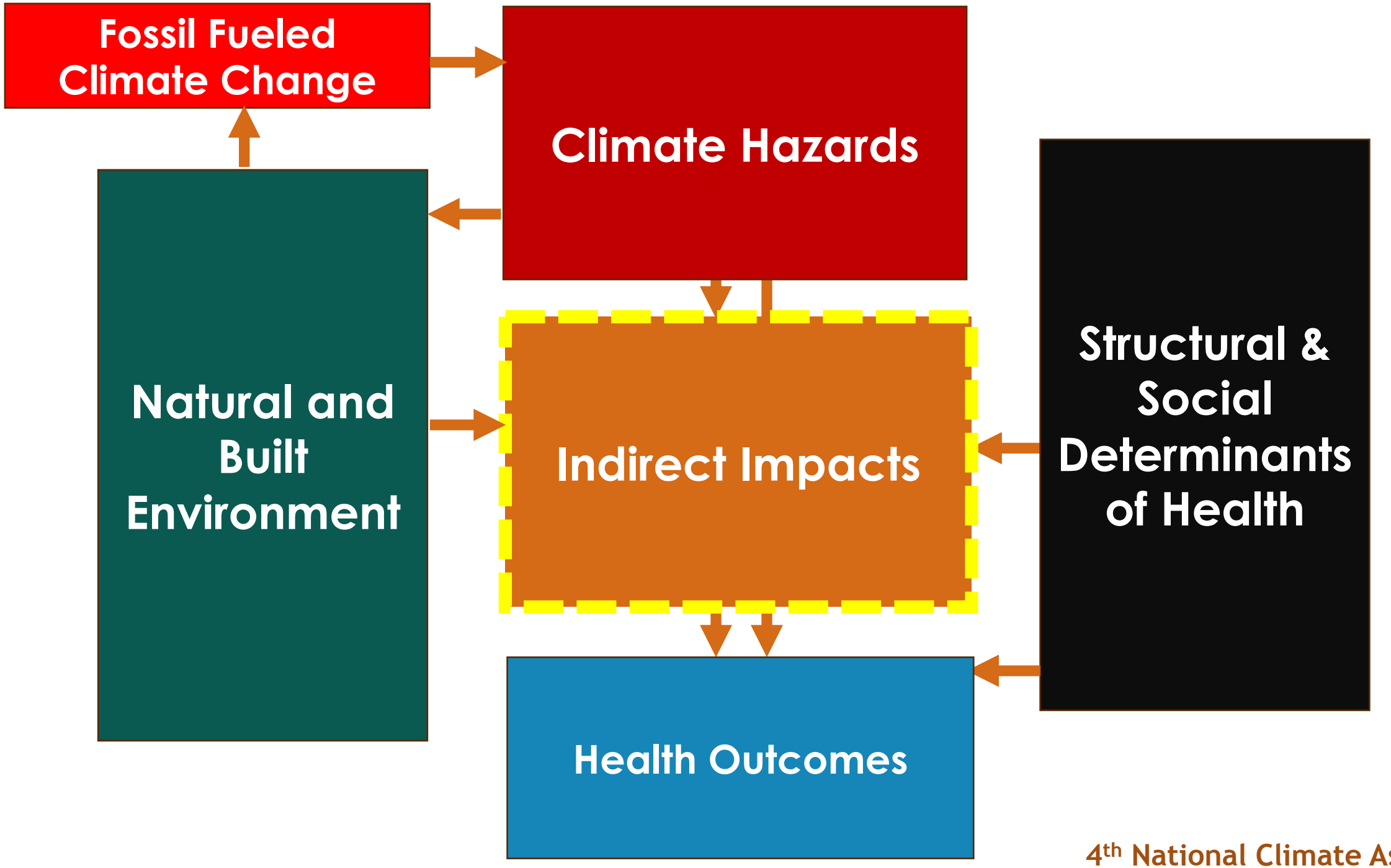
https://www.cdc.gov/climateandhealth/effects/default.htm



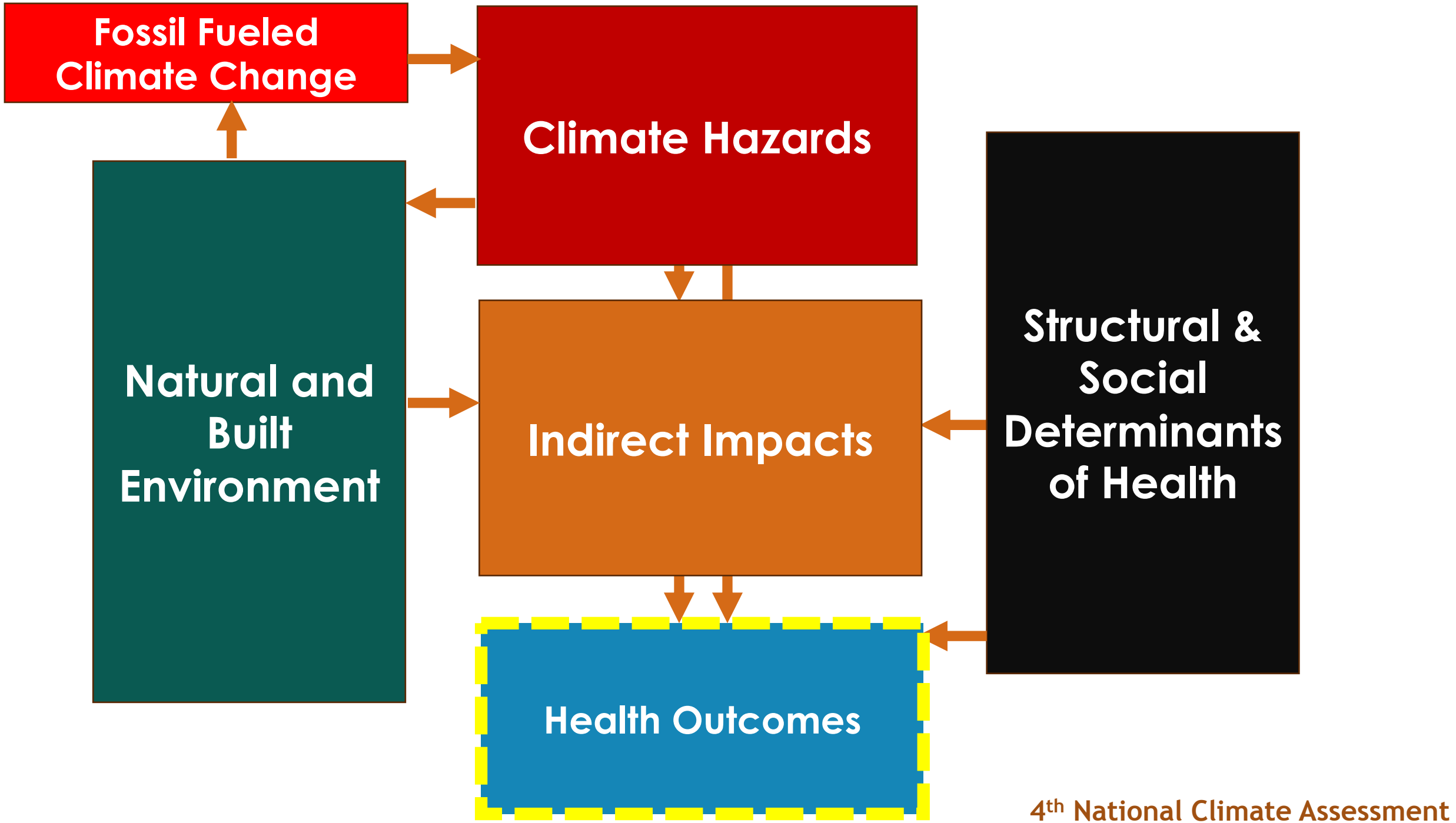
4th National Climate Assessment



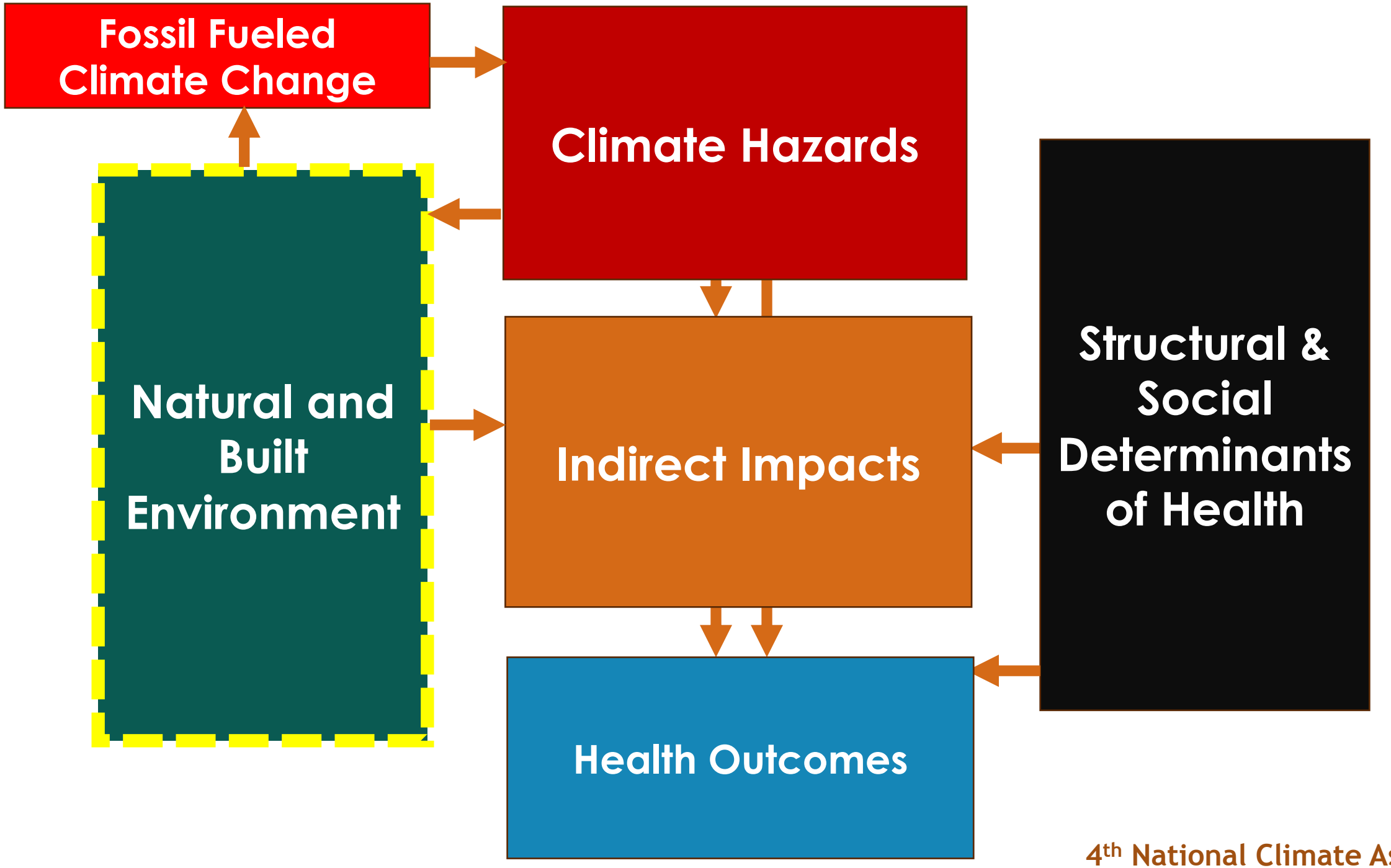
4th National Climate Assessment



4th National Climate Assessment



4th National Climate Assessment



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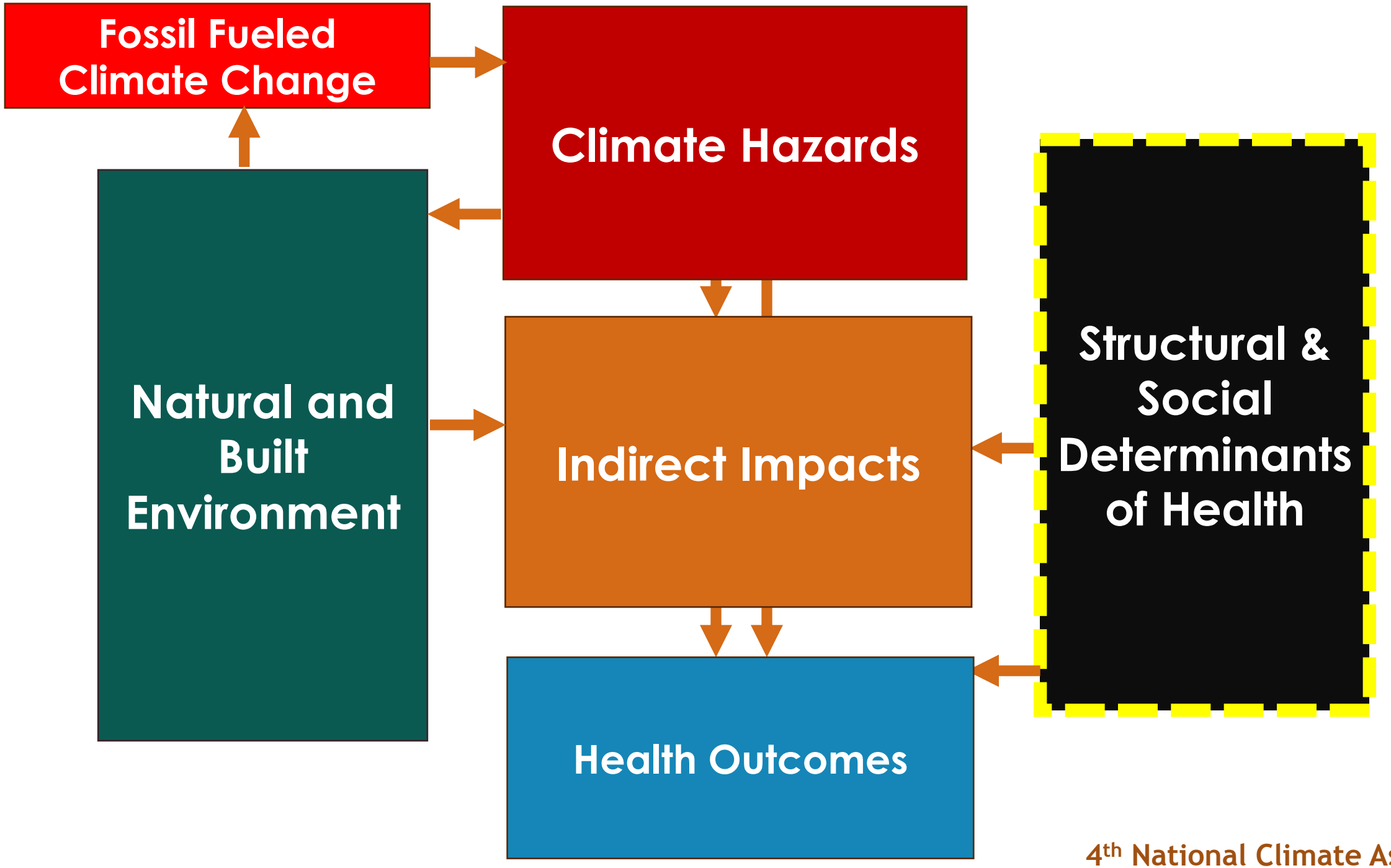
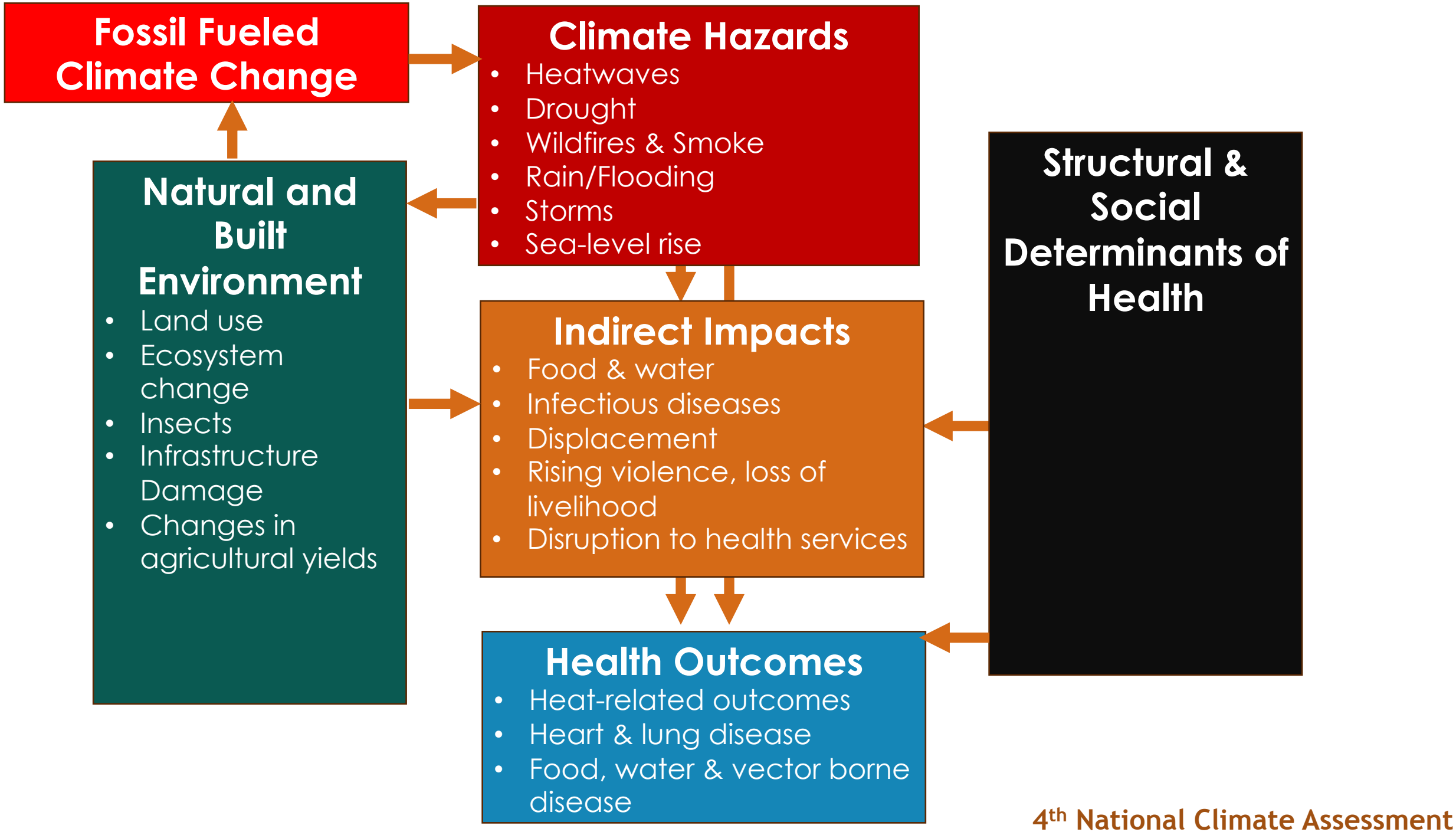


4th National Climate Assessment



4th National Climate Assessment

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What does vulnerability mean to you?

To be human is to be vulnerable.

(Clark & Preto, 2018)

Social Vulnerability

- Political, economic, and social conditions that can affect ones:
  - Sensitivity or susceptibility.
  - Exposure.
  - Adaptive capacity.
- Individual or community (e.g., neighborhood, zip code).

Socially Vulnerable Populations

- Socioeconomically disadvantaged
- Rural and urban communities
- Older people
- Immigrants and tourists
- Pregnant women
- Young people and babies (cannot vote)
- People with disabilities
- People with chronic health conditions

Climate Change is a Threat Multiplier

- The climate crisis magnifies existing injustices.
- The impacts of climate change are not evenly distributed.
- Populations that have the most disadvantages are often the most susceptible and exposed to climate hazards.
  - Have the fewest financial or institutional resources or political power to respond.
  - Often have contributed the least to the problem.

"Crucial to understanding the connections between structural racism and climate change is an acknowledgment that 'vulnerabilities' to extreme weather are not 'natural.' They are not reducible to environmental or geophysical factors. They are profoundly patterned by the ways in which we organize our societies so as to suit some people's interests at the direct and indirect expense of others."

Saley-Huggins (2018). Chapter 10 in "The fire now: anti-racist scholarship in times of explicit racial violence."

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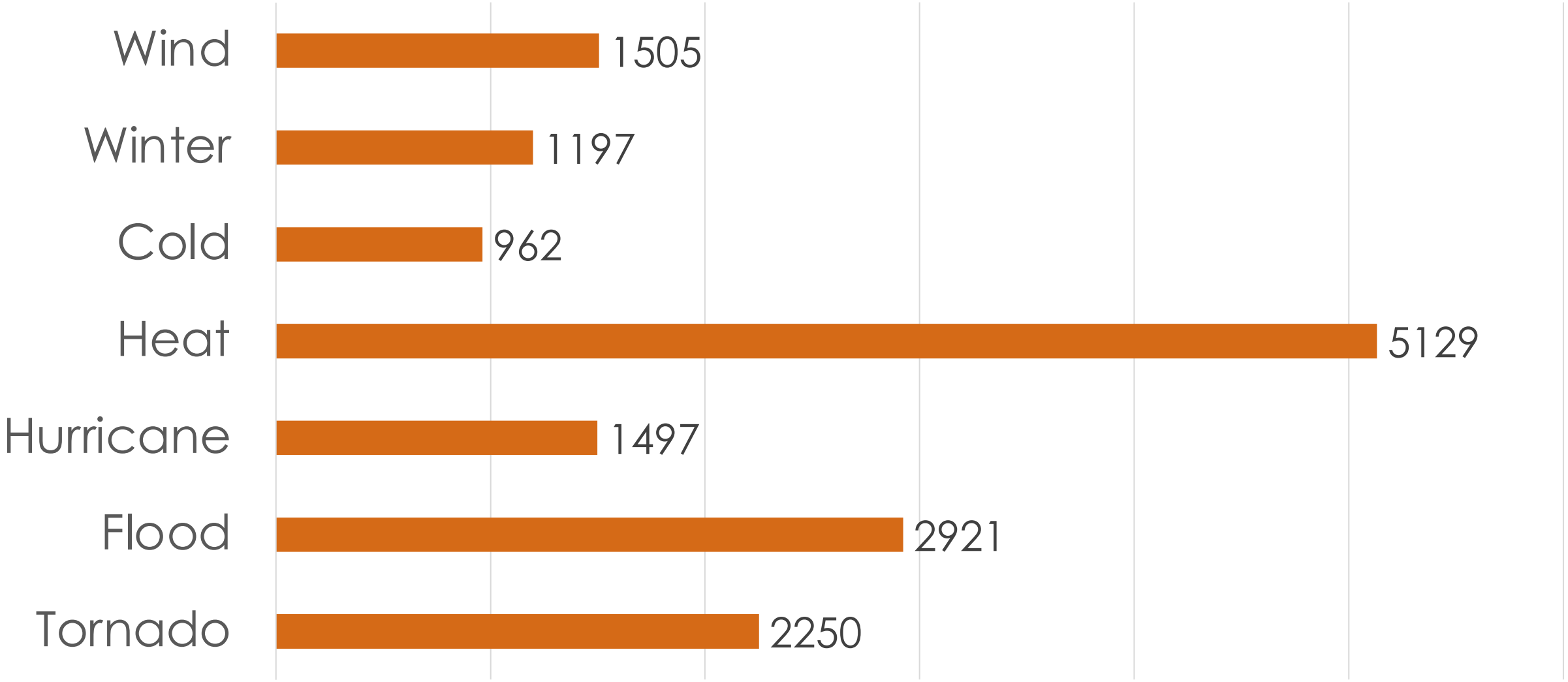
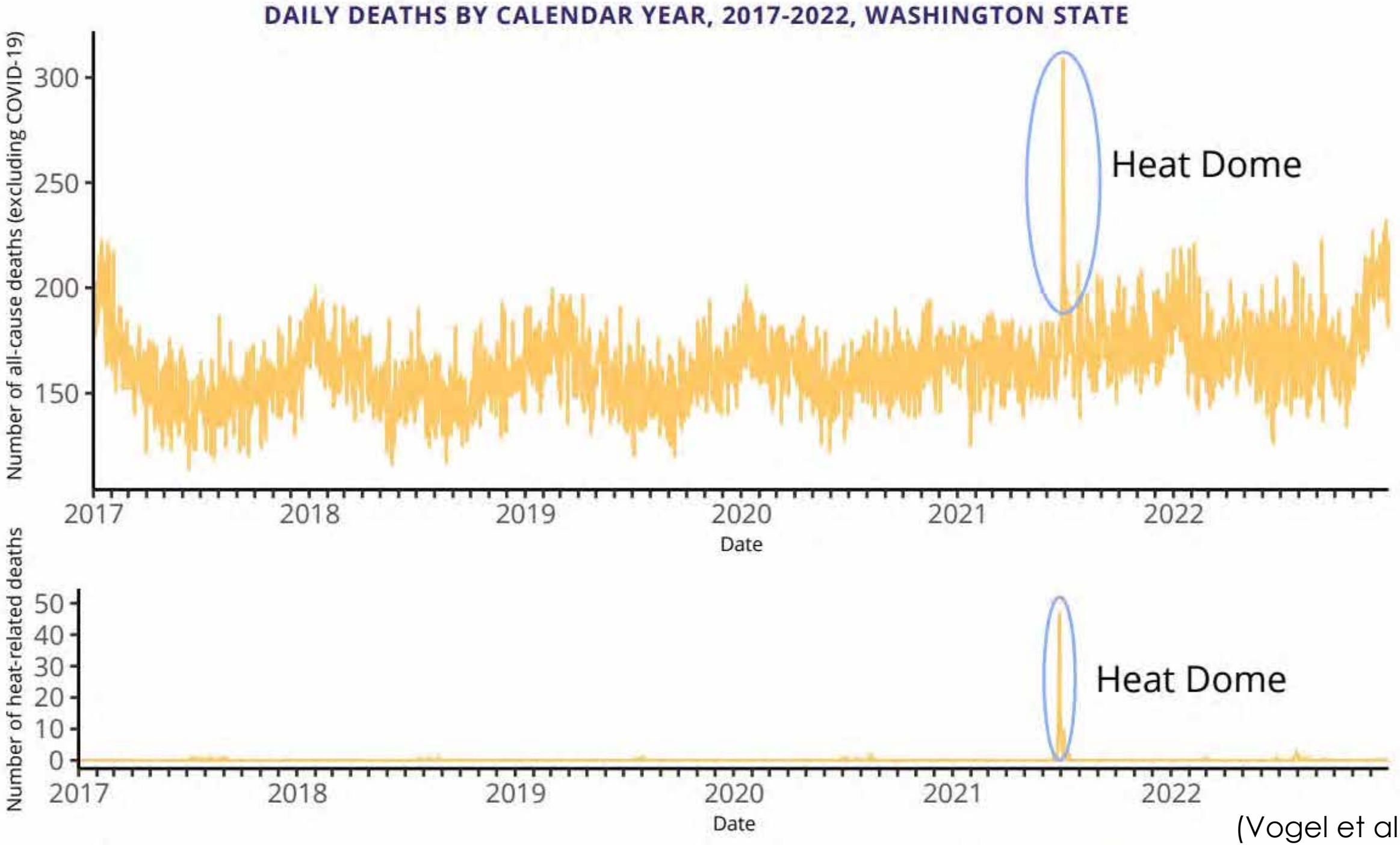
Weather Related Fatalities in the United States 1990-2022





(Vogel et al., 2023)

Heat is a “Hidden” or “Invisible” Killer

Before

Photo Credit: Runner1928, https://commons.wikimedia.org/wiki/File:Olympic_Mountains_from_Fremont,_Seattle,_in_residential_neighborhood.jpg

Heat is a “Hidden” or “Invisible” Killer

Before

After

Photo Credit: Runner1928, https://commons.wikimedia.org/wiki/File:Olympic_Mountains_from_Fremont,_Seattle,_in_residential_neighborhood.jpg

Health Effects of Heat

VIOLENCE

SELF-HARM

KIDNEY DISEASE

ADVERSE BIRTH OUTCOMES

FOOD POISONING

WORSE SCHOOL PERFORMANCE

SLEEP DISTURBANCES

WORKPLACE INJURIES

REDUCED PHYSICAL ACTIVITY

REDUCED WORK CAPACITY

Heat & Humidity

- Higher the humidity for a given temperature, the hotter you feel.
- Humidity makes evaporative cooling by sweating less effective.
- At certain temperatures, you cannot cool off.
- Heat index vs Temperature in weather forecasts

Heat & Humidity

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Heat-Related Illness

- High temperatures can cause heat rash, heat cramps & fainting, heat exhaustion, and heat stroke.
- Symptoms of heat exhaustion include muscle cramps, dizziness, headache, nausea, and vomiting.

Heat Stroke

- Heat stroke must be treated immediately!! Symptoms include:
  - Very high body temperature (above 103 degrees F).
  - Red, hot, and dry skin (no longer sweating).
  - Rapid, strong pulse.
  - Nausea, confusion, and unconsciousness.

Health Vulnerability to Heat

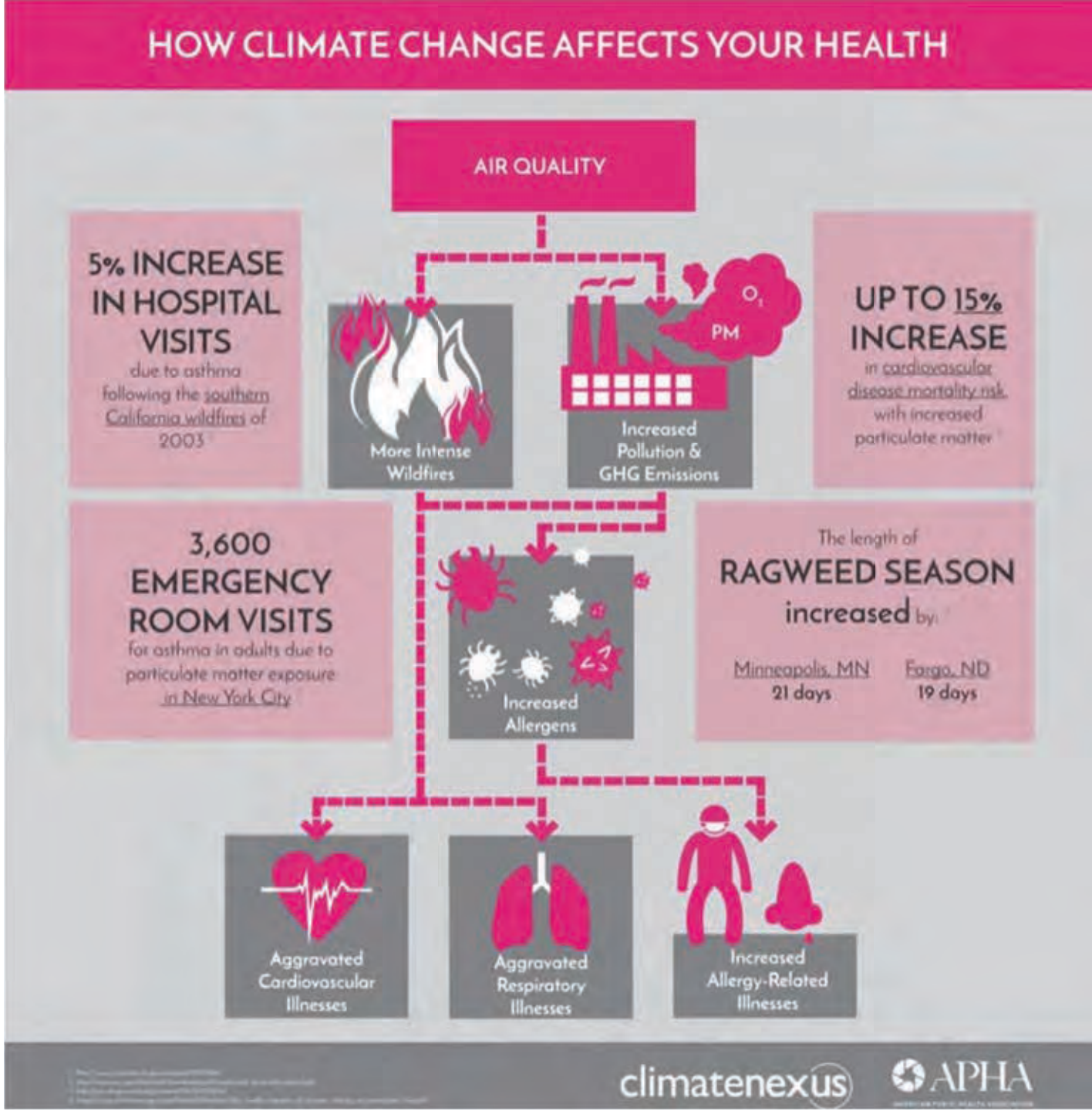
- People with impairments in perspiration and circulation for cooling
  - Elderly and infants.
  - People with chronic illnesses (heart, lung, kidney and mental health concerns).
  - Pregnant people.
  - Medications.
  - People struggling with addiction.

Social Vulnerability to Heat

- People with limited access to cooled environments, adequate hydration and/or appropriate clothing, or to advance warning:
  - Mobility or cognitively impaired.
  - Socially isolated or with limited social support.
  - Living in substandard housing (e.g., unhoused populations, renters).
  - Living in hot urban environments (e.g., urban heat islands).
  - Living in communities and regions without heat action plans or heat early warning systems or targeted risk communication.

Air Pollution

- Heat increases wildfires, smog, and pollen.
- Over 90% of the world's population lives in areas with dangerous air quality (WHO, 2018).
- 4.2 million annual deaths from lung cancer, chronic respiratory diseases, heart disease, and stroke caused by outdoor air pollution worldwide (WHO, 2018).
- Humidity and flooding leads to indoor mold growth.
- Exacerbations in asthma and allergies.



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Action on the Climate Crisis is Health Action & Congruent with the Values of SEIU 775

- **Accountability –** To win, we must hold those in power responsible and be accountable to each other.

Action on the Climate Crisis is Health Action & Congruent with the Values of SEIU 775

- **Equity**- We will lift up the voices of all caregivers, especially those from communities with least access to power.

Healthcare Professionals Have an Important Role in Both Mitigation and Adaptation

Mitigation (Primary Prevention)

- Reducing greenhouse gas emissions (methane and carbon dioxide)

Adaptation

- Reducing the impact of the climate crisis on people and ecosystems

Your Voice, Expertise, and Leadership Matters

- We need to reduce fossil fuels by 50% by 2030, but fossil fuel companies are instead expanding fossil fuels.
- Shift a focus on fossil fuels, as it is necessary for limiting warming to 1.5 degrees Celsius.
- Advocate for a just transition to clean energy (learn about Green New Deal policies)
- Protect and expand democratic spaces
  - Restore and expand voting rights, get money out of politics, protect the right to dissent and protest.

Mitigation

Policy	Clean Energy	Sustainability	Teach
• Work with organizations to promote local and federal government policies	• Clean electricity and green transportation and buildings.	• Promote sustainability practices at home and work.	• Teach clients that climate change is real and has an impact on health.

Adaptation

Policy	Planning	Knowledge	Teach
• Prepare for and reduce the impact of the climate crisis.	• Ensure clients have disaster preparedness and evacuation plans.	• Join climate & health-oriented groups to stay informed.	• Teach clients how to cope with heat & air quality.

Planning for Heat and Air Quality Events

- Systematize.
- Examine home characteristics.
- Arrange alternative plans if air conditioning is unavailable.
  - Cooling shelter, library, mall to cool off.
  - Fan plus ice, wet rags on back of net, mist with water
  - Use curtains or shading on windows (especially south-facing).
- Have a plan for checking on clients at least two times, one time in the evening.

King county has downloadable pamphlets in multiple languages
https://kingcounty.gov/en/dept/dph/health-safety/safety-injury-prevention/emergency-preparedness/personal-preparedness/hot-weather

Planning

- Consider medications that:
  1. Are sensitive to temperature (e.g., insulin).
     a) Store in a place that won't get too hot.
  2. Make the client more sensitive to heat, such as by impairing the body's ability to sweat and regulate temperature.
     a) Blood pressure, allergy and cold, antidepressants and antipsychotics, Parkinson's disease medications.
  3. Make the client more sensitive to dehydration.
     a) Dehydration for patients on lithium can lead to toxic effects.

King county has downloadable pamphlets in multiple languages
https://kingcounty.gov/en/dept/dph/health-safety/safety-injury-prevention/emergency-preparedness/personal-preparedness/hot-weather

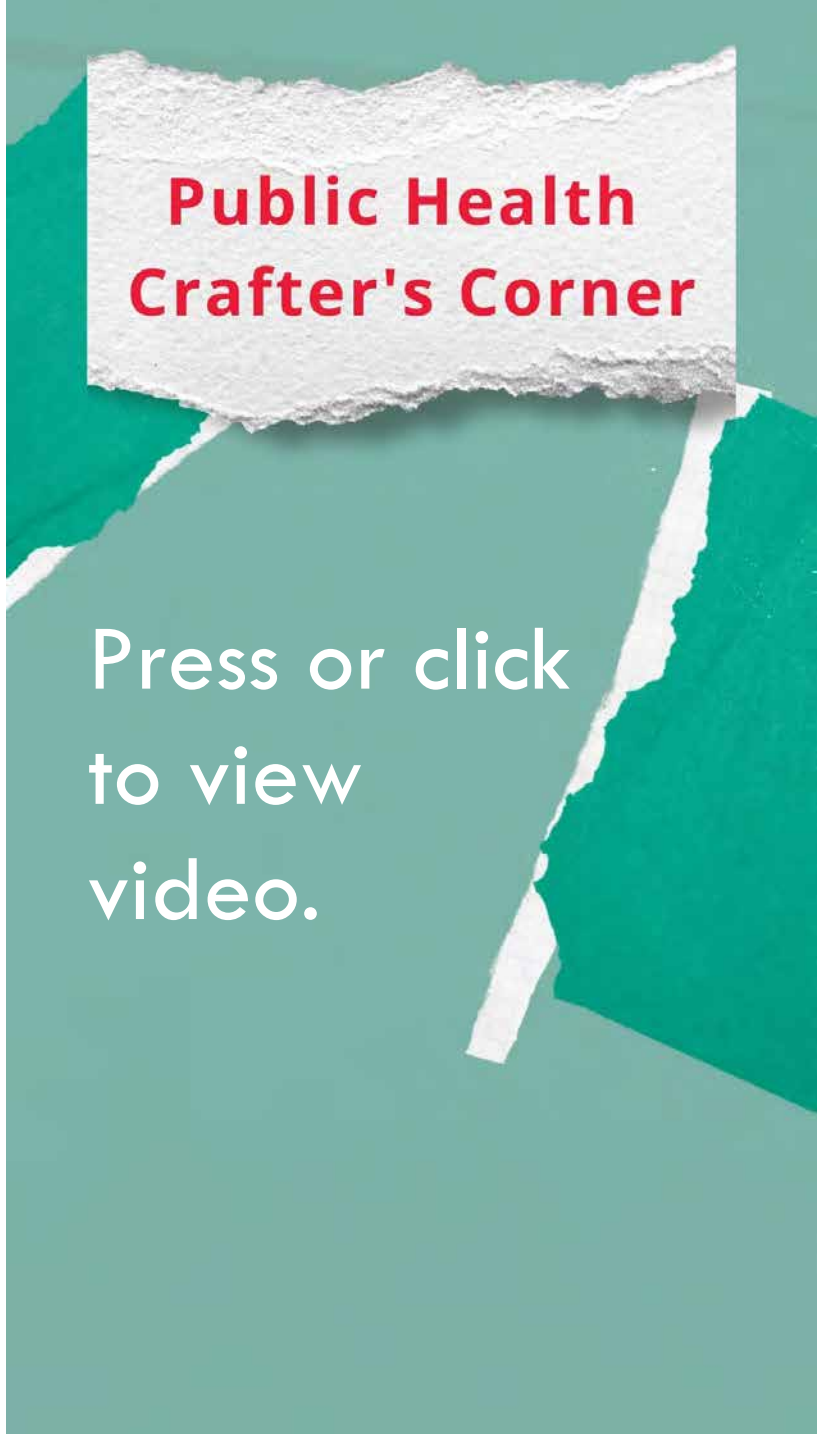
During Heat Events

- Be extra vigilant if nighttime temperatures > than 75 degrees
- Signs of heat exhaustion might be harder to identify for some clients.
  - Fatigue, dry mouth, headache might be difficult to detect.
  - Less sweating.
- Increase water intake during extreme heat.
  - If a client has restrictions on water intake or diuretics (“water pills”), consult a health care provider.
- Use sunscreen when going outside, seek shade.
- Temperature can increase agitation and confusion; address physical needs first.

How to reduce the heat inside (without AC)

- Open doors and windows for cross-ventilation.
- Use curtains during day, open shades at night.
- Trap indoor heat.
- Turn off lights.
- Limit electronics.
- Avoid cooking with oven & stove.

An example



https://publichealthinsider.com/2022/07/26/no-ac-cant-open-your-windows-heres-how-to-stay-cool/

Another Example

Wildfire Smoke

- Wildfire smoke is a major contributor to air pollution and includes thousands of pollutants.
- Fine particulate matter ($PM_{2.5}$) from wildfire smoke contributes to 339,00 deaths per year globally.
- Increased hospitalizations and emergency department visits for heart and lung disease.

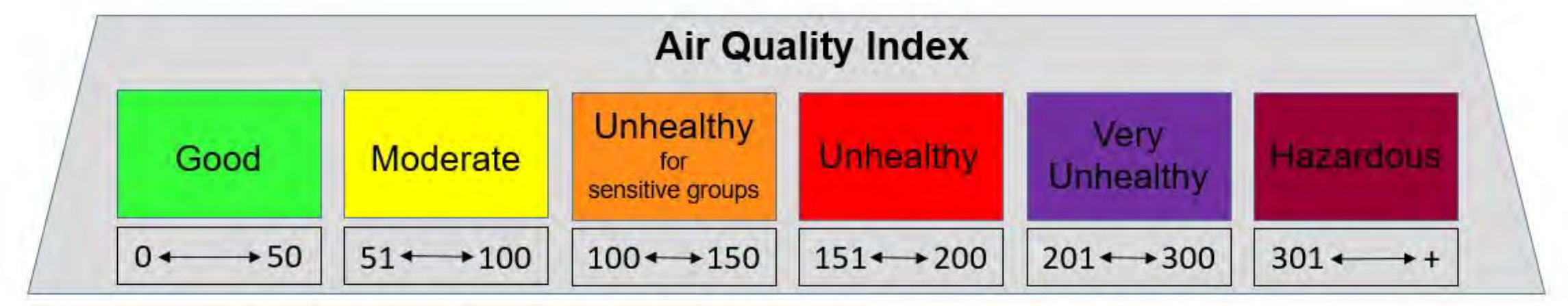
Joseph et al. (2020). Evidence on the use of indoor air filtration as an intervention for wildfire smoke pollutant exposure. A summary for health departments. CDC. https://www.cdc.gov/air/wildfire-smoke/socialmedia/wildfire-air-filtration-508.pdf

To Prepare for Wildfire Smoke Events

- Set up air quality alerts and notifications (AirNow mobile App, Sierra Club has a phone alert).
- Plan for air filtration:
  - High Efficiency Particulate Air (HEPA) air filters are effective.
  - Electronic Filtration technologies are moderately effective, but some produce ozone, a lung irritant.
  - DIY air filtration works - but take caution.
- Window air conditioners with a single hose vented out the window should not be used in smoky conditions.

https://ww2.arb.ca.gov/list-carb-certified-air-cleaning-devices

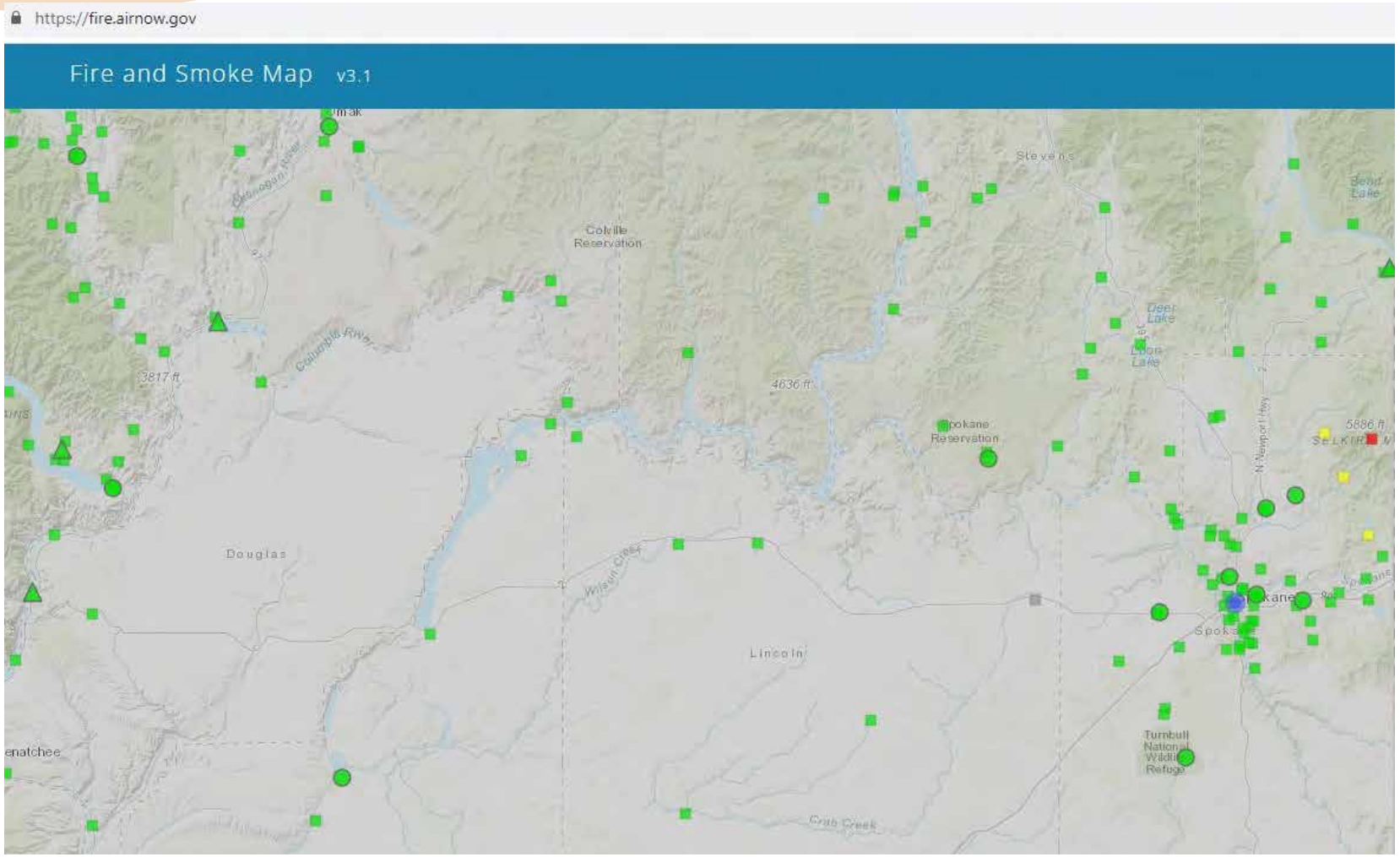
https://www.cdc.gov/air/wildfire-smoke/socialmedia/wildfire-air-filtration-508.pdf



https://document.airnow.gov/air-quality-guide-for-particle-pollution.pdf

https://www.cdc.gov/nceh/features/air-quality-awareness/index.html

Air Quality Alerts



- Purple Air monitors now integrated into the AirNow website.

During Wildfire Smoke Events

- Stay indoors and keep windows and doors closed.
- Make sure indoor air is not being recycled from outside.
- Avoid activities that create more indoor and outdoor air pollution, such as frying foods, sweeping, vacuuming, and using gas-powered appliances.
- Keep room clean with damp cloth or mop.
- A N95 can reduce exposure to fine particulate but not hazardous gases. People with lung, hear or chronic illnesses should consult a health care provider first.

https://doh.wa.gov/community-and-environment/air-quality/smoke-fires
https://ww2.arb.ca.gov/list-carb-certified-air-cleaning-devices

Image by kjpargeter on Freepik

Talk about Climate Crisis with Friends, Family, Clients, and Elected Leaders

- Identify what is important to you about climate change.
- Find out what is important to others about climate change and talk about your shared interests.
- Fear about climate change usually won't motivate people.
- We need to envision how taking action on climate change can make our lives better.

Mental Health Impacts

- Acute Stress Disorder, Post-Traumatic Stress Disorder
- Hopelessness
- Anger
- Grief
- Depression
- Anxiety
- Decreased quality of life
- Impaired coping: increased substance abuse, violence, domestic violence

Olivia, Youth Plaintiff in Held vs. State of Montana

Self Care

Validation

You are not alone: all of your climate emotions are normal and valid. "Despair and fear are not inherently bad. Hope and optimism are not inherently good."

Breathe

Notice and slow down your breathing. Slowly inhale and slowly exhale. Start with a minute and gradually add more time each day. Get more breathing tips here.

News

Monitor your news consumption, both time and content. Seek out inspiring, positive stories of action and healing.

https://www.climatementalhealth.net/resources

Take a Deep Dive:

- The Public Voices Fellowship on the Climate Crisis: https://climatecommunication.yale.edu/the-public-voices-fellowship-on-the-climate-crisis/ (applications open in January of 2024)
- Climate Health Organizing Fellows Program via the Cambridge Health Alliance

Plug Into Climate & Health Networks:

- Washington Physicians for Social Responsibility
- 350
- Third Act
- Sierra Club
- Healthcare without Harm

Thank You!

Claire.Richards@wsu.edu

Image: Elliott Stoller

References

- Vogel, J., J. Hess, Z. Kearl, K. Naismith, K. Bumbaco, B.G. Henning, R. Cunningham, N. Bond. 2023. In the Hot Seat: Saving Lives from Extreme Heat in Washington State. Report prepared by the University of Washington's Climate Impacts Group, UW's Center for Health and the Global Environment, the Washington State Department of Health, the Office of the Washington State Climatologist, and Gonzaga University's Center for Climate, Society & the Environment. https://cig.uw.edu/wp-content/uploads/sites/2/2023/06/CIG-Report-Heat-202-pages.pdf